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Report No.: 1506RSU01701
Report Version: V01
Issue Date: 07-04-2015

# MEASUREMENT REPORT
## FCC PART 15.407 & RSS-247

| | |
|---|---|
| **FCC ID:** | 2ABX8SH-000000009 |
| **IC:** | 12219A-00000000009 |
| **APPLICANT:** | Zhejiang shenghui lighting Co., Ltd. Shanghai Branch |

| | |
|---|---|
| **Application Type:** | Certification |
| **Product:** | Wireless Subwoofer Adapter |
| **Model No.:** | C01-BR30NA AMP |
| **Brand Name:** | Sengled |
| **FCC Classification:** | Unlicensed National Information Infrastructure (UNII) |
| **FCC Rule Part(s):** | Part 15.407 |
| **IC Rule(s):** | RSS-247 Issue 1 |
| **Test Procedure(s):** | ANSI C63.10-2013, KDB 789033 D02v01 |
| **Test Date:** | Jun.06 ~ 25, 2015 |

Reviewed By : Robin Wu
( Robin Wu )

Approved By : Marlin Chen
( Marlin Chen )

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

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 789033 D02v01. 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 |
|---|---|---|---|
| 1506RSU01701 | Rev. 01 | Initial report | 07-04-2015 |
| | | | |

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Description Page

## §2.1033 General Information

| | |
|---|---|
| **Applicant:** | Zhejiang shenghui lighting Co., Ltd. Shanghai Branch |
| **Applicant Address:** | Rm. 801, 1st Xinye Building,388 Tianlin Rd., Caohejing Development Zone, Shanghai, 200233, China |
| **Manufacturer:** | ZHEJIANG SHENGHUI LIGHTING Co., Ltd |
| **Manufacturer Address:** | South Jiachuang Rd., Xiuzhou Industrial Park Jiaxing, Zhejiang 314015 P.R. 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 FCC Registration No.:** | 809388 |
| **MRT IC Registration No.:** | 11384A |
| **FCC Rule Part(s):** | Part 15.407 |
| **IC Rule(s):** | RSS-247 |
| **Model No.:** | C01-BR30NA AMP |
| **FCC ID:** | 2ABX8SH-000000009 |
| **IC:** | 12219A-00000000009 |
| **Test Device Serial No.:** | N/A ☐ Production ☒ Pre-Production ☐ Engineering |
| **FCC Classification:** | Unlicensed National Information Infrastructure (UNII) |

### 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.**

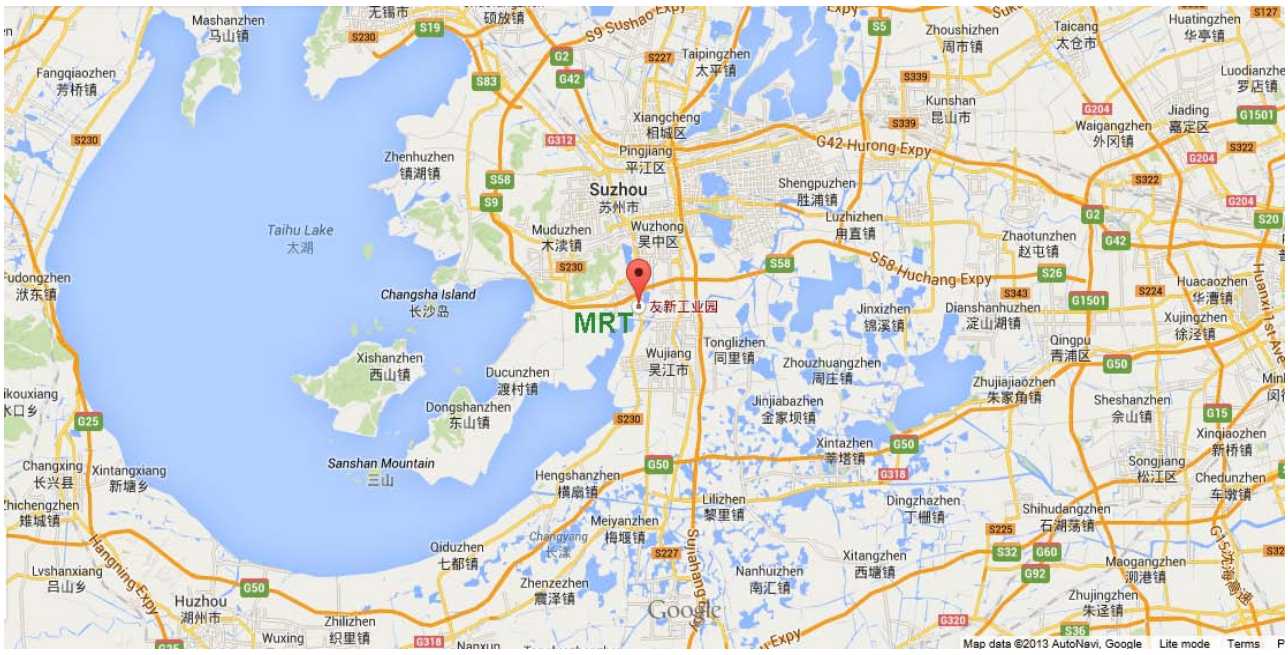
# 1. INTRODUCTION

## 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 C63.4-2014 on September 30, 2013.



# 2. PRODUCT INFORMATION

## 2.1. Equipment Description

| | |
|---|---|
| Product Name | Wireless Subwoofer Adapter |
| Model No. | C01-BR30NA AMP |
| Frequency Range | 5150~5250MHz, 5725~5850MHz |
| Max Conducted Output Power | 13.18dBm |
| Type of Modulation | QPSK |

## 2.2. Operation Frequency / Channel list

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---|---|---|---|---|---|
| 01 | 5180 MHz | 02 | 5210 MHz | 03 | 5240 MHz |
| 04 | 5736 MHz | 05 | 5762 MHz | 06 | 5814 MHz |

## 2.3. Description of Available Antennas

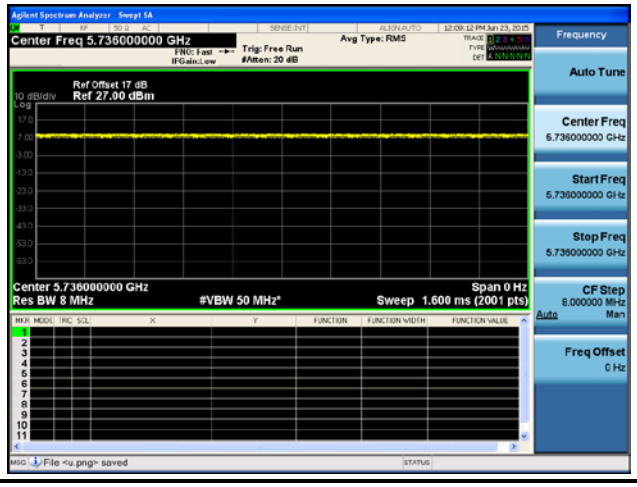
| Antenna No. | Antenna Type | Frequency Band (GHz) | Manufacturer | Tx Paths | Max Peak Gain (dBi) |
|---|---|---|---|---|---|
| Antenna A | PCB Antenna | UNII-1 | SMSC Inc. | 1 | 3.0 |
| | | UNII-3 | | 1 | 3.2 |
| Antenna B | PCB Antenna | UNII-1 | SMSC Inc. | 1 | 3.0 |
| | | UNII-3 | | 1 | 3.2 |

## 2.4. Device Capabilities

This device contains the following capabilities:

5GHz WLAN (UNII).

**Note:** 5GHz (NII) operation is possible in 20MHz channel bandwidth. The maximum achievable duty cycle was determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = average per the guidance of Section B)2)b) of KDB 789033 D02v01. 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 cycle is as follow:

| Duty Cycle Plot | Duty Cycle Level |
|---|---|
|  | 100% |

## 2.5. Test Configuration

The **Wireless Subwoofer Adapter FCC ID: 2ABX8SH-000000009** was tested per the guidance of KDB 789033 D02v01. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

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

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

## 2.7. 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.

# 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 789033 D02v01 were used in the measurement of the **Wireless Subwoofer Adapter FCC ID: 2ABX8SH-000000009.**
**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 7.10.

## 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 1-40GHz 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 **Wireless Subwoofer Adapter** is **permanently attached.**
- There are no provisions for connection to an external antenna.

**Conclusion:**

The **Wireless Subwoofer Adapter FCC ID: 2ABX8SH-000000009** 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 | MRTSUE06045 | 1 year | 2015/11/14 |

Radiated Emission

| 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 | Schwarzbeck | AP18G40 | MRTSUE06121 | 1 year | 2016/04/15 |
| Preamplifier | Agilent | 83017A | MRTSUE06019 | 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 | MRTSUE06048 | 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 | MRTSUE06046 | 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=2Uc(y)):<br>150kHz~30MHz: 3.46dB |
| **Radiated Emission Measurement** |
| Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)):<br>9kHz ~ 1GHz: 4.18dB<br>1GHz ~ 40GHz: 4.76dB |

# 7. TEST RESULT

## 7.1. Summary

**Company Name:** **Zhejiang shenghui lighting Co., Ltd. Shanghai Branch**

**FCC ID:** **2ABX8SH-000000009**

**IC** **12219A-000000009**

**Data Rate(s) Tested:** **22Mbps**

| FCC Part Section(s) | Test Description | Test Limit | Test Condition | Test Result | Reference |
|---|---|---|---|---|---|
| 15.407(a) | 26dB Bandwidth | N/A | Conducted | Pass | Section 7.2 |
| 15.407(e) | 6dB Bandwidth | ≥ 500kHz | | Pass | Section 7.3 |
| 15.407(a)(1)(ii), (3) | Maximum Conducted Output Power | ≤ 17 dBm U-NII-1<br>≤ 30 dBm U-NII-3 | | Pass | Section 7.5 |
| 15.407(a)(1)(ii), (3), (5) | Peak Power Spectral Density | ≤ 11 dBm/MHz U-NII-1<br>≤ 30 dBm/500kHz U-NII-3 | | Pass | Section 7.6 |
| 15.407(g) | Frequency Stability | N/A | | Pass | Section 7.7 |
| 15.407(b)(1), (4) | Undesirable Emissions | ≤ -27dBm/MHz EIRP<br>≤ -17dBm/MHz EIRP | Radiated | Pass | Section 7.8 & 7.9 |
| 15.205, 15.209 15.407(b)(5), (6), (7) | General Field Strength Limits (Restricted Bands and Radiated Emission Limits) | Emissions in restricted bands must meet the radiated limits detailed in 15.209 | | Pass | |
| 15.207 | AC Conducted Emissions 150kHz - 30MHz | < FCC 15.207 limits | Line Conducted | Pass | Section 7.10 |

| RSS Section(s) | Test Description | Test Limit | Test Condition | Test Result | Reference |
|---|---|---|---|---|---|
| RSS-247 §6.2 | 99% Bandwidth | N/A | Conducted | Pass | Section 7.2 |
| RSS-247 §6.2.4 | 6dB Bandwidth | >500kHz | | Pass | Section 7.3 |
| RSS-247 §6.2.1 | Operation Frequency Range of 26dB BW | 26dBc frequency range above 5250MHz | | Pass | Section 7.4 |
| RSS-247 §6.2.1, §6.2.4 | Max Conducted Output Power | 5725~5850MHz, ≤ 30 dBm | | Pass | Section 7.5 |
| | Maximum E.I.R.P | 5150~5250MHz ≤ 23 dBm or 10 + 10 log10(99% B) | | | |
| RSS-247 §6.2.1, §6.2.4 | Peak Power Spectral Density | 5150~5250MHz ≤ 10 dBm/MHz 5725~5850MHz, ≤ 30 dBm/500kHz | | Pass | Section 7.6 |
| RSS-Gen [8.11] | Frequency Stability | N/A | | Pass | Section 7.7 |
| RSS-247 §6.2.1,§6.2.4 | Out-of-Band Emissions | ≤ -27dBm/MHz EIRP ≤ -17dBm/MHz EIRP | Radiated | Pass | Section 7.8 & 7.9 |
| RSS-247 §6.2.1, §6.2.4 | General Field Strength Limits (Restricted Bands and Radiated Emission Limits) | Emissions in restricted bands must meet the radiated limits detailed in RSS-Gen [8.9] | | Pass | |
| RSS-Gen [8.8] | AC Conducted Emissions 150kHz - 30MHz | < RSS-Gen [8.8] limits | Line Conducted | Pass | Section 7.10 |

Notes:

1) All channels, modes, and modulations/data rates were investigated among all UNII bands. 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. 26dB Bandwidth Measurement

### 7.2.1. Test Limit

N/A

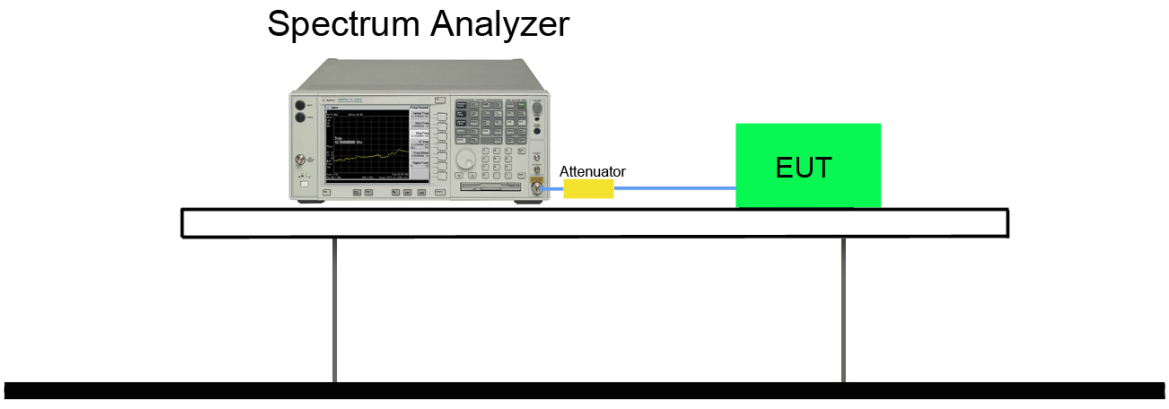
### 7.2.2. Test Procedure used

KDB 789033 D02v01 – Section C.1

### 7.2.3. Test Setting

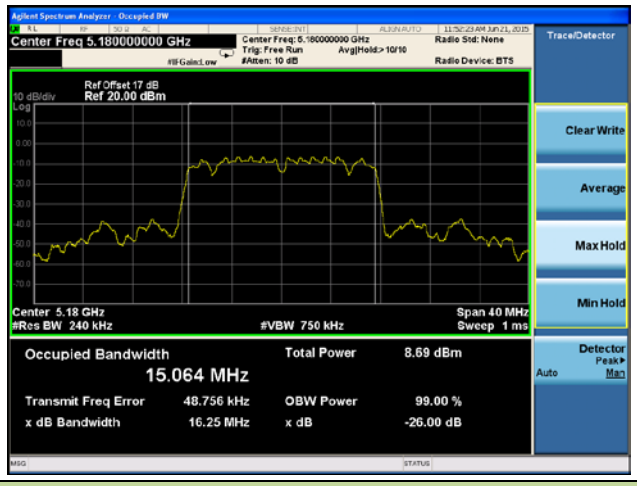
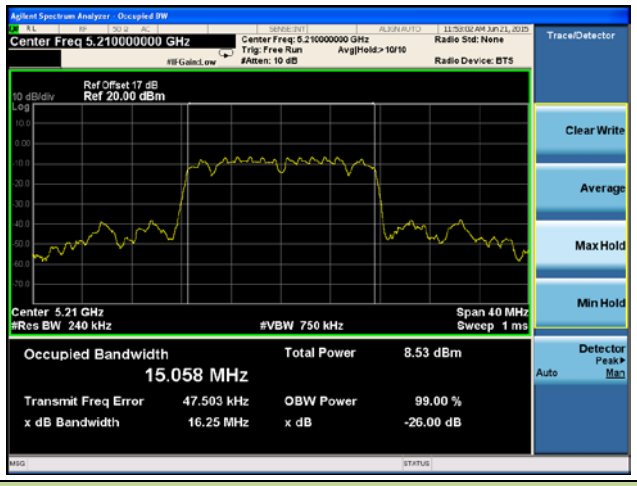
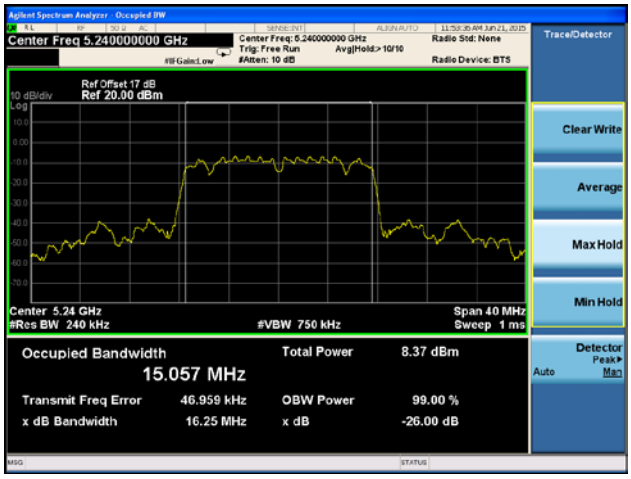
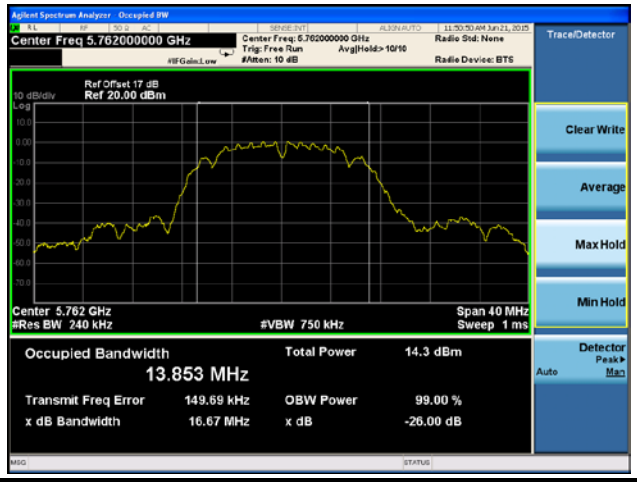
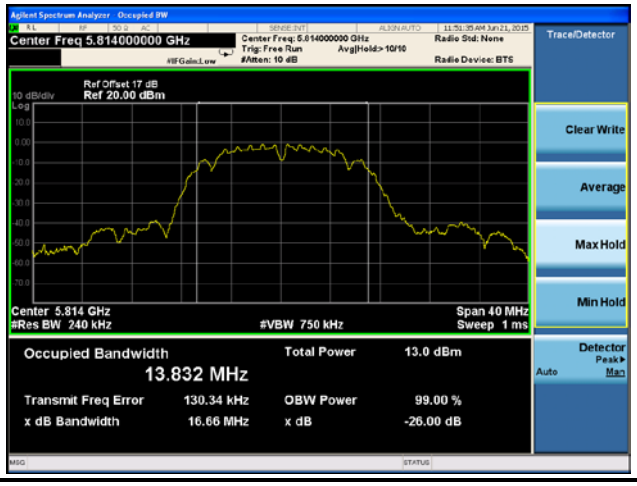
1. The analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 26. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediated power nulls in the fundamental emission.
2. RBW = approximately 1% of the emission bandwidth.
3. VBW ≥ 3 × RBW.
4. Detector = Peak.
5. Trace mode = max hold.

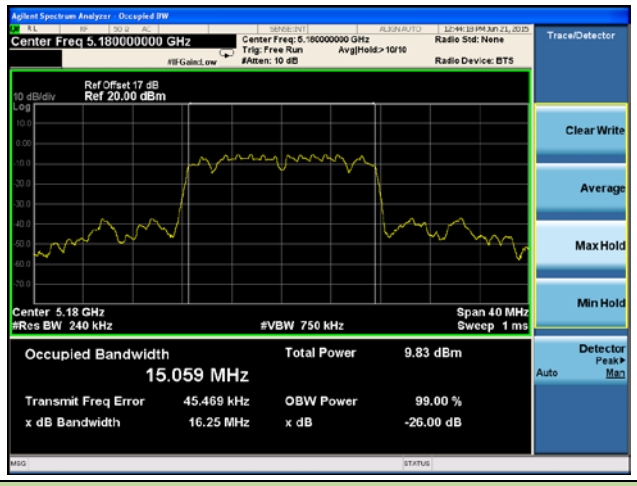
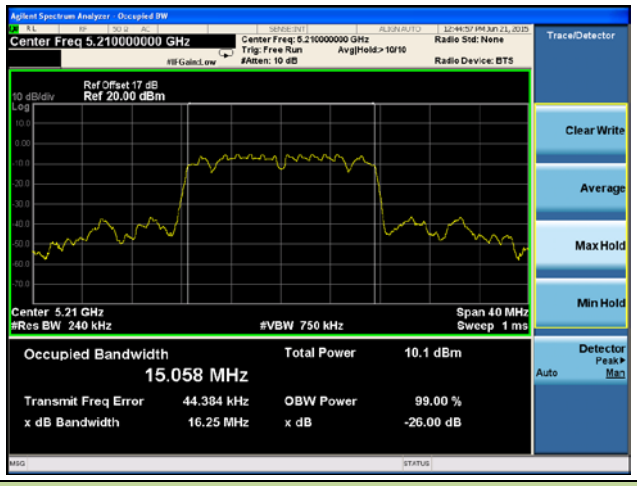
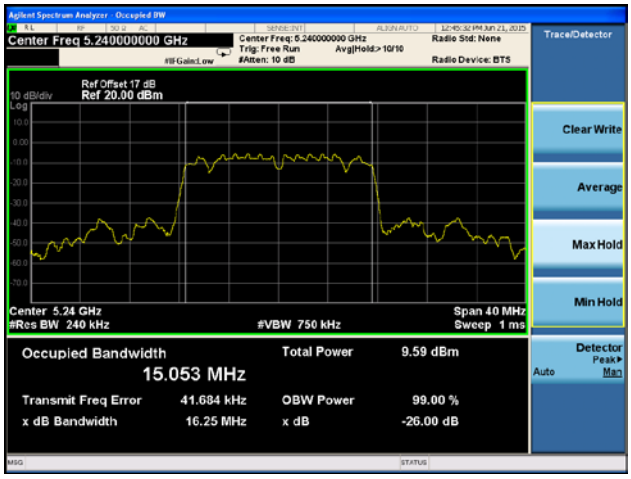
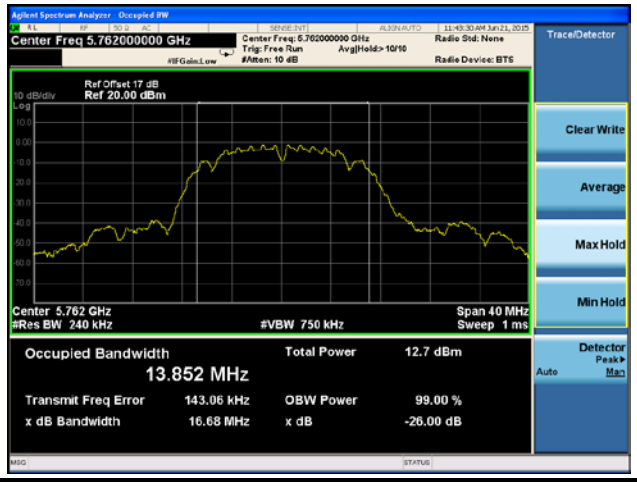
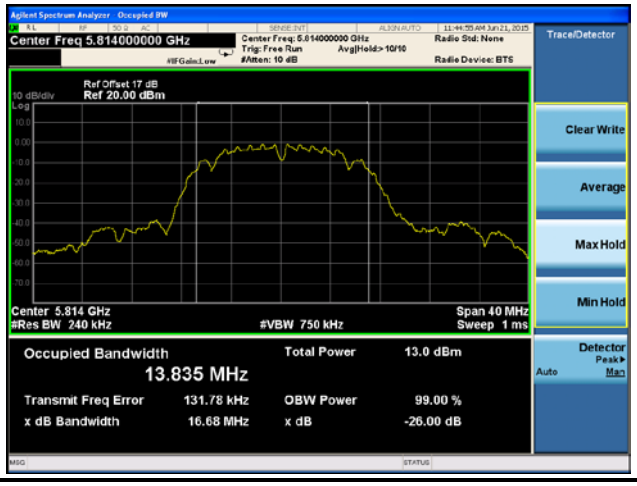
### 7.2.4. Test Setup



### 7.2.5. Test Result

| Type of Modulation | Data Rate (Mbps) | Channel No. | Frequency (MHz) | 26dB Bandwidth (MHz) | 99% Bandwidth (MHz) | Result |
|---|---|---|---|---|---|---|
| Ant A | | | | | | |
| QPSK | 22 | 01 | 5180 | 16.25 | 15.06 | Pass |
| | 22 | 02 | 5210 | 16.25 | 15.06 | Pass |
| | 22 | 03 | 5240 | 16.25 | 15.06 | Pass |
| QPSK | 22 | 04 | 5736 | 16.64 | 13.85 | Pass |
| | 22 | 05 | 5762 | 16.67 | 13.85 | Pass |
| | 22 | 06 | 5814 | 16.66 | 13.83 | Pass |
| Ant B | | | | | | |
| QPSK | 22 | 01 | 5180 | 16.25 | 15.06 | Pass |
| | 22 | 02 | 5210 | 16.25 | 15.06 | Pass |
| | 22 | 03 | 5240 | 16.25 | 15.05 | Pass |
| QPSK | 22 | 04 | 5736 | 16.66 | 13.84 | Pass |
| | 22 | 05 | 5762 | 16.68 | 13.85 | Pass |
| | 22 | 06 | 5814 | 16.66 | 13.84 | Pass |

| 26dB Bandwidth & 99% Bandwidth - Ant A | |
|---|---|
| **Channel 01 (5180MHz)** | **Channel 02 (5210MHz)** |
|  |  |
| **Channel 03 (5240MHz)** | **Channel 04 (5736MHz)** |
|  |  |
| **Channel 05 (5762MHz)** | **Channel 06 (5814MHz)** |
|  |  |

| 26dB Bandwidth & 99% Bandwidth - Ant B | |
|---|---|
| **Channel 01 (5180MHz)** | **Channel 02 (5210MHz)** |
|  |  |
| **Channel 03 (5240MHz)** | **Channel 04 (5736MHz)** |
|  |  |
| **Channel 05 (5762MHz)** | **Channel 06 (5814MHz)** |
|  |  |

## 7.3. 6dB Bandwidth Measurement

### 7.3.1. Test Limit

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

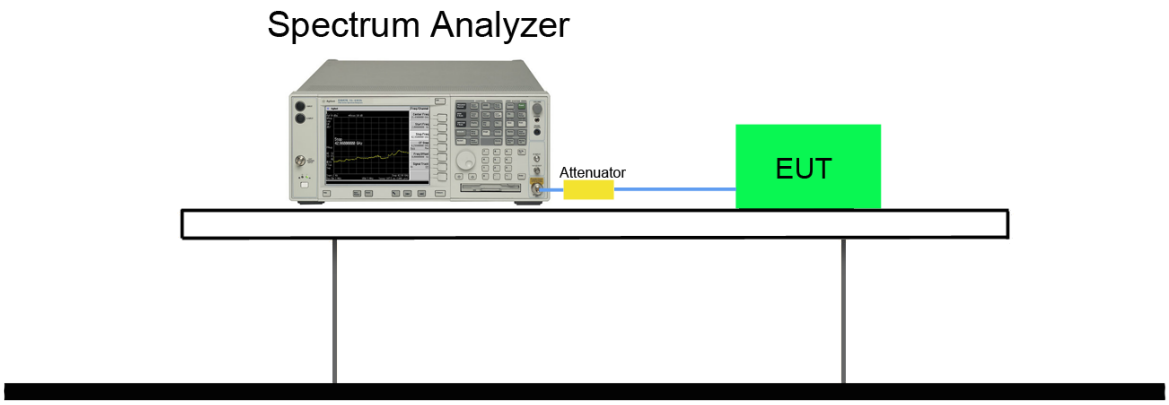
### 7.3.2. Test Procedure used

KDB 789033 D02v01 – Section C.2

### 7.3.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW ≧ 3 × RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 7.3.4. Test Setup



### 7.3.5. Test Result

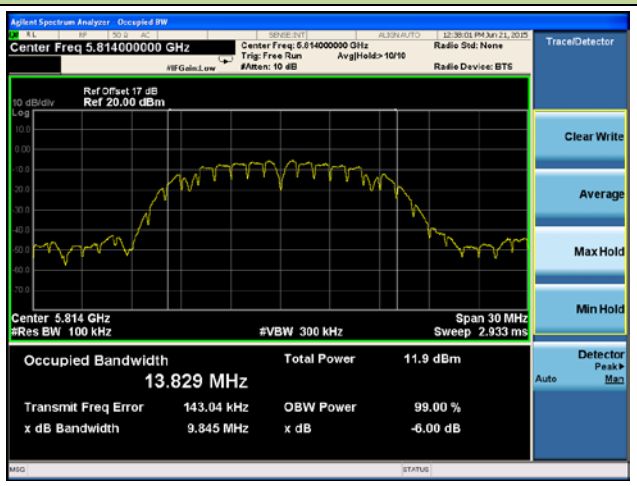
| Type of Modulation | Data Rate (Mbps) | Channel No. | Frequency (MHz) | 6dB Bandwidth (MHz) | Limit (MHz) | Result |
|---|---|---|---|---|---|---|
| Ant A | | | | | | |
| QPSK | 22 | 04 | 5736 | 9.84 | ≥ 0.5 | Pass |
| | 22 | 05 | 5762 | 9.84 | ≥ 0.5 | Pass |
| | 22 | 06 | 5814 | 9.85 | ≥ 0.5 | Pass |
| Ant B | | | | | | |
| QPSK | 22 | 04 | 5736 | 9.84 | ≥ 0.5 | Pass |
| | 22 | 05 | 5762 | 9.85 | ≥ 0.5 | Pass |
| | 22 | 06 | 5814 | 9.84 | ≥ 0.5 | Pass |

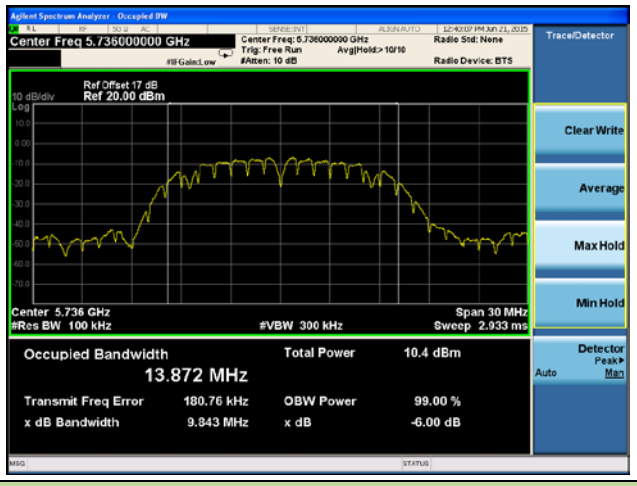
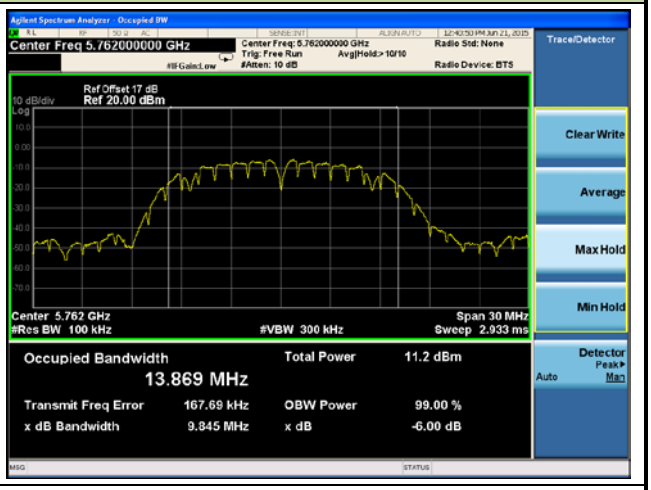
**6dB Bandwidth - Ant A**

**Channel 04 (5736MHz)**


**Channel 05 (5762MHz)**


**Channel 06 (5814MHz)**



| 6dB Bandwidth - Ant B | |
|---|---|
| **Channel 04 (5736MHz)** | **Channel 05 (5762MHz)** |
|  |  |
| **Channel 06 (5814MHz)** | |
|  | |

## 7.4. Operation Frequency Range of 26dBc Bandwidth Measurement

### 7.4.1. Test Limit

For transmitters operating in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27dBm/MHz e.i.r.p. However, any unwanted emissions that fall into the band 5250-5350 MHz must be 26 dBc, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth, above 5.25 GHz.

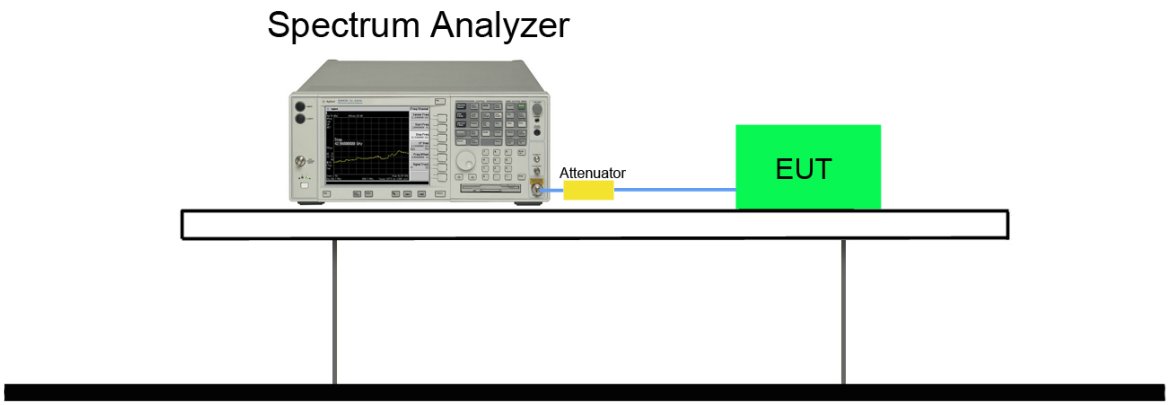
### 7.4.2. Test Procedure used

N/A

### 7.4.3. Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. Span = 1.5 times to 5.0 times the OBW.
3. RBW = 1 % to 5 % of the OBW.
4. VBW ≥ 3 × RBW.
5. Detector = Peak.
6. Trace mode = max hold.
7. Allow the trace to stabilize and set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
8. Determine the “−26 dB down amplitude” using [(reference value) − 26].
9. Using the marker function of the instrument to show 5250MHz frequency level.

### 7.4.4. Test Setup



### 7.4.5. Test Result

| Type of Modulation | Data Rate (Mbps) | Channel No. | Frequency (MHz) | Result |
|---|---|---|---|---|
| Ant A | | | | |
| QPSK | 22 | 03 | 5240 | Pass |
| Ant B | | | | |
| QPSK | 22 | 03 | 5240 | Pass |

| Operation Frequency Range of 26dBc Bandwidth - Ant A | |
|---|---|
| **Channel 03 (5240MHz)** | |
|  | |



| Operation Frequency Range of 26dBc Bandwidth - Ant B | |
|---|---|
| **Channel 03 (5240MHz)** | |
|  | |

## 7.5. Output Power Measurement

### 7.5.1. Test Limit

**For FCC**

For mobile and portable client devices operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

**For IC**

For the band 5.15-5.25 GHz, the maximum e.i.r.p. shall not exceed 200 mW (23.01dBm) or 10 + 10 $\log_{10}$ B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz.

For the 5.725-5.85 GHz band, the maximum conducted output power shall not exceed 1 W.

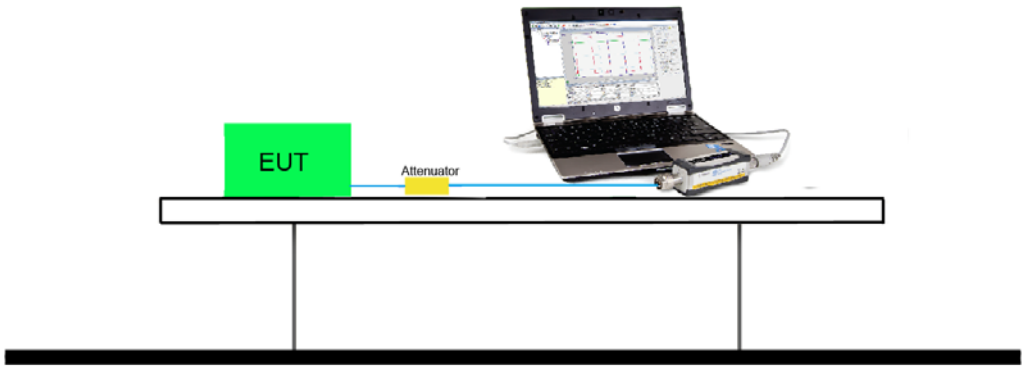
### 7.5.2. Test Procedure Used

KDB 789033 D02v01 - Section E) 3) b) Method PM-G

### 7.5.3. Test Setting

Average power measurements were perform only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

### 7.5.4. Test Setup



### 7.5.5. Test Result

| Type of Modulation | Data Rate (Mbps) | Channel No. | Freq. (MHz) | RMS Power (dBm) | Power Limit (dBm) | Max EIRP (dBm) | EIRP Limit (dBm) | Result |
|---|---|---|---|---|---|---|---|---|
| Ant A | | | | | | | | |
| QPSK | 22 | 01 | 5180 | 8.20 | ≤ 30 | 11.20 | ≤ 21.78 | Pass |
| | 22 | 02 | 5210 | 8.05 | ≤ 30 | 11.05 | ≤ 21.78 | Pass |
| | 22 | 03 | 5240 | 7.92 | ≤ 30 | 10.92 | ≤ 21.78 | Pass |
| QPSK | 22 | 04 | 5736 | 10.52 | ≤ 30 | --- | --- | Pass |
| | 22 | 05 | 5762 | 10.45 | ≤ 30 | --- | --- | Pass |
| | 22 | 06 | 5814 | 12.34 | ≤ 30 | --- | --- | Pass |
| Ant B | | | | | | | | |
| QPSK | 22 | 01 | 5180 | 9.46 | ≤ 30 | 12.46 | ≤ 21.78 | Pass |
| | 22 | 02 | 5210 | 9.29 | ≤ 30 | 12.29 | ≤ 21.78 | Pass |
| | 22 | 03 | 5240 | 8.86 | ≤ 30 | 11.86 | ≤ 21.78 | Pass |
| QPSK | 22 | 04 | 5736 | 11.35 | ≤ 30 | --- | --- | Pass |
| | 22 | 05 | 5762 | 11.07 | ≤ 30 | --- | --- | Pass |
| | 22 | 06 | 5814 | 13.18 | ≤ 30 | --- | --- | Pass |

Note: Max EIRP (dBm) = RMS Power (dBm) + Antenna Gain.

For 5150-5250MHz, EIRP Limit: 10 + 10 $\log_{10}$ (15.06MHz) = 21.78dBm < 23.01dBm.

## 7.6. Power Spectral Density Measurement

### 7.6.1. Test Limit

**For FCC**

For mobile and portable client devices operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

**For IC**

For the band 5.15-5.25 GHz, the e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

For the 5.725-5.85 GHz band, the power spectral density shall not exceed 30 dBm in any 500 kHz band.

### 7.6.2. Test Procedure Used

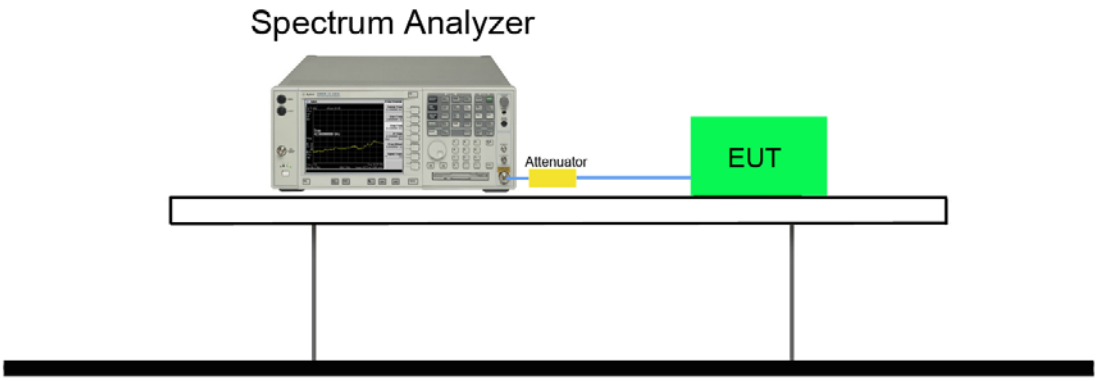
KDB 789033 D02v01 - Section F

### 7.6.3. Test Setting

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire 26dB EBW of the signal.
3. RBW = 1MHz, if measurement bandwidth of Maximum PSD is specified in 500 kHz, RBW = 100 kHz
4. VBW = 3MHz
5. Number of sweep points ≥ 2 × (span / RBW)
6. Detector = power averaging (RMS)
7. Sweep time = auto
8. Trigger = free run
9. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
10. Add 10*log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add 10*log(1/0.25) = 6 dB if the duty cycle is 25 percent.

11. When the measurement bandwidth of Maximum PSD is specified in 500 kHz, add a constant factor 10*log(500kHz/100kHz) = 7 dB to the measured result

### 7.6.4. Test Setup



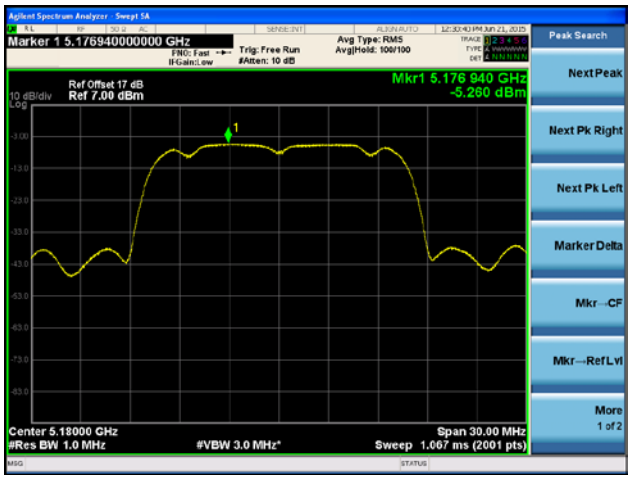
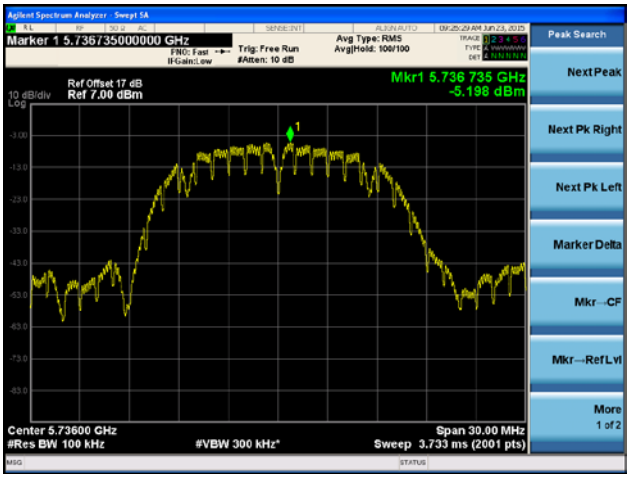
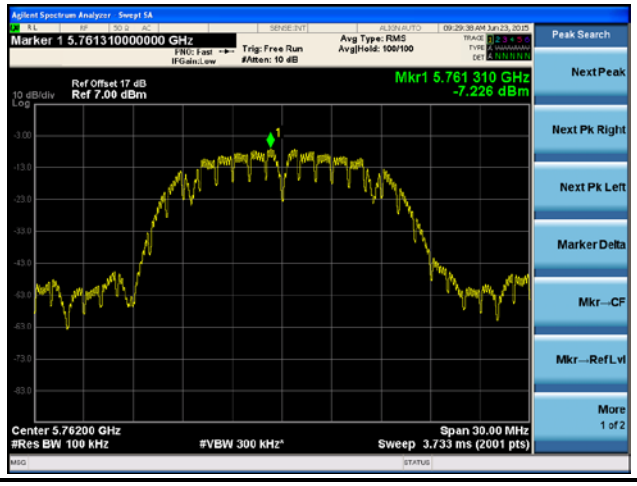
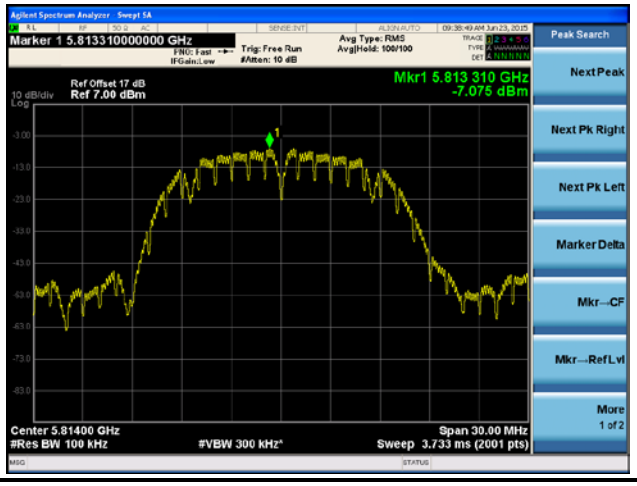
### 7.6.5. Test Result

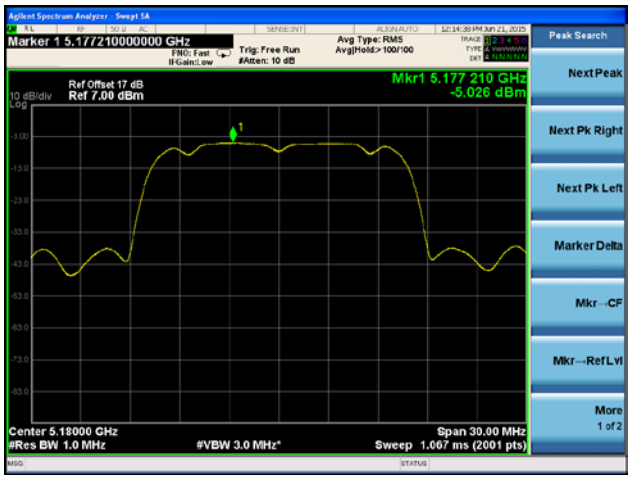
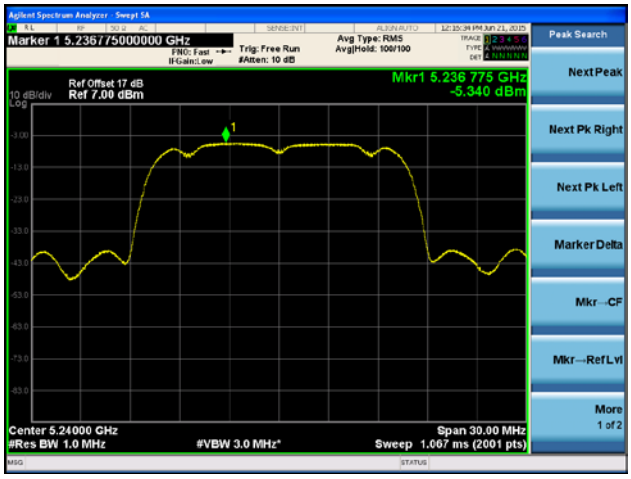
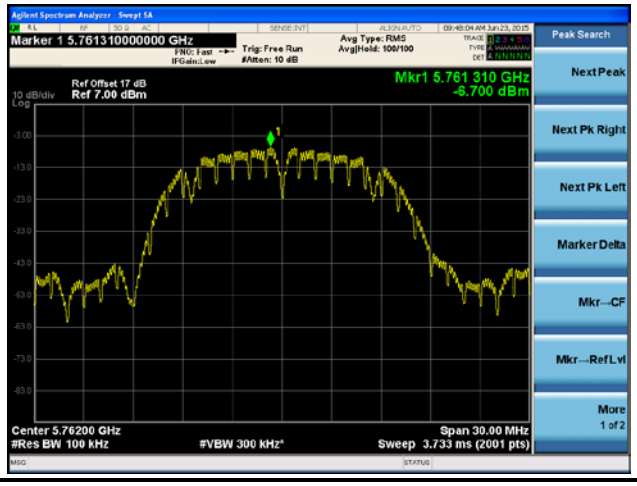
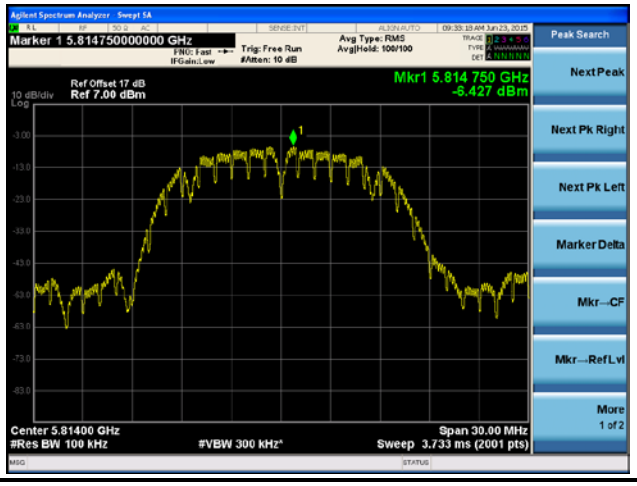
| Type of Modulation | Data Rate (Mbps) | Channel No. | Freq. (MHz) | Reading PSD (dBm/ MHz) | Duty Cycle (%) | Limit (dBm/ MHz) | EIRP PSD (dBm/ MHz) | EIRP PSD Limit (dBm/ MHz) | Result |
|---|---|---|---|---|---|---|---|---|---|
| Ant A | | | | | | | | | |
| QPSK | 22 | 01 | 5180 | -5.26 | 100 | ≤ 17 | -2.26 | ≤ 10 | Pass |
| | 22 | 02 | 5210 | -5.44 | 100 | ≤ 17 | -2.44 | ≤ 10 | Pass |
| | 22 | 03 | 5240 | -5.55 | 100 | ≤ 17 | -2.55 | ≤ 10 | Pass |
| Ant B | | | | | | | | | |
| QPSK | 22 | 01 | 5180 | -5.03 | 100 | ≤ 17 | -2.03 | ≤ 10 | Pass |
| | 22 | 02 | 5210 | -4.94 | 100 | ≤ 17 | -1.94 | ≤ 10 | Pass |
| | 22 | 03 | 5240 | -5.34 | 100 | ≤ 17 | -2.34 | ≤ 10 | Pass |

Note: EIRP PSD Level (dBm/MHz) = Reading PSD Level (dBm/MHz) + Antenna Gain.

| Type of Modulation | Data Rate (Mbps) | Channel No. | Freq. (MHz) | Reading PSD (dBm/ 100kHz) | Duty Cycle (%) | Constant Factor | Max PSD (dBm/ 500kHz) | Limit (dBm/ 500kHz) | Result |
|---|---|---|---|---|---|---|---|---|---|
| Ant A | | | | | | | | | |
| QPSK | 22 | 04 | 5736 | -5.20 | 100 | 7 | 1.80 | ≤ 30 | Pass |
| | 22 | 05 | 5762 | -7.23 | 100 | 7 | -0.23 | ≤ 30 | Pass |
| | 22 | 06 | 5814 | -7.08 | 100 | 7 | -0.08 | ≤ 30 | Pass |
| Ant B | | | | | | | | | |
| QPSK | 22 | 04 | 5736 | -6.94 | 100 | 7 | 0.06 | ≤ 30 | Pass |
| | 22 | 05 | 5762 | -6.70 | 100 | 7 | 0.30 | ≤ 30 | Pass |
| | 22 | 06 | 5814 | -6.43 | 100 | 7 | 0.57 | ≤ 30 | Pass |

Note: The Max PSD Level = Reading PSD Level + Constant Factor.

| Power Spectral Density - Ant A | |
|---|---|
| **Channel 01 (5180MHz)** | **Channel 02 (5210MHz)** |
|  |  |
| **Channel 03 (5240MHz)** | **Channel 04 (5736MHz)** |
|  |  |
| **Channel 05 (5762MHz)** | **Channel 06 (5814MHz)** |
|  |  |

| Power Spectral Density - Ant B | |
|---|---|
| **Channel 01 (5180MHz)** | **Channel 02 (5210MHz)** |
|  |  |
| **Channel 03 (5240MHz)** | **Channel 04 (5736MHz)** |
|  |  |
| **Channel 05 (5762MHz)** | **Channel 06 (5814MHz)** |
|  |  |

## 7.7. Frequency Stability Measurement

### 7.7.1. Test Limit

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

### 7.7.2. Test Procedure Used

**Frequency Stability Under Temperature Variations:**

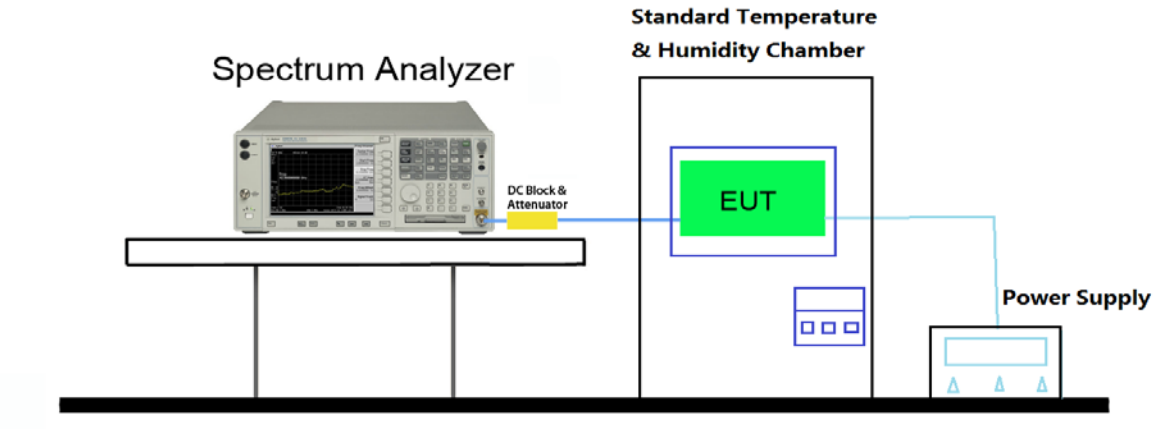
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

**Frequency Stability Under Voltage Variations:**

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

### 7.7.3. Test Setup



### 7.7.4. Test Result

| Test Engineer | Milo Li | Temperature | -20 ~ 50°C |
|---|---|---|---|
| Test Time | 06-20-2015 | Relative Humidity | 52%RH |

| Voltage (%) | Power (VAC) | Temp (°C) | Frequency Tolerance (ppm) | | | |
|---|---|---|---|---|---|---|
| | | | 0 minutes | 2 minutes | 5 minutes | 10 minutes |
| 100% | 120 | - 20 | 4.09 | 4.12 | 4.20 | 4.19 |
| | | - 10 | 4.13 | 4.11 | 4.15 | 4.20 |
| | | 0 | 4.11 | 4.07 | 4.05 | 4.10 |
| | | + 10 | 4.21 | 4.11 | 4.15 | 4.13 |
| | | + 20 (Ref) | 4.31 | 4.31 | 4.35 | 4.30 |
| | | + 30 | 4.32 | 4.35 | 4.29 | 4.31 |
| | | + 40 | 4.33 | 4.31 | 4.34 | 4.25 |
| | | + 50 | 4.28 | 4.31 | 4.35 | 4.29 |
| 115% | 138 | + 20 | 4.30 | 4.31 | 4.33 | 4.30 |
| 85% | 102 | + 20 | 4.35 | 4.37 | 4.23 | 4.31 |

Note: Frequency Tolerance (ppm) = {[Measured Frequency (Hz) – Declared Frequency (Hz)] / Declared Frequency (Hz)} *$10^6$.

## 7.8. Radiated Spurious Emission Measurement

### 7.8.1. 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 |

### 7.8.2. Test Procedure Used

KDB 789033 D02v01 – Section G

### 7.8.3. Test Setting

**Peak Measurements above 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

**Quasi-Peak Measurements below 1GHz**

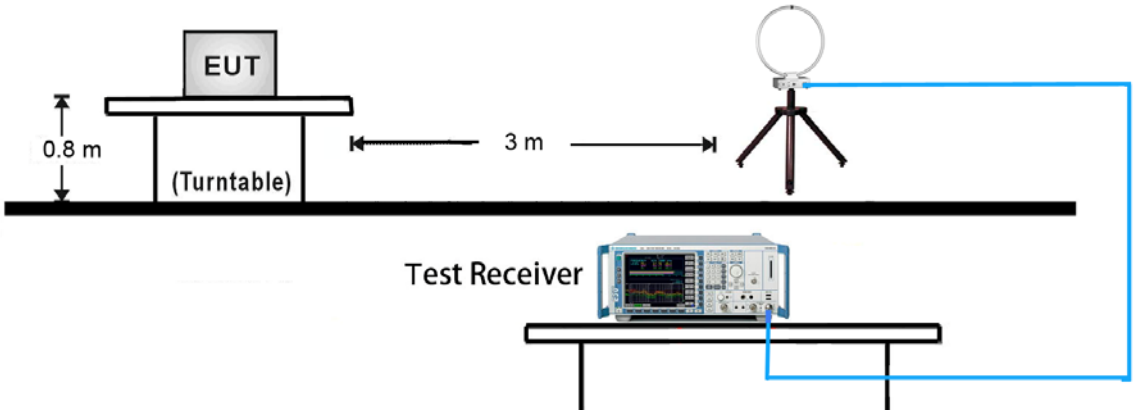
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = 120 kHz
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

**Average Measurements above 1GHz (Method AD)**

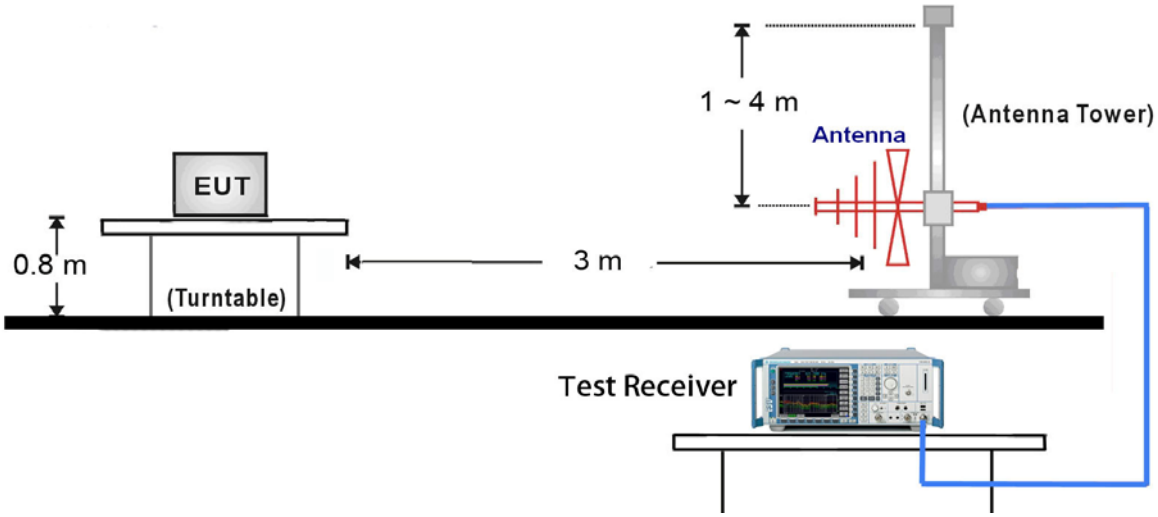
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be > 2 x span/RBW)
6. Sweep time = auto
7. Trace was averaged over at 100 sweeps

### 7.8.4. Test Setup

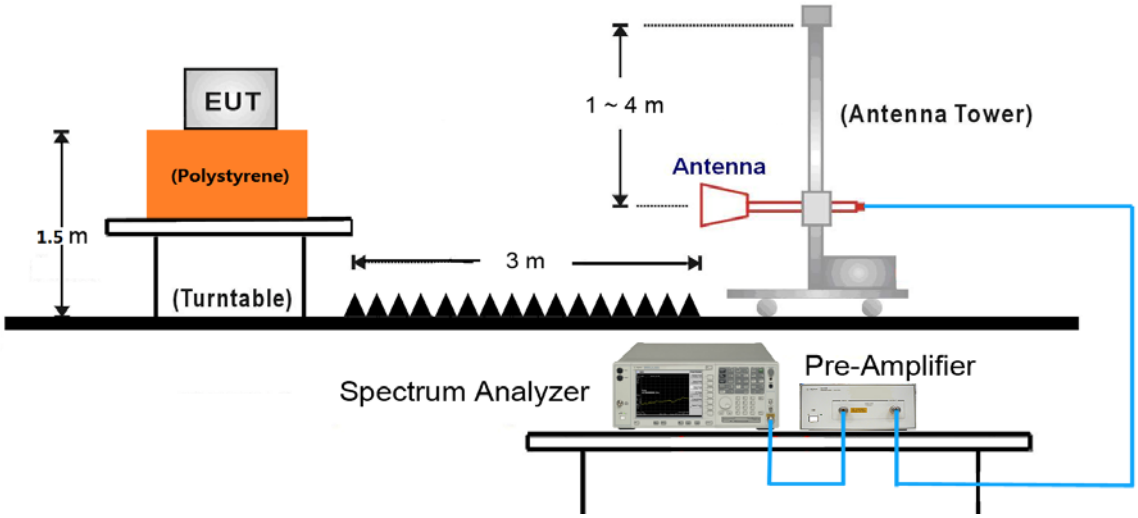
9kHz ~ 30MHz Test Setup:



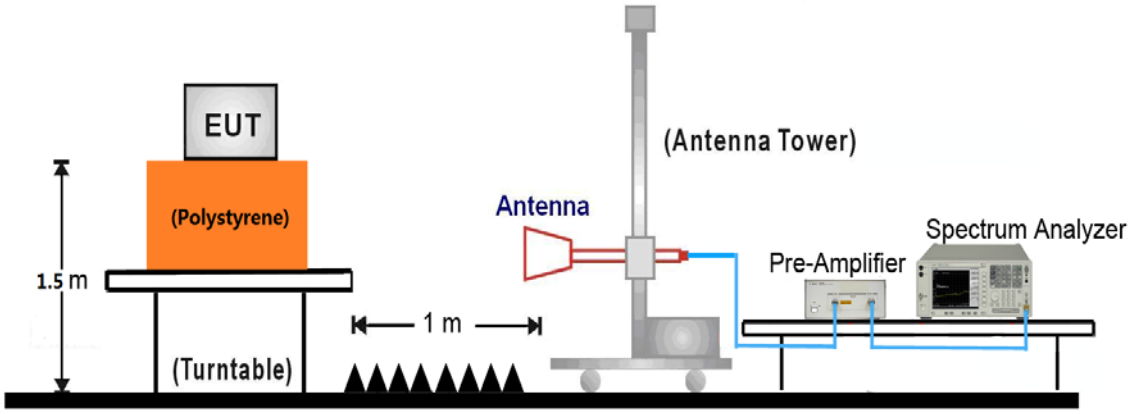
30MHz ~ 1GHz Test Setup:




1GHz ~18GHz Test Setup:




18GHz ~40GHz Test Setup:



### 7.8.5. Test Result

| Test Mode: | Ant A | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 01 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 7893.5 | 37.5 | 8.3 | 45.8 | 68.2 | -22.4 | Peak | Horizontal |
| * | 8769.0 | 36.9 | 8.9 | 45.8 | 68.2 | -22.4 | Peak | Horizontal |
| | 9491.5 | 36.9 | 10.6 | 47.5 | 74.0 | -26.5 | Peak | Horizontal |
| | 11472.0 | 38.6 | 12.7 | 51.3 | 74.0 | -22.7 | Peak | Horizontal |
| * | 7825.5 | 38.1 | 8.4 | 46.5 | 68.2 | -21.7 | Peak | Vertical |
| * | 8718.0 | 36.2 | 9.0 | 45.1 | 68.2 | -23.1 | Peak | Vertical |
| | 9423.5 | 36.5 | 10.6 | 47.0 | 74.0 | -27.0 | Peak | Vertical |
| | 11472.0 | 37.7 | 12.7 | 50.4 | 74.0 | -23.6 | Peak | Vertical |

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: | Ant B | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 01 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 7834.0 | 37.1 | 8.4 | 45.5 | 68.2 | -22.7 | Peak | Horizontal |
| * | 8624.5 | 36.8 | 8.8 | 45.6 | 68.2 | -22.6 | Peak | Horizontal |
| | 9126.0 | 36.8 | 9.7 | 46.4 | 74.0 | -27.6 | Peak | Horizontal |
| | 11472.0 | 36.6 | 12.7 | 49.3 | 74.0 | -24.7 | Peak | Horizontal |
| * | 7987.0 | 36.2 | 8.7 | 45.0 | 68.2 | -23.2 | Peak | Vertical |
| * | 8616.0 | 37.0 | 8.8 | 45.8 | 68.2 | -22.4 | Peak | Vertical |
| | 9415.0 | 36.0 | 10.6 | 46.6 | 74.0 | -27.4 | Peak | Vertical |
| | 11472.0 | 36.6 | 12.7 | 49.3 | 74.0 | -24.7 | Peak | Vertical |

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: | Ant A | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 02 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 7910.5 | 36.3 | 8.4 | 44.7 | 68.2 | -23.5 | Peak | Horizontal |
| * | 8735.0 | 35.7 | 8.9 | 44.6 | 68.2 | -23.6 | Peak | Horizontal |
| | 9415.0 | 36.0 | 10.6 | 46.6 | 74.0 | -27.4 | Peak | Horizontal |
| | 11523.0 | 37.5 | 12.7 | 50.2 | 74.0 | -23.8 | Peak | Horizontal |
| * | 7970.0 | 37.0 | 8.6 | 45.7 | 68.2 | -22.5 | Peak | Vertical |
| * | 8786.0 | 37.1 | 8.9 | 46.0 | 68.2 | -22.2 | Peak | Vertical |
| | 9406.5 | 35.6 | 10.6 | 46.2 | 74.0 | -27.8 | Peak | Vertical |
| | 11514.5 | 37.0 | 12.8 | 49.7 | 74.0 | -24.3 | Peak | Vertical |

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: | Ant B | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 02 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 7885.0 | 37.2 | 8.3 | 45.5 | 68.2 | -22.7 | Peak | Horizontal |
| * | 8760.5 | 37.7 | 9.0 | 46.7 | 68.2 | -21.5 | Peak | Horizontal |
| | 9440.5 | 36.1 | 10.5 | 46.6 | 74.0 | -27.4 | Peak | Horizontal |
| | 11523.0 | 36.8 | 12.7 | 49.5 | 74.0 | -24.5 | Peak | Horizontal |
| * | 7953.0 | 37.4 | 8.6 | 46.0 | 68.2 | -22.2 | Peak | Vertical |
| * | 8522.5 | 37.5 | 8.4 | 45.9 | 68.2 | -22.3 | Peak | Vertical |
| | 9474.5 | 35.4 | 10.6 | 45.9 | 74.0 | -28.1 | Peak | Vertical |
| | 11523.0 | 36.5 | 12.7 | 49.2 | 74.0 | -24.8 | Peak | Vertical |

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: | Ant A | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 03 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 7885.0 | 36.4 | 8.3 | 44.7 | 68.2 | -23.5 | Peak | Horizontal |
| * | 8675.5 | 36.7 | 8.9 | 45.7 | 68.2 | -22.5 | Peak | Horizontal |
| | 9457.5 | 36.2 | 10.5 | 46.8 | 74.0 | -27.2 | Peak | Horizontal |
| | 11004.5 | 36.2 | 13.0 | 49.2 | 74.0 | -24.8 | Peak | Horizontal |
| * | 7961.5 | 36.5 | 8.6 | 45.2 | 68.2 | -23.0 | Peak | Vertical |
| * | 8718.0 | 36.6 | 9.0 | 45.6 | 68.2 | -22.6 | Peak | Vertical |
| | 9134.5 | 36.5 | 9.7 | 46.2 | 74.0 | -27.8 | Peak | Vertical |
| | 11472.0 | 36.6 | 12.7 | 49.3 | 74.0 | -24.7 | Peak | Vertical |

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: | Ant B | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 03 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 7961.5 | 36.9 | 8.6 | 45.5 | 68.2 | -22.7 | Peak | Horizontal |
| * | 8811.5 | 35.7 | 9.0 | 44.7 | 68.2 | -23.5 | Peak | Horizontal |
| | 9338.5 | 35.4 | 10.4 | 45.9 | 74.0 | -28.1 | Peak | Horizontal |
| | 11055.5 | 35.8 | 12.9 | 48.7 | 74.0 | -25.4 | Peak | Horizontal |
| * | 7927.5 | 37.0 | 8.5 | 45.4 | 68.2 | -22.8 | Peak | Vertical |
| * | 8956.0 | 35.9 | 9.0 | 44.9 | 68.2 | -23.3 | Peak | Vertical |
| | 9449.0 | 36.3 | 10.5 | 46.8 | 74.0 | -27.2 | Peak | Vertical |
| | 11642.0 | 36.6 | 12.4 | 49.0 | 74.0 | -25.0 | Peak | Vertical |

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: | Ant A | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 04 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 6907.5 | 40.9 | 6.6 | 47.4 | 68.2 | -20.8 | Peak | Horizontal |
| * | 7961.5 | 35.6 | 8.6 | 44.2 | 68.2 | -24.0 | Peak | Horizontal |
| | 9168.5 | 35.9 | 9.9 | 45.8 | 74.0 | -28.2 | Peak | Horizontal |
| | 15535.0 | 41.2 | 12.2 | 53.4 | 74.0 | -20.6 | Peak | Horizontal |
| * | 6907.5 | 42.5 | 6.6 | 49.1 | 68.2 | -19.1 | Peak | Vertical |
| * | 7987.0 | 35.2 | 8.7 | 44.0 | 68.2 | -24.2 | Peak | Vertical |
| | 9415.0 | 34.6 | 10.6 | 45.2 | 74.0 | -28.8 | Peak | Vertical |
| | 15535.0 | 41.3 | 12.2 | 53.5 | 74.0 | -20.5 | Peak | Vertical |

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: | Ant B | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 04 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 6907.5 | 40.2 | 6.6 | 46.7 | 68.2 | -21.5 | Peak | Horizontal |
| * | 7859.5 | 37.1 | 8.4 | 45.5 | 68.2 | -22.7 | Peak | Horizontal |
| | 9423.5 | 35.9 | 10.6 | 46.5 | 74.0 | -27.5 | Peak | Horizontal |
| | 15543.5 | 40.7 | 12.2 | 52.9 | 74.0 | -21.1 | Peak | Horizontal |
| * | 6907.5 | 40.2 | 6.6 | 46.8 | 68.2 | -21.4 | Peak | Vertical |
| * | 7978.5 | 37.3 | 8.7 | 46.0 | 68.2 | -22.2 | Peak | Vertical |
| | 9372.5 | 35.6 | 10.5 | 46.1 | 74.0 | -27.9 | Peak | Vertical |
| | 15543.5 | 40.2 | 12.2 | 52.3 | 74.0 | -21.7 | Peak | Vertical |

Note 1: “*” is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a “conversion” factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: | Ant A | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 05 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 6950.0 | 39.6 | 6.7 | 46.3 | 68.2 | -21.9 | Peak | Horizontal |
| * | 7902.0 | 36.9 | 8.3 | 45.3 | 68.2 | -22.9 | Peak | Horizontal |
| | 9321.5 | 35.7 | 10.4 | 46.1 | 74.0 | -27.9 | Peak | Horizontal |
| | 15620.0 | 39.9 | 12.1 | 52.0 | 74.0 | -22.0 | Peak | Horizontal |
| * | 6950.0 | 41.3 | 6.7 | 47.9 | 68.2 | -20.3 | Peak | Vertical |
| * | 7910.5 | 35.9 | 8.4 | 44.3 | 68.2 | -23.9 | Peak | Vertical |
| | 9364.0 | 35.4 | 10.5 | 45.8 | 74.0 | -28.2 | Peak | Vertical |
| | 15637.0 | 41.2 | 12.0 | 53.3 | 74.0 | -20.7 | Peak | Vertical |

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: | Ant B | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 05 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 6950.0 | 40.4 | 6.7 | 47.1 | 68.2 | -21.1 | Peak | Horizontal |
| * | 7987.0 | 35.7 | 8.7 | 44.4 | 68.2 | -23.8 | Peak | Horizontal |
| | 9347.0 | 35.1 | 10.5 | 45.6 | 74.0 | -28.4 | Peak | Horizontal |
| | 15628.5 | 40.2 | 12.1 | 52.3 | 74.0 | -21.7 | Peak | Horizontal |
| * | 6950.0 | 40.9 | 6.7 | 47.6 | 68.2 | -20.6 | Peak | Vertical |
| * | 7978.5 | 36.7 | 8.7 | 45.4 | 68.2 | -22.8 | Peak | Vertical |
| | 9364.0 | 36.1 | 10.5 | 46.5 | 74.0 | -27.5 | Peak | Vertical |
| | 15628.5 | 40.9 | 12.1 | 52.9 | 74.0 | -21.1 | Peak | Vertical |

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: | Ant A | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 06 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 6984.0 | 38.6 | 6.8 | 45.3 | 68.2 | -22.9 | Peak | Horizontal |
| * | 7842.5 | 35.5 | 8.4 | 43.9 | 68.2 | -24.3 | Peak | Horizontal |
| | 9423.5 | 36.0 | 10.6 | 46.6 | 74.0 | -27.4 | Peak | Horizontal |
| | 15713.5 | 39.9 | 11.8 | 51.7 | 74.0 | -22.3 | Peak | Horizontal |
| * | 6984.0 | 40.9 | 6.8 | 47.7 | 68.2 | -20.5 | Peak | Vertical |
| * | 7834.0 | 36.9 | 8.4 | 45.3 | 68.2 | -22.9 | Peak | Vertical |
| | 9338.5 | 34.8 | 10.4 | 45.2 | 74.0 | -28.8 | Peak | Vertical |
| | 15713.5 | 40.7 | 11.8 | 52.5 | 74.0 | -21.5 | Peak | Vertical |

Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

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: | Ant B | Test Site: | AC1 |
|---|---|---|---|
| Test Channel: | 06 | Test Engineer: | Roy Cheng |
| Remark: | 1. Average measurement was not performed if peak level lower than average limit.<br>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 |
|---|---|---|---|---|---|---|---|---|
| * | 6984.0 | 38.9 | 6.8 | 45.6 | 68.2 | -22.6 | Peak | Horizontal |
| * | 7876.5 | 36.1 | 8.4 | 44.5 | 68.2 | -23.7 | Peak | Horizontal |
| | 9330.0 | 35.7 | 10.4 | 46.2 | 74.0 | -27.8 | Peak | Horizontal |
| | 15713.5 | 40.5 | 11.8 | 52.3 | 74.0 | -21.7 | Peak | Horizontal |
| * | 6984.0 | 41.2 | 6.8 | 48.0 | 68.2 | -20.2 | Peak | Vertical |
| * | 7978.5 | 37.1 | 8.7 | 45.7 | 68.2 | -22.5 | Peak | Vertical |
| | 9338.5 | 34.5 | 10.4 | 44.9 | 74.0 | -29.1 | Peak | Vertical |
| | 15713.5 | 40.0 | 11.8 | 51.8 | 74.0 | -22.2 | Peak | Vertical |

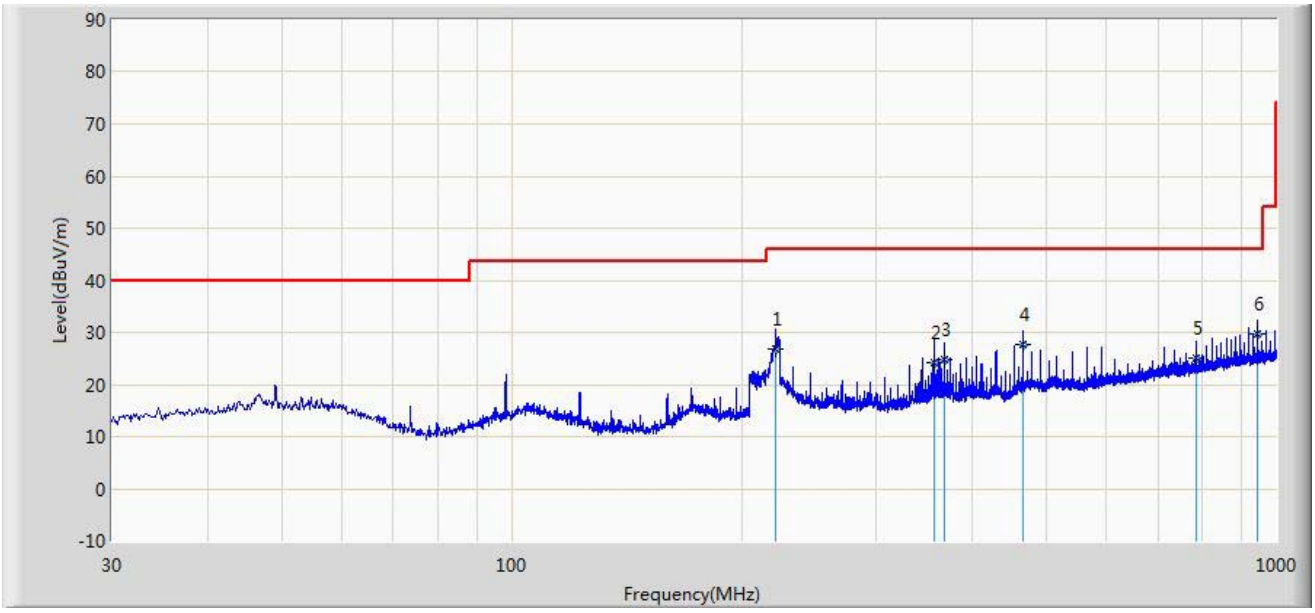
Note 1: "*" is not in restricted band, its limit is -27dBm/MHz. At a distance of 3 meters, the field strength limit in dBμV/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + 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: 2015/06/20 - 12:14 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: VULB9162_0.03-8GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| **Worst Mode**: Transmit at channel 5180MHz | |

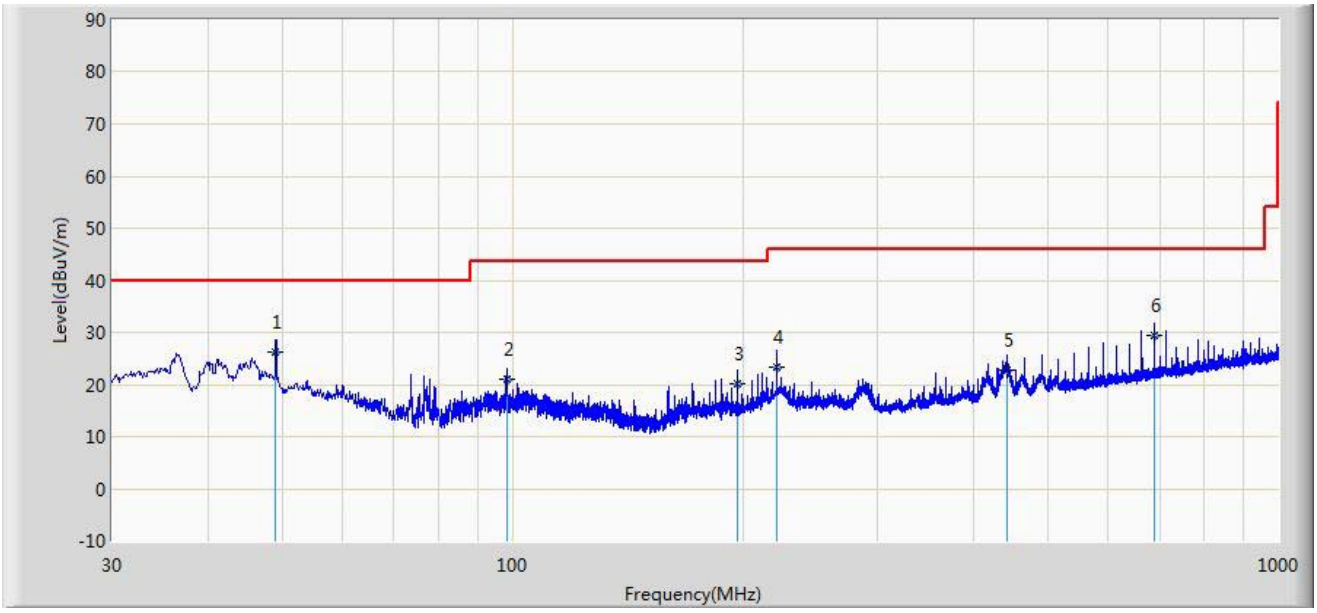



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 221.090 | 26.832 | 14.200 | -19.168 | 46.000 | 12.632 | QP |
| 2 | | | 356.485 | 24.275 | 8.400 | -21.725 | 46.000 | 15.875 | QP |
| 3 | | | 368.650 | 24.761 | 8.700 | -21.239 | 46.000 | 16.061 | QP |
| 4 | | | 466.985 | 27.744 | 10.100 | -18.256 | 46.000 | 17.644 | QP |
| 5 | | | 786.479 | 25.048 | 2.500 | -20.952 | 46.000 | 22.548 | QP |
| 6 | | * | 946.286 | 29.616 | 5.300 | -16.384 | 46.000 | 24.315 | QP |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/20 - 12:24 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: VULB9162_0.03-8GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| **Worst Mode**: Transmit at channel 5180MHz | |

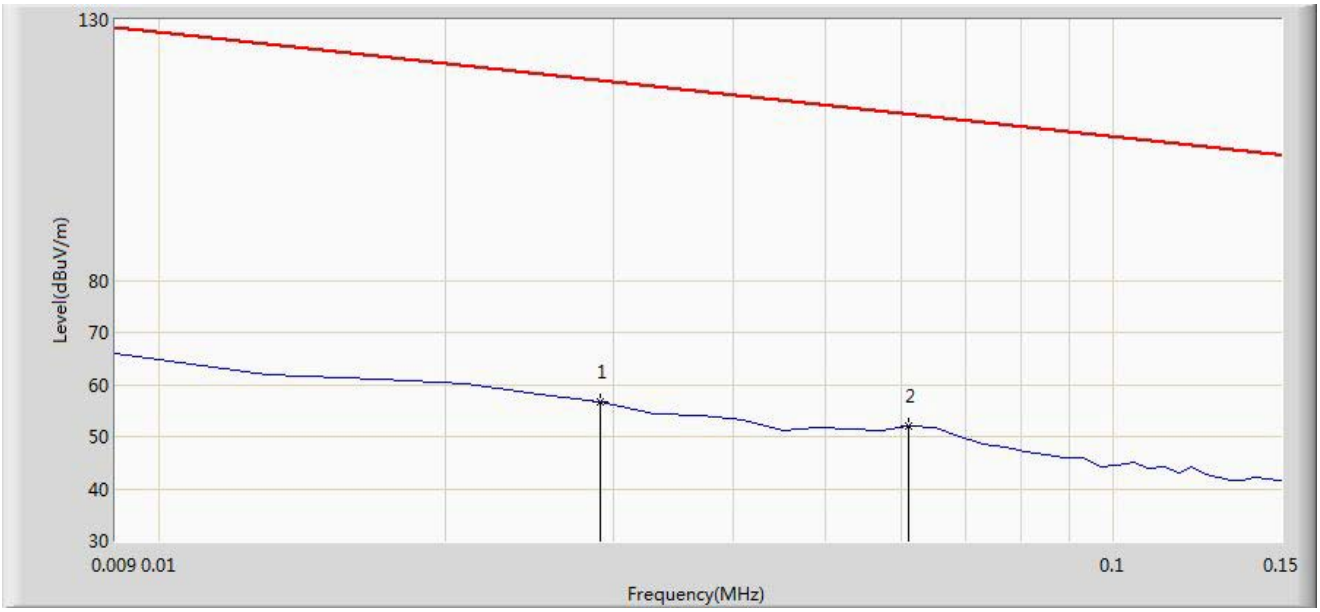



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 49.036 | 26.121 | 11.200 | -13.879 | 40.000 | 14.922 | QP |
| 2 | | | 98.264 | 21.020 | 8.300 | -22.480 | 43.500 | 12.721 | QP |
| 3 | | | 196.589 | 20.237 | 8.100 | -23.263 | 43.500 | 12.136 | QP |
| 4 | | | 221.089 | 23.232 | 10.600 | -22.768 | 46.000 | 12.632 | QP |
| 5 | | | 442.371 | 22.619 | 5.400 | -23.381 | 46.000 | 17.219 | QP |
| 6 | | | 688.145 | 29.356 | 8.100 | -16.644 | 46.000 | 21.256 | QP |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/10 - 19:18 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Roy Cheng |
| Probe: FMZB1519_0.009-30MHz | Polarity: Face on |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| **Note: There is the ambient noise within frequency range 9kHz~30MHz.** | |

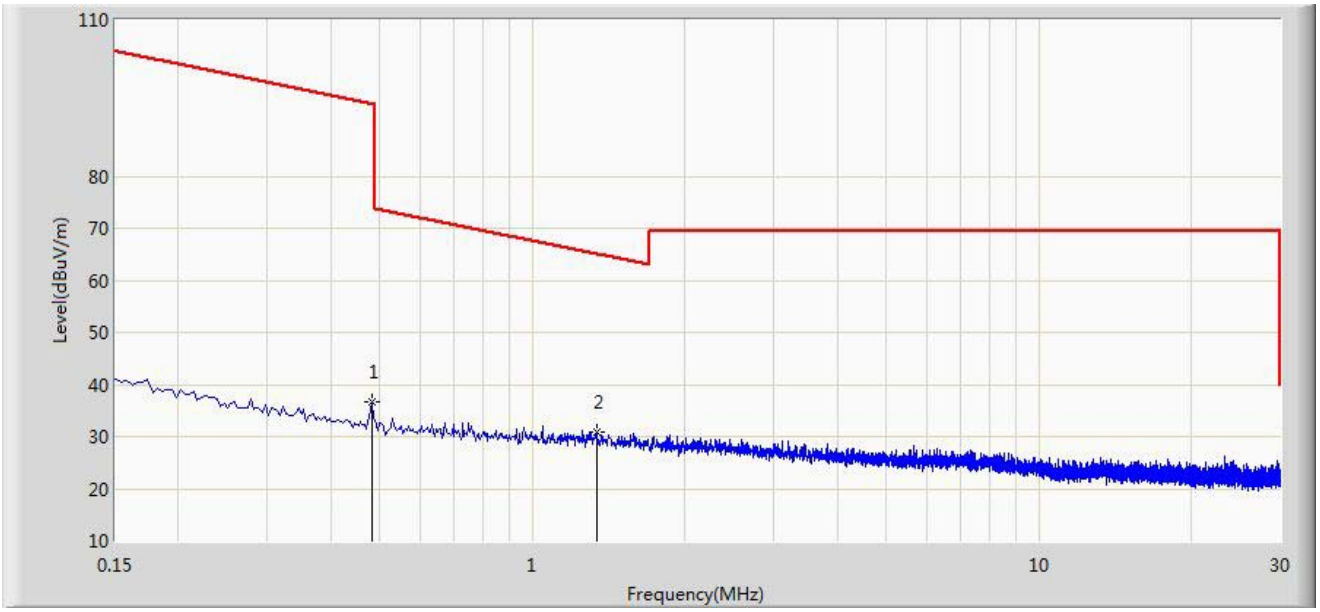



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0.029 | 56.610 | 35.660 | -61.732 | 118.342 | 21.049 | QP |
| 2 | | * | 0.061 | 51.899 | 31.588 | -59.988 | 111.887 | 20.311 | QP |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/10 - 19:19 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Roy Cheng |
| Probe: FMZB1519_0.009-30MHz | Polarity: Face on |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| **Note: There is the ambient noise within frequency range 9kHz~30MHz.** | |

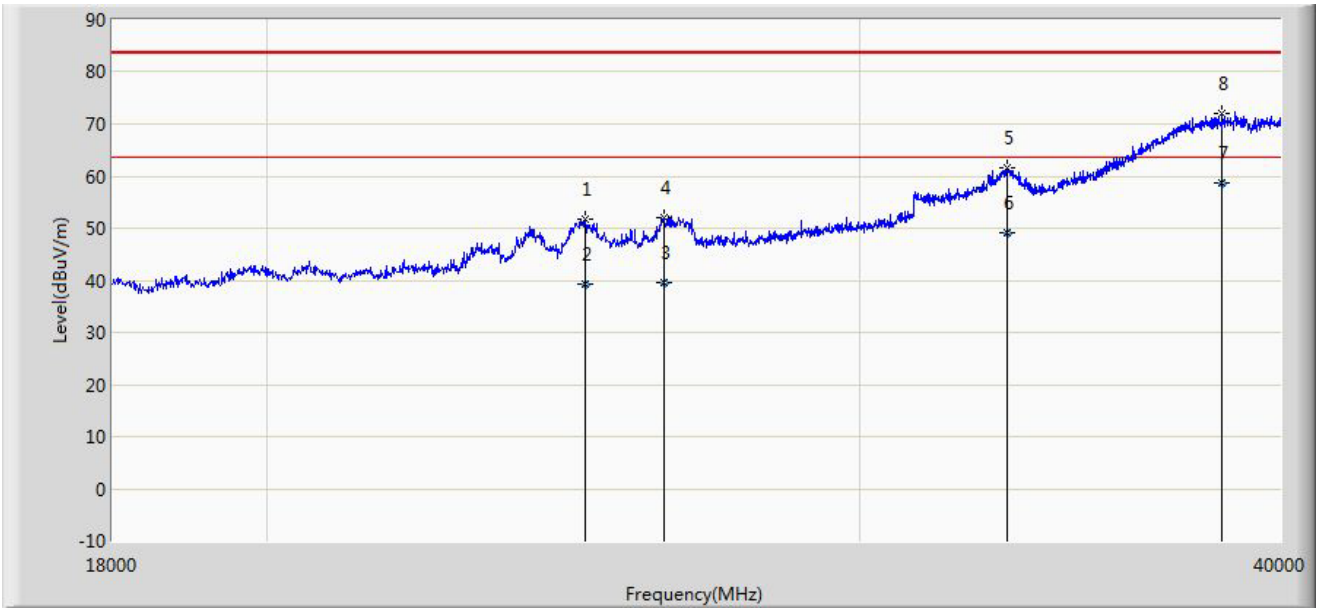



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0.482 | 36.584 | 16.183 | -57.359 | 93.943 | 20.401 | QP |
| 2 | | * | 1.338 | 31.001 | 10.512 | -34.098 | 65.099 | 20.489 | QP |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/10 - 21:25 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Roy Cheng |
| Probe: BBHA9170_18-40GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| **Note: There is the ambient noise within frequency range 18GHz~40GHz.** | |

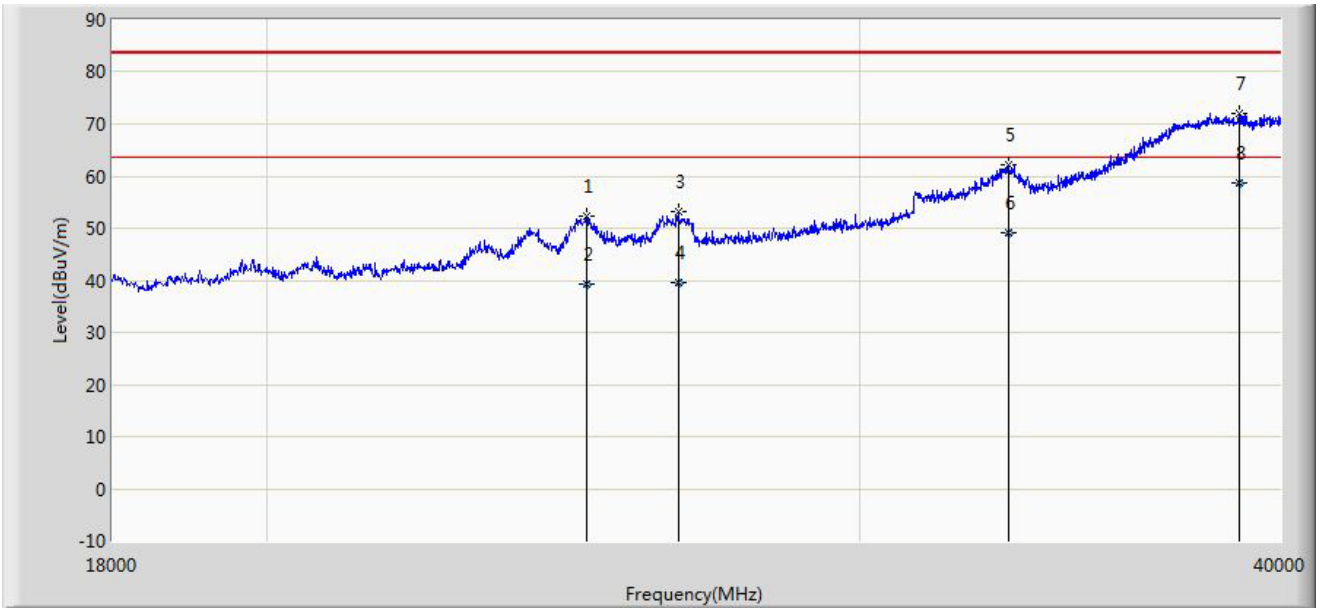



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 24864.000 | 51.836 | 37.061 | -31.664 | 83.500 | 14.775 | PK |
| 2 | | | 24864.088 | 39.225 | 24.450 | -24.275 | 63.500 | 14.775 | AV |
| 3 | | | 26260.988 | 39.469 | 24.050 | -24.031 | 63.500 | 15.419 | AV |
| 4 | | | 26261.000 | 51.956 | 36.537 | -31.544 | 83.500 | 15.419 | PK |
| 5 | | | 33180.000 | 61.461 | 39.940 | -22.039 | 83.500 | 21.521 | PK |
| 6 | | | 33180.361 | 49.061 | 27.540 | -14.439 | 63.500 | 21.521 | AV |
| 7 | | * | 38437.980 | 58.523 | 31.190 | -4.977 | 63.500 | 27.333 | AV |
| 8 | | | 38438.000 | 72.021 | 44.688 | -11.479 | 83.500 | 27.333 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/10 - 21:28 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Roy Cheng |
| Probe: BBHA9170_18-40GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| **Note: There is the ambient noise within frequency range 18GHz~40GHz.** | |




| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 24886.000 | 52.313 | 37.528 | -31.187 | 83.500 | 14.785 | PK |
| 2 | | | 24886.970 | 39.234 | 24.449 | -24.266 | 63.500 | 14.785 | AV |
| 3 | | | 26503.000 | 53.227 | 37.207 | -30.273 | 83.500 | 16.020 | PK |
| 4 | | | 26503.872 | 39.572 | 23.550 | -23.928 | 63.500 | 16.022 | AV |
| 5 | | | 33213.000 | 62.110 | 40.572 | -21.390 | 83.500 | 21.538 | PK |
| 6 | | | 33213.984 | 49.098 | 27.560 | -14.402 | 63.500 | 21.538 | AV |
| 7 | | | 38900.000 | 72.096 | 44.211 | -11.404 | 83.500 | 27.885 | PK |
| 8 | | * | 38900.755 | 58.705 | 30.820 | -4.795 | 63.500 | 27.885 | AV |

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

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

## 7.9. Radiated Restricted Band Edge Measurement

### 7.9.1. Test Limit

**For 15.205 requirement:**

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| [1]0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1300 - 1427 | 8.025 - 8.5 |
| 4.17725 - 4.17775 | 37.5 - 38.25 | 1435 - 1626.5 | 9.0 - 9.2 |
| 4.20725 - 4.20775 | 73 - 74.6 | 1645.5 - 1646.5 | 9.3 - 9.5 |
| 6.215 - 6.218 | 74.8 - 75.2 | 1660 - 1710 | 10.6 - 12.7 |
| 6.26775 - 6.26825 | 108 - 121.94 | 1718.8 - 1722.2 | 13.25 - 13.4 |
| 6.31175 - 6.31225 | 123 - 138 | 2200 - 2300 | 14.47 - 14.5 |
| 8.291 - 8.294 | 149.9 - 150.05 | 2310 - 2390 | 15.35 - 16.2 |
| 8.362 - 8.366 | 156.52475 - 156.52525 | 2483.5 - 2500 | 17.7 - 21.4 |
| 8.37625 - 8.38675 | 156.7 - 156.9 | 2690 - 2900 | 22.01 - 23.12 |
| 8.41425 - 8.41475 | 162.0125 - 167.17 | 3260 - 3267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 167.72 - 173.2 | 3332 - 3339 | 31.2 - 31.8 |
| 12.51975 - 12.52025 | 240 - 285 | 3345.8 - 3358 | 36.43 - 36.5 |
| 12.57675 - 12.57725 | 322 - 335.4 | 3600 - 4400 | ([2]) |

**For RSS-Gen Section 8.10 requirement:**

Radiated emissions which fall in the restricted bands, as defined in Section 8.10 of RSS-Gen, must also comply with the radiated emission limits specified in Section 8.9.

| MHz |
|---|
| 0.090-0.110 |
| 2.1735-2.1905 |
| 3.020-3.026 |
| 4.125-4.128 |
| 4.17725-4.17775 |
| 4.20725-4.20775 |
| 5.677-5.683 |
| 6.215-6.218 |
| 6.26775-6.26825 |
| 6.31175-6.31225 |
| 8.291-8.294 |
| 8.362-8.366 |
| 8.37625-8.38675 |
| 8.41425-8.41475 |
| 12.29-12.293 |
| 12.51975-12.52025 |
| 12.57675-12.57725 |
| 13.36-13.41 |
| 16.42-16.423 |
| 16.69475-16.69525 |
| 16.80425-16.80475 |
| 25.5-25.67 |
| 37.5-38.25 |
| 73-74.6 |
| 74.8-75.2 |
| 108-138 |
| 156.52475-156.52525 |

| MHz |
|---|
| 240-285 |
| 322-335.4 |
| 399.9-410 |
| 608-614 |
| 960-1427 |
| 1435-1626.5 |
| 1645.5-1646.5 |
| 1660-1710 |
| 1718.8-1722.2 |
| 2200-2300 |
| 2310-2390 |
| 2655-2900 |
| 3260-3267 |
| 3332-3339 |
| 3345.8-3358 |
| 3500-4400 |
| 4500-5150 |
| 5350-5460 |
| 7250-7750 |
| 8025-8500 |

| GHz |
|---|
| 9.0-9.2 |
| 9.3-9.5 |
| 10.6-12.7 |
| 13.25-13.4 |
| 14.47-14.5 |
| 15.35-16.2 |
| 17.7-21.4 |
| 22.01-23.12 |
| 23.6-24.0 |
| 31.2-31.8 |
| 36.43-36.5 |
| Above 38.6 |

* Certain frequency bands listed in Table 6 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to the devices are set out in the 200- and 300-series of RSSs, such as RSS-210 and RSS-310, which contain the requirements that apply to licence-exempt radio apparatus.

**For 15.407(b) requirement:**

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

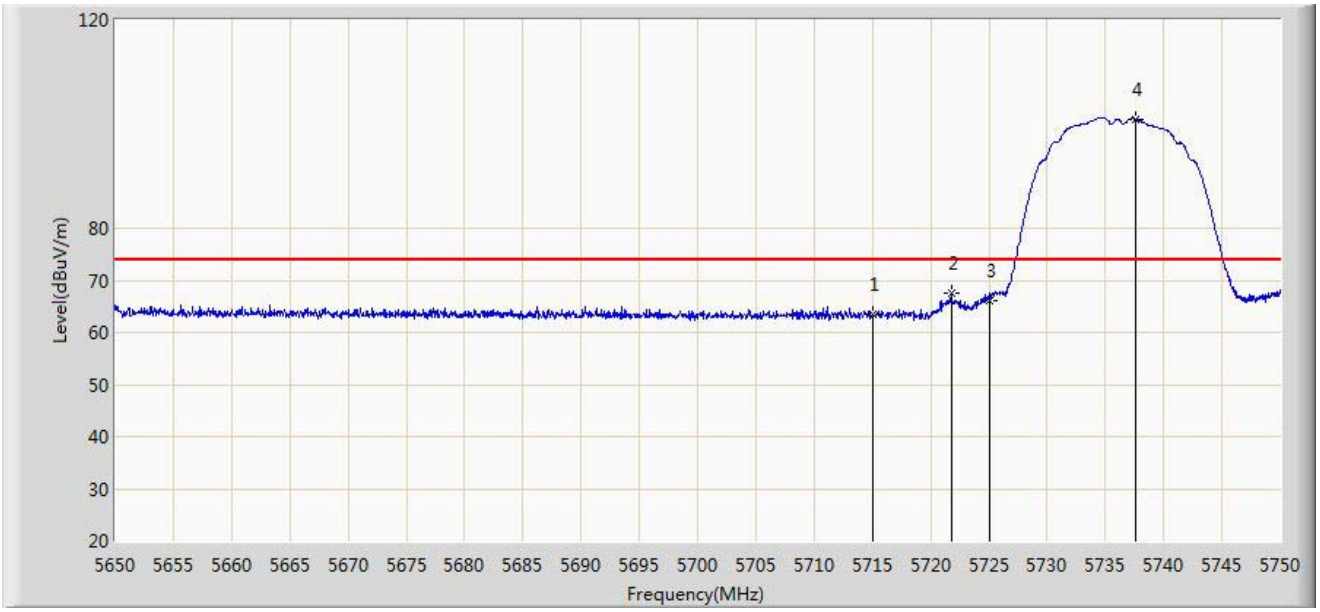
Note: Refer to KDB 789033 D02v01 G)2)c), as specified in § 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a maximum emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in § 15.407(b)(4)). However, an out-of-band emission that complies with both the peak and average limits of § 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz maximum emission 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 |

### 7.9.2. Test Result of Radiated Restricted Band Edge

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 09:36 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5736MHz Ant A | |

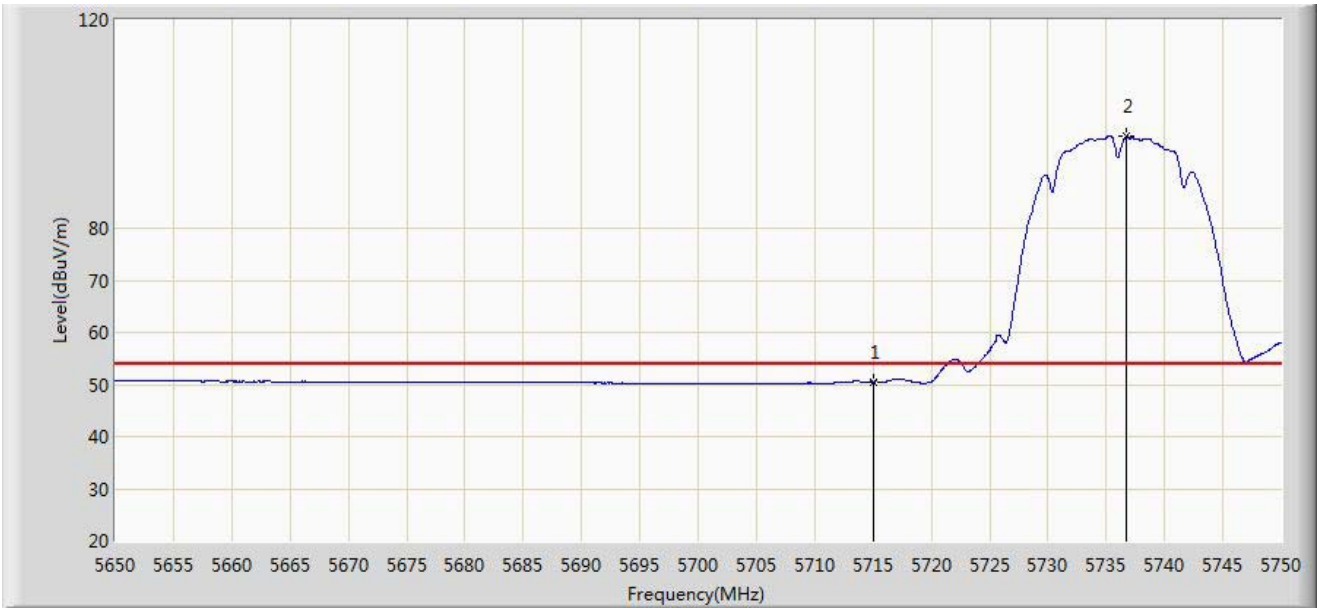



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5715.000 | 63.565 | 25.616 | -10.435 | 74.000 | 37.949 | PK |
| 2 | | | 5721.750 | 67.523 | 29.547 | -6.477 | 74.000 | 37.976 | PK |
| 3 | | | 5725.000 | 66.183 | 28.193 | -7.817 | 74.000 | 37.990 | PK |
| 4 | | * | 5737.650 | 100.919 | 62.877 | N/A | N/A | 38.042 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 09:41 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5736MHz Ant A | |

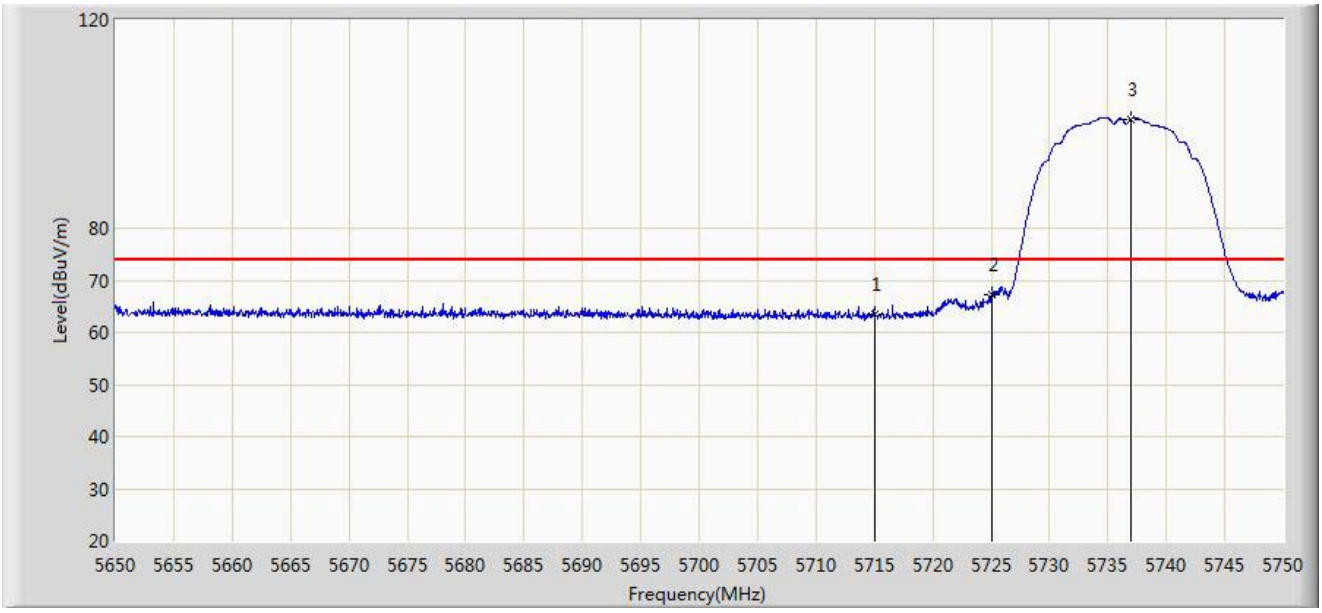



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5715.000 | 50.561 | 12.612 | -3.439 | 54.000 | 37.949 | AV |
| 2 | | * | 5736.700 | 97.556 | 59.518 | N/A | N/A | 38.038 | AV |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 09:49 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5736MHz Ant A | |

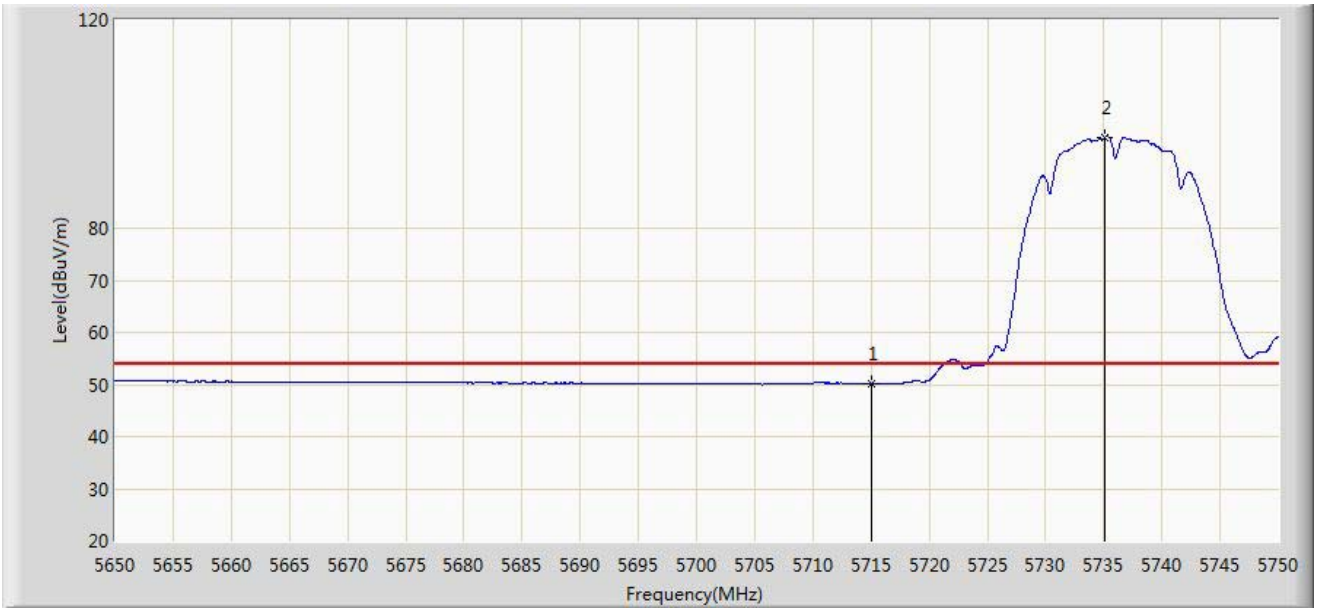



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5715.000 | 63.448 | 25.499 | -10.552 | 74.000 | 37.949 | PK |
| 2 | | | 5725.000 | 67.256 | 29.266 | -6.744 | 74.000 | 37.990 | PK |
| 3 | | * | 5737.000 | 100.954 | 62.915 | N/A | N/A | 38.039 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 09:55 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5736MHz Ant A | |

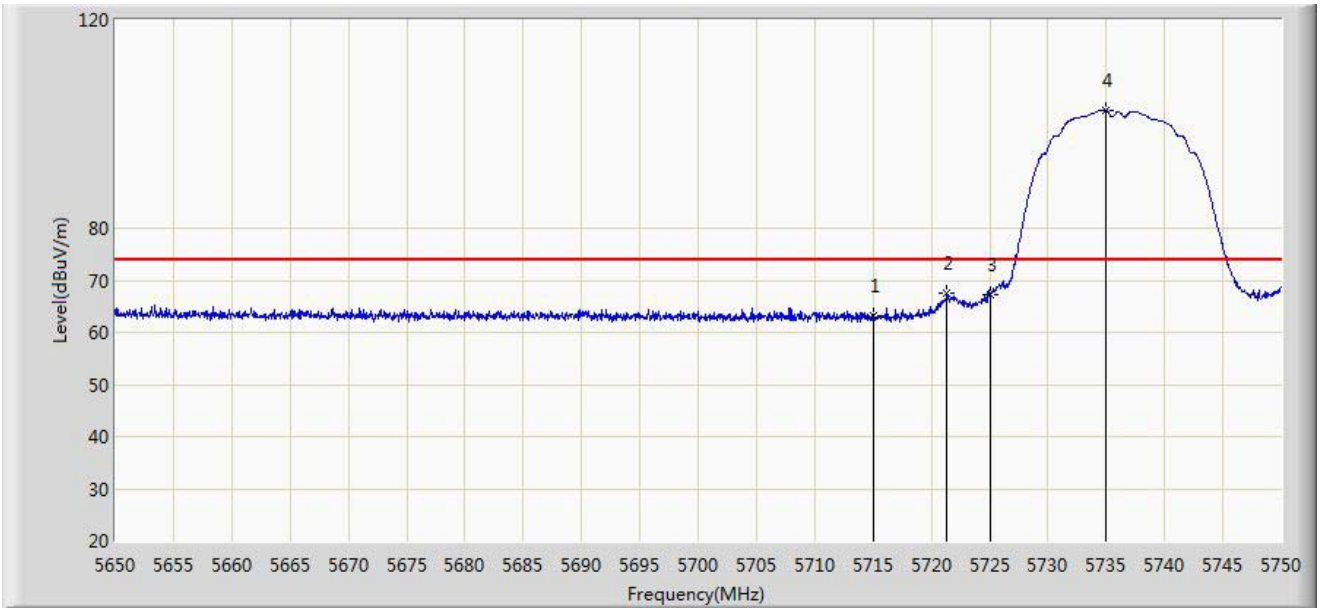



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5715.000 | 50.096 | 12.147 | -3.904 | 54.000 | 37.949 | AV |
| 2 | | * | 5735.150 | 97.496 | 59.464 | N/A | N/A | 38.032 | AV |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 10:03 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5736MHz Ant B | |

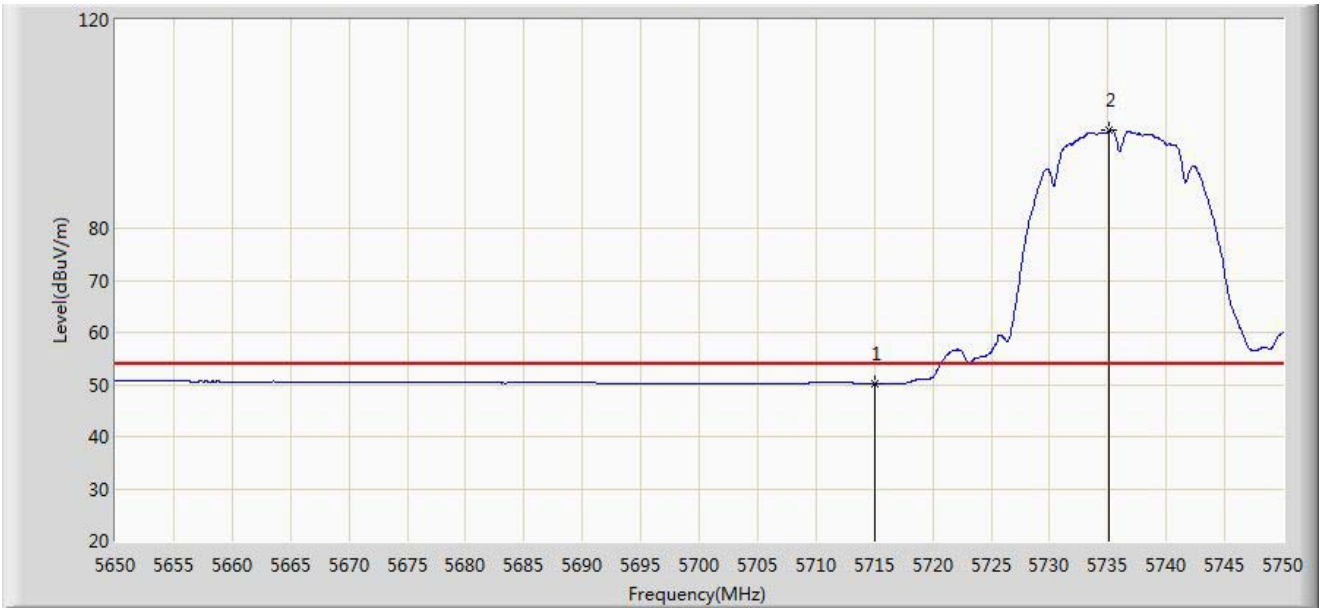



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5715.000 | 63.139 | 25.190 | -10.861 | 74.000 | 37.949 | PK |
| 2 | | | 5721.350 | 67.461 | 29.486 | -6.539 | 74.000 | 37.975 | PK |
| 3 | | | 5725.000 | 67.286 | 29.296 | -6.714 | 74.000 | 37.990 | PK |
| 4 | | * | 5735.000 | 102.546 | 64.515 | N/A | N/A | 38.031 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 10:14 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5736MHz Ant B | |

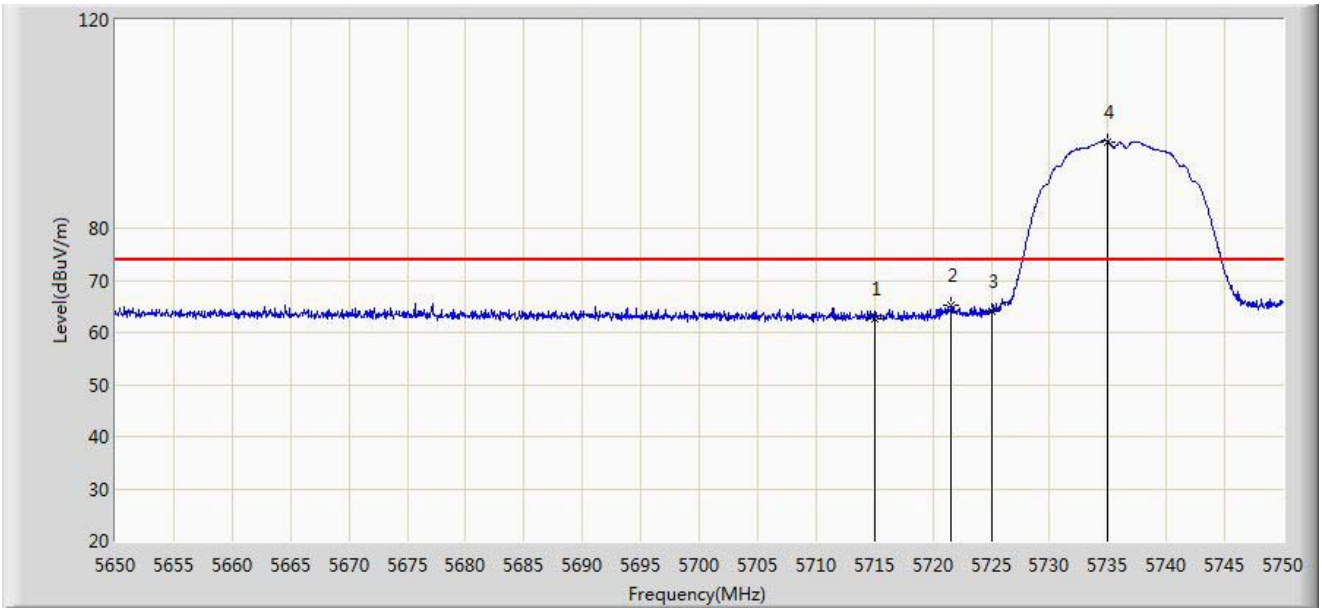



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5715.000 | 50.131 | 12.182 | -3.869 | 54.000 | 37.949 | AV |
| 2 | | * | 5735.150 | 98.746 | 60.714 | N/A | N/A | 38.032 | AV |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 10:19 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5736MHz Ant B | |

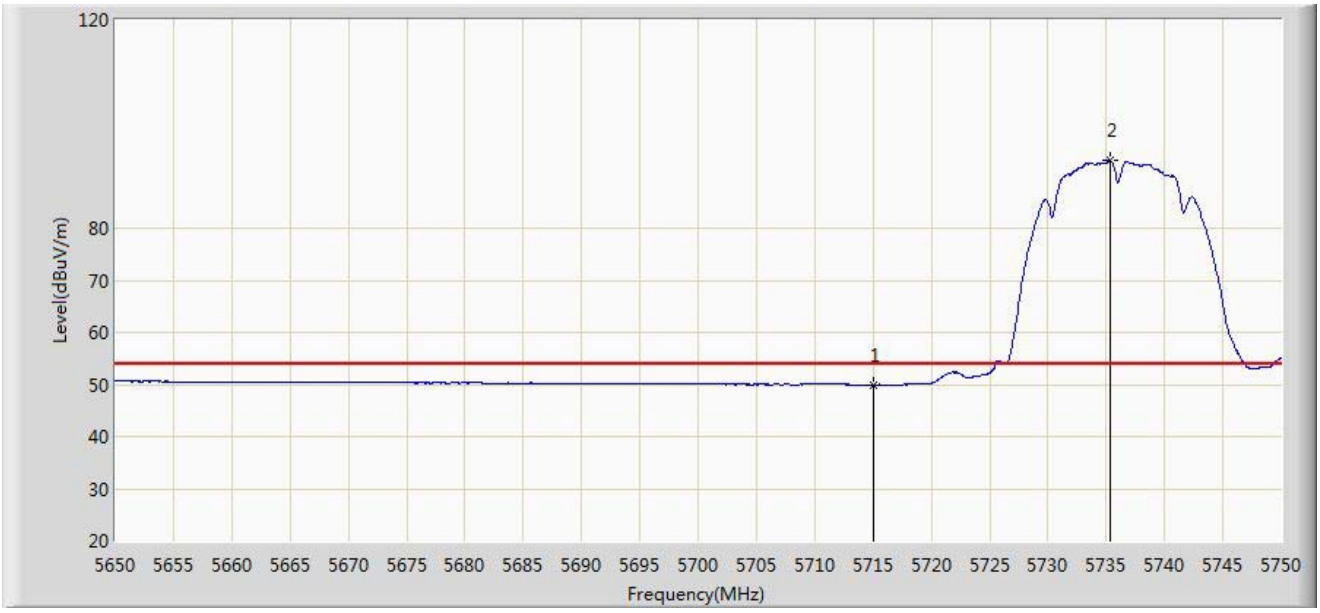



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5715.000 | 62.653 | 24.704 | -11.347 | 74.000 | 37.949 | PK |
| 2 | | | 5721.600 | 65.218 | 27.242 | -8.782 | 74.000 | 37.976 | PK |
| 3 | | | 5725.000 | 64.035 | 26.045 | -9.965 | 74.000 | 37.990 | PK |
| 4 | | * | 5735.000 | 96.626 | 58.595 | N/A | N/A | 38.031 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 10:26 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5736MHz Ant B | |

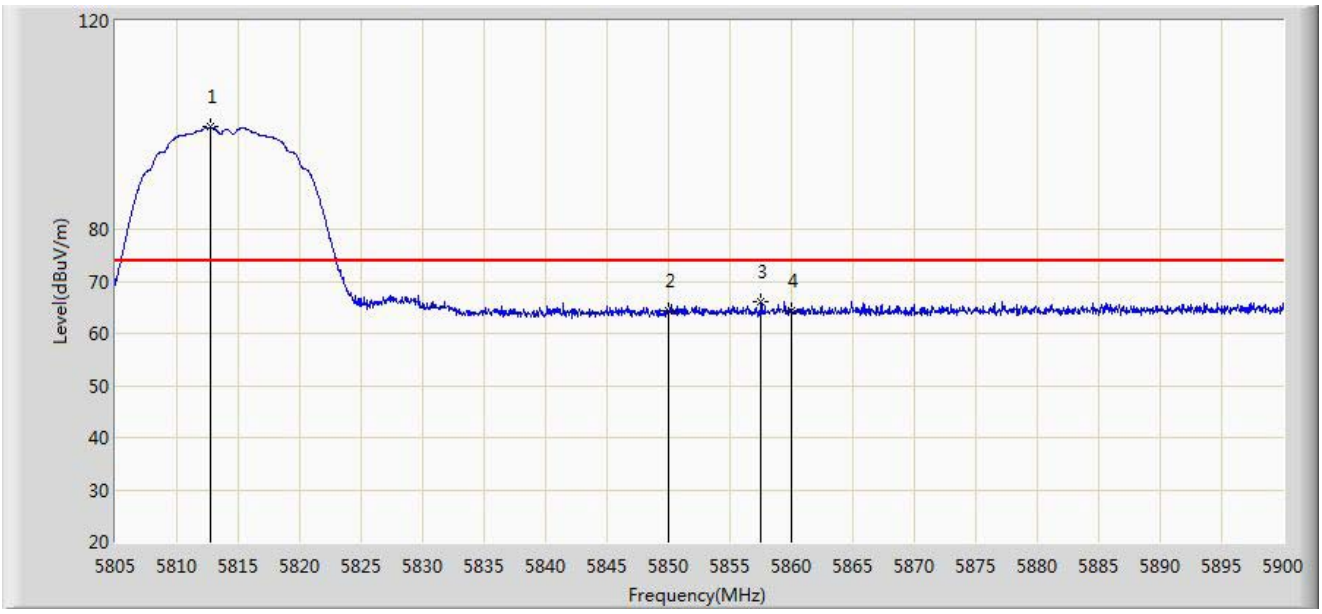



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5715.000 | 49.954 | 12.005 | -4.046 | 54.000 | 37.949 | AV |
| 2 | | * | 5735.350 | 93.031 | 54.999 | N/A | N/A | 38.033 | AV |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 10:32 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5814MHz Ant A | |

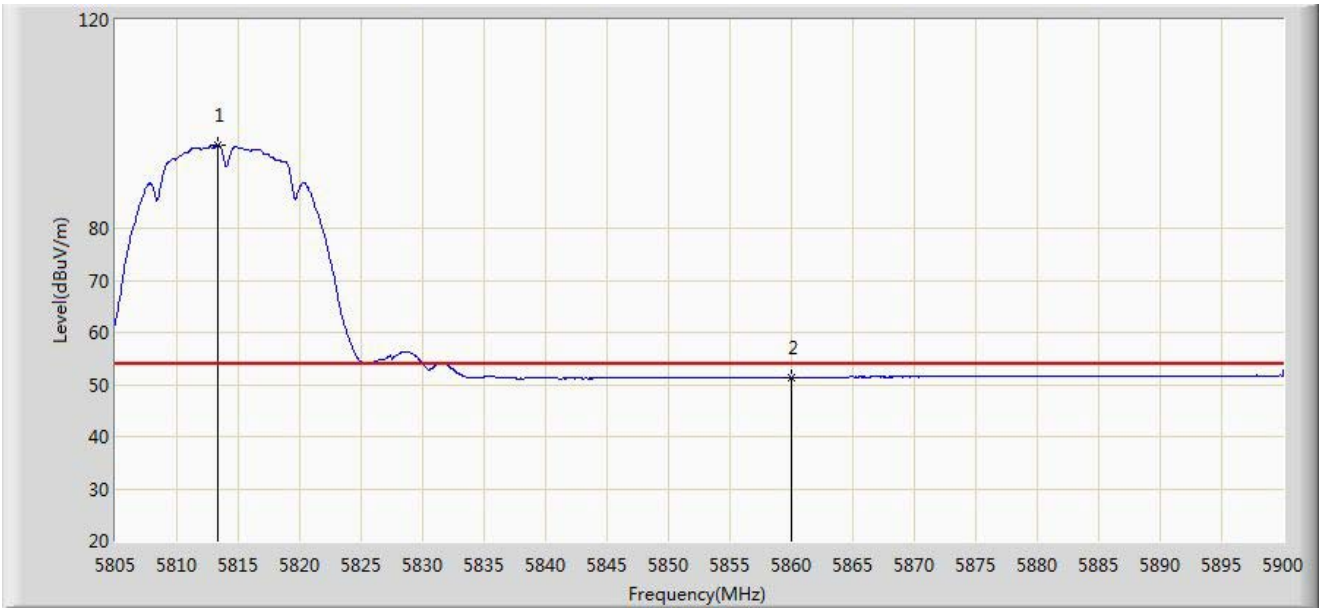



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 5812.790 | 99.591 | 61.286 | N/A | N/A | 38.305 | PK |
| 2 | | | 5850.000 | 64.203 | 25.750 | -9.797 | 74.000 | 38.454 | PK |
| 3 | | | 5857.535 | 66.008 | 27.536 | -7.992 | 74.000 | 38.472 | PK |
| 4 | | | 5860.000 | 64.486 | 26.008 | -9.514 | 74.000 | 38.478 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 10:41 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5814MHz Ant A | |

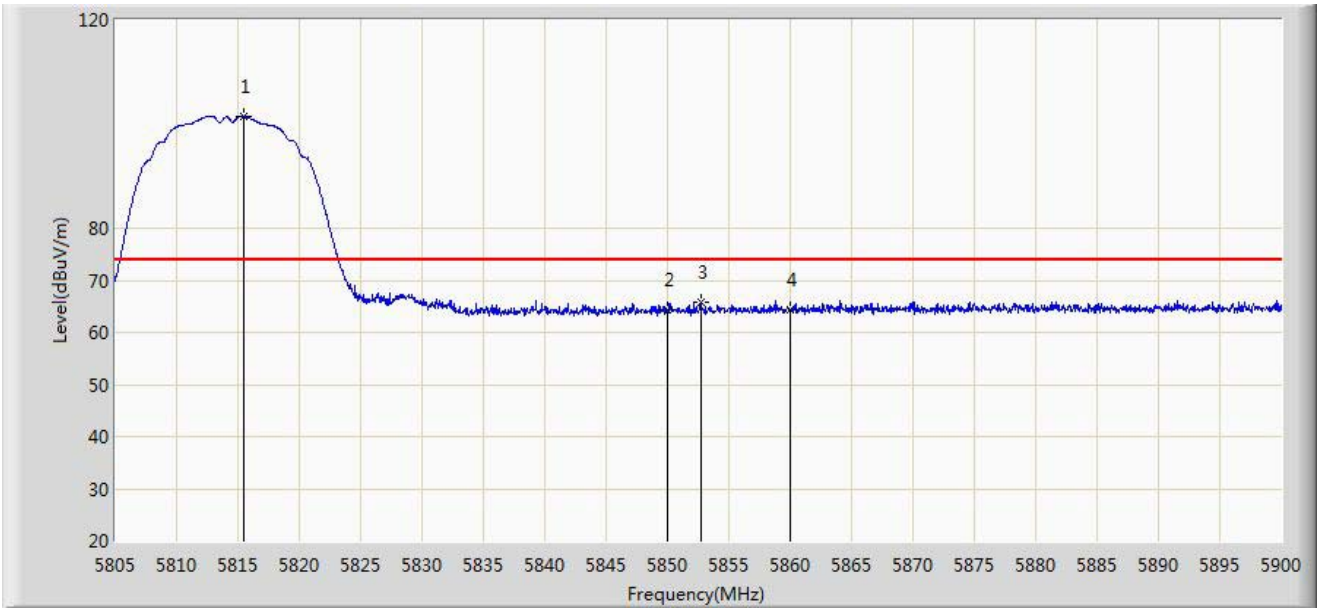



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 5813.360 | 95.984 | 57.677 | N/A | N/A | 38.307 | AV |
| 2 | | | 5860.000 | 51.401 | 12.923 | -2.599 | 54.000 | 38.478 | AV |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 10:46 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5814MHz Ant A | |

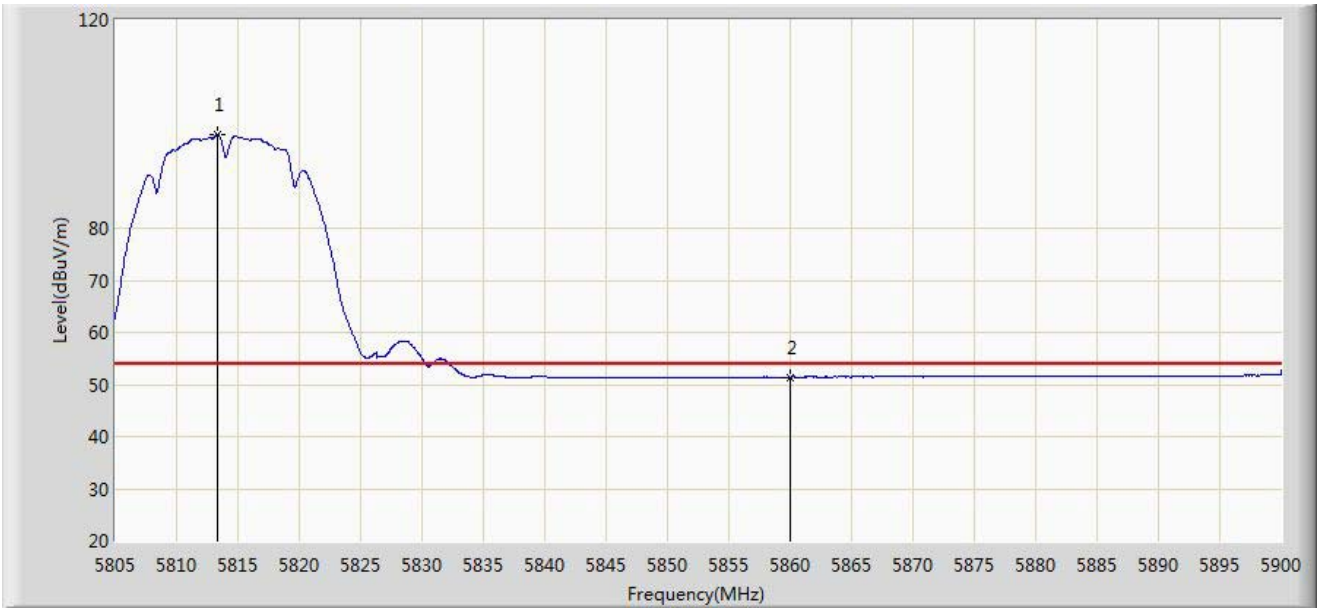



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 5815.450 | 101.404 | 63.088 | N/A | N/A | 38.316 | PK |
| 2 | | | 5850.000 | 64.302 | 25.849 | -9.698 | 74.000 | 38.454 | PK |
| 3 | | | 5852.690 | 65.704 | 27.244 | -8.296 | 74.000 | 38.459 | PK |
| 4 | | | 5860.000 | 64.315 | 25.837 | -9.685 | 74.000 | 38.478 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 10:53 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5814MHz Ant A | |

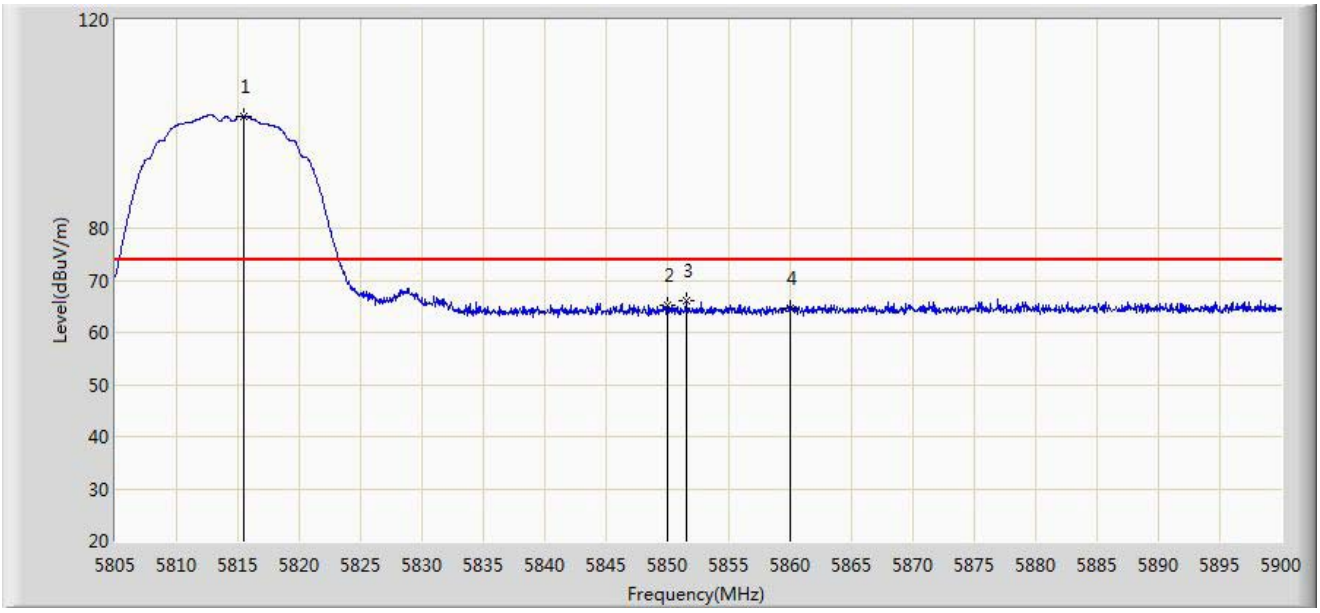



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 5813.360 | 97.877 | 59.570 | N/A | N/A | 38.307 | AV |
| 2 | | | 5860.000 | 51.416 | 12.938 | -2.584 | 54.000 | 38.478 | AV |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 10:59 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5814MHz Ant B | |

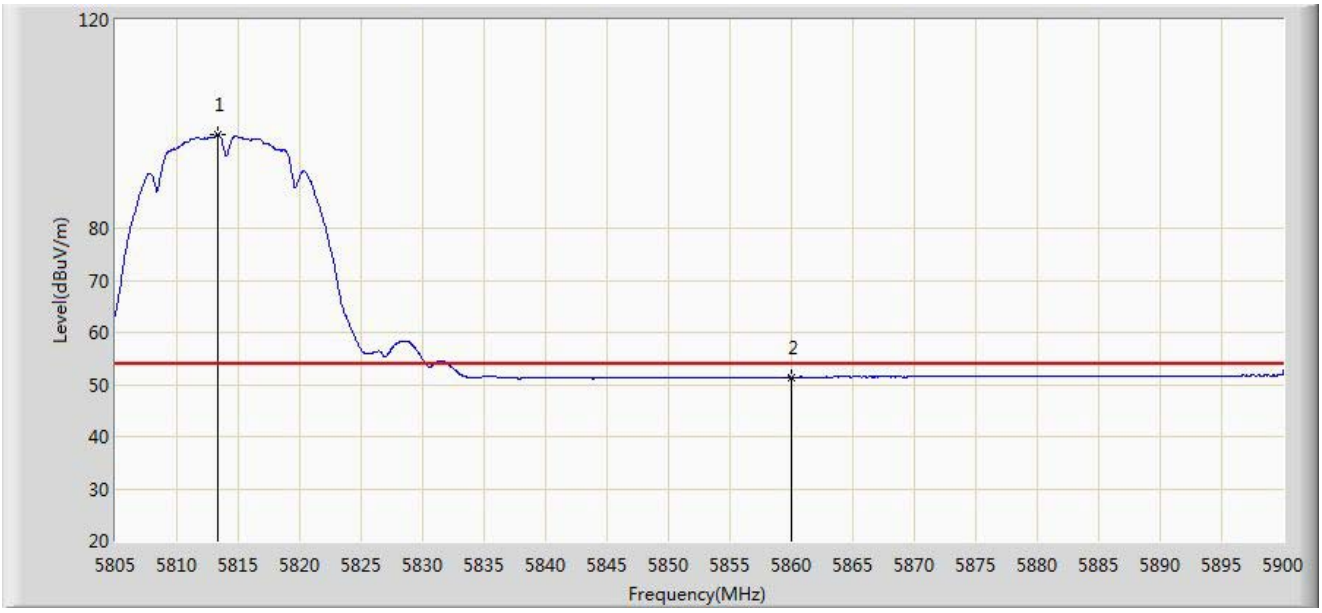



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 5815.450 | 101.544 | 63.228 | N/A | N/A | 38.316 | PK |
| 2 | | | 5850.000 | 65.081 | 26.628 | -8.919 | 74.000 | 38.454 | PK |
| 3 | | | 5851.598 | 66.152 | 27.695 | -7.848 | 74.000 | 38.457 | PK |
| 4 | | | 5860.000 | 64.735 | 26.257 | -9.265 | 74.000 | 38.478 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 11:06 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5814MHz Ant B | |

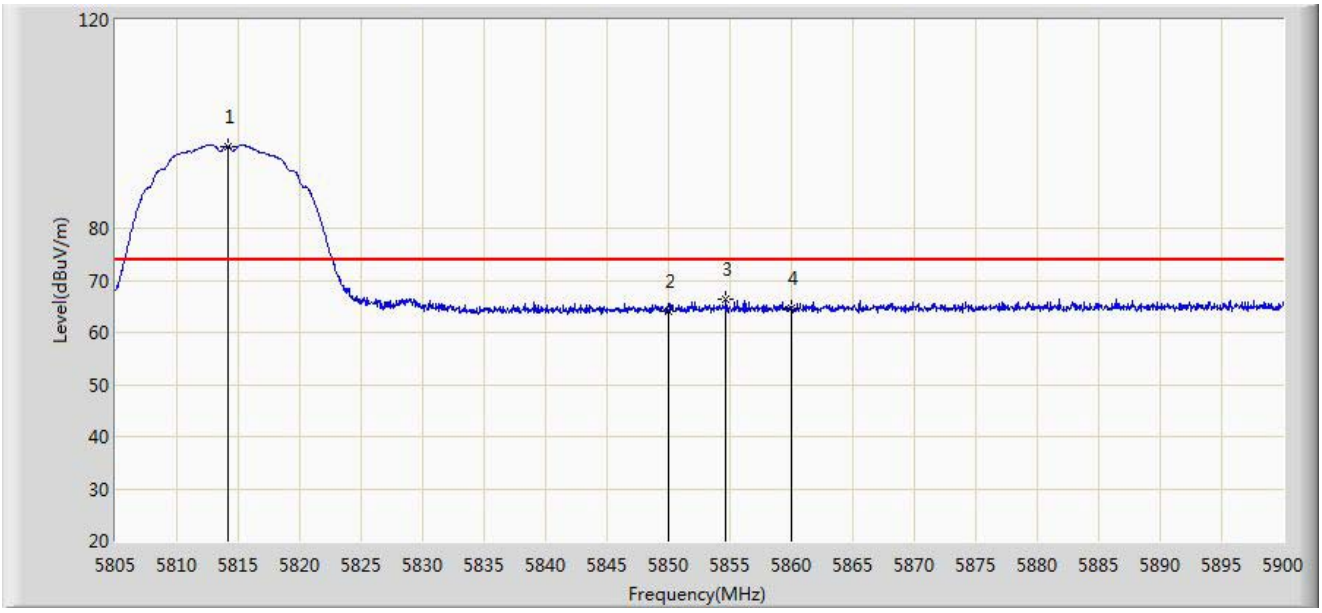



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 5813.360 | 97.949 | 59.642 | N/A | N/A | 38.307 | AV |
| 2 | | | 5860.000 | 51.389 | 12.911 | -2.611 | 54.000 | 38.478 | AV |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 11:12 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5814MHz Ant B | |

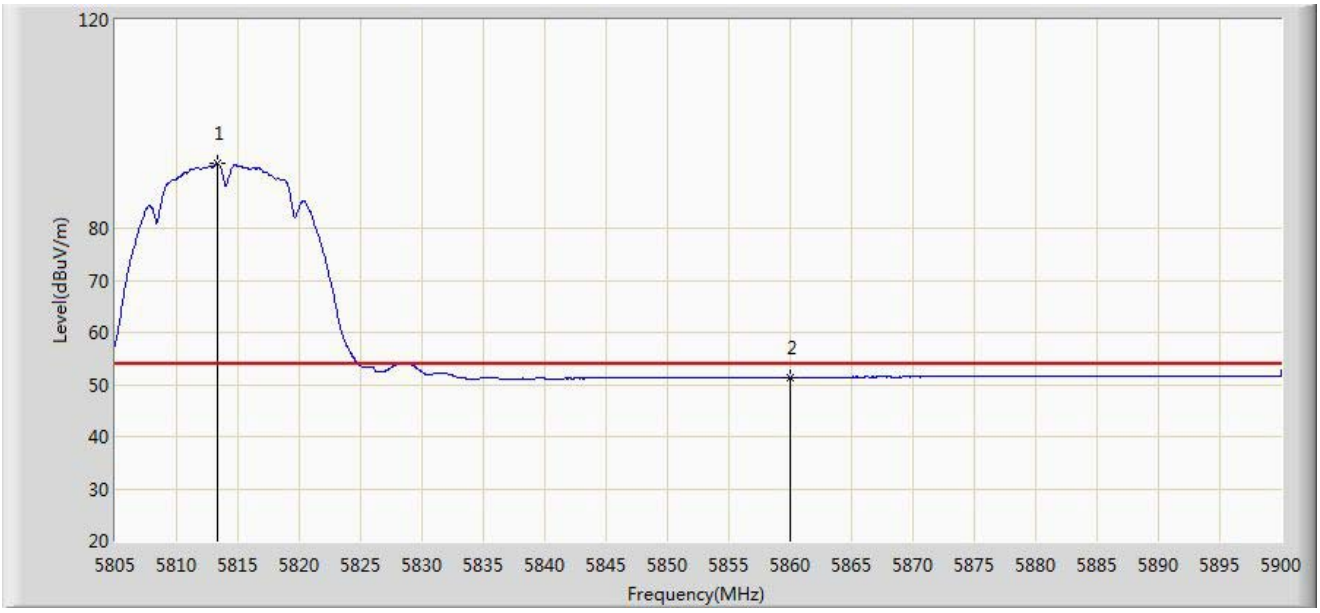



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 5814.120 | 95.760 | 57.450 | N/A | N/A | 38.310 | PK |
| 2 | | | 5850.000 | 64.101 | 25.648 | -9.899 | 74.000 | 38.454 | PK |
| 3 | | | 5854.638 | 66.348 | 27.883 | -7.652 | 74.000 | 38.465 | PK |
| 4 | | | 5860.000 | 64.686 | 26.208 | -9.314 | 74.000 | 38.478 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 11:19 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5814MHz Ant B | |

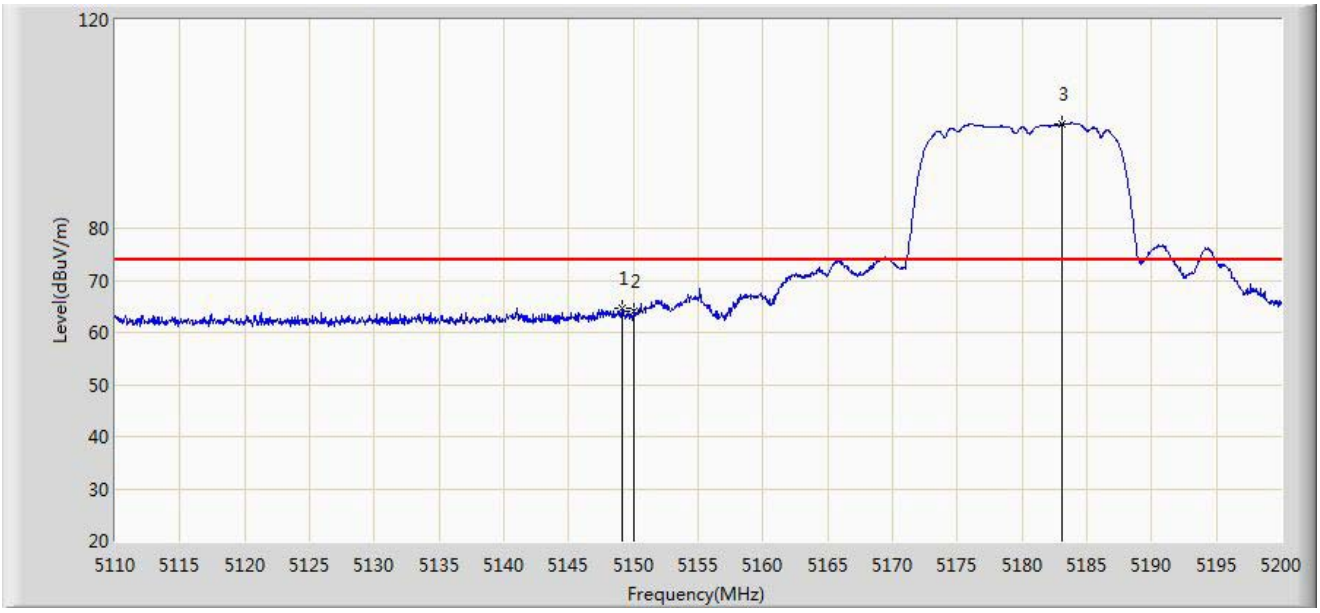



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | * | 5813.360 | 92.339 | 54.032 | N/A | N/A | 38.307 | AV |
| 2 | | | 5860.000 | 51.395 | 12.917 | -2.605 | 54.000 | 38.478 | AV |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 11:25 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5180MHz Ant A | |

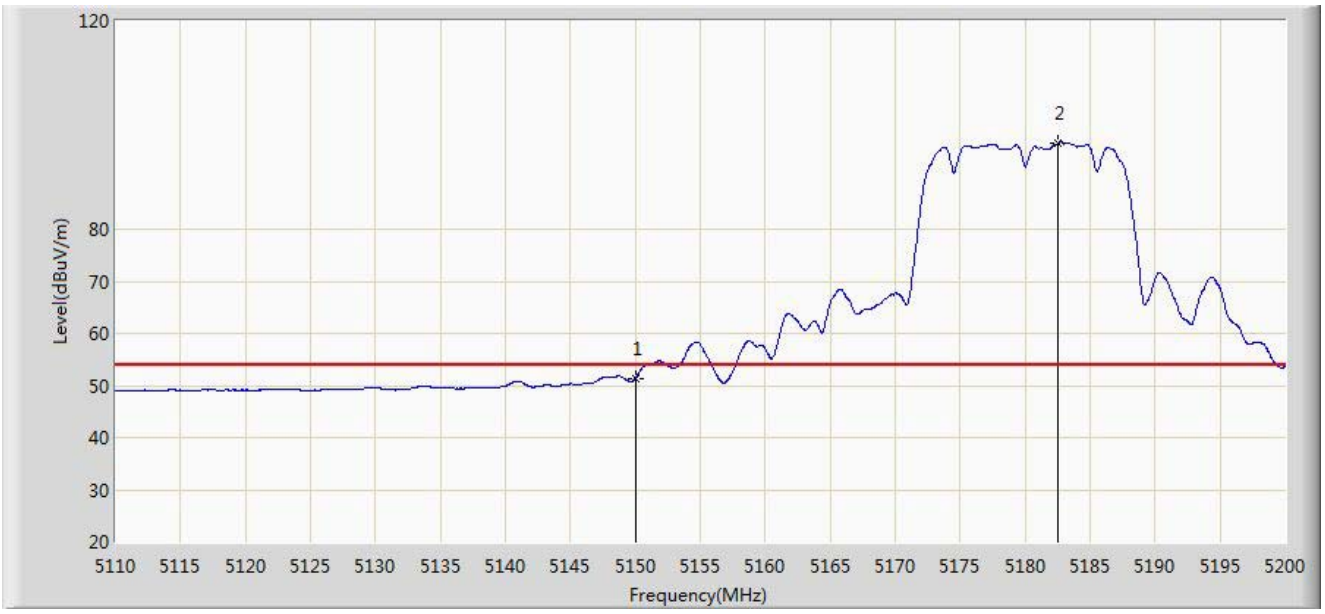



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5149.150 | 64.714 | 27.261 | -9.286 | 74.000 | 37.453 | PK |
| 2 | | | 5150.000 | 64.197 | 26.745 | -9.803 | 74.000 | 37.452 | PK |
| 3 | | * | 5183.125 | 99.986 | 62.620 | N/A | N/A | 37.366 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 11:34 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5180MHz Ant A | |

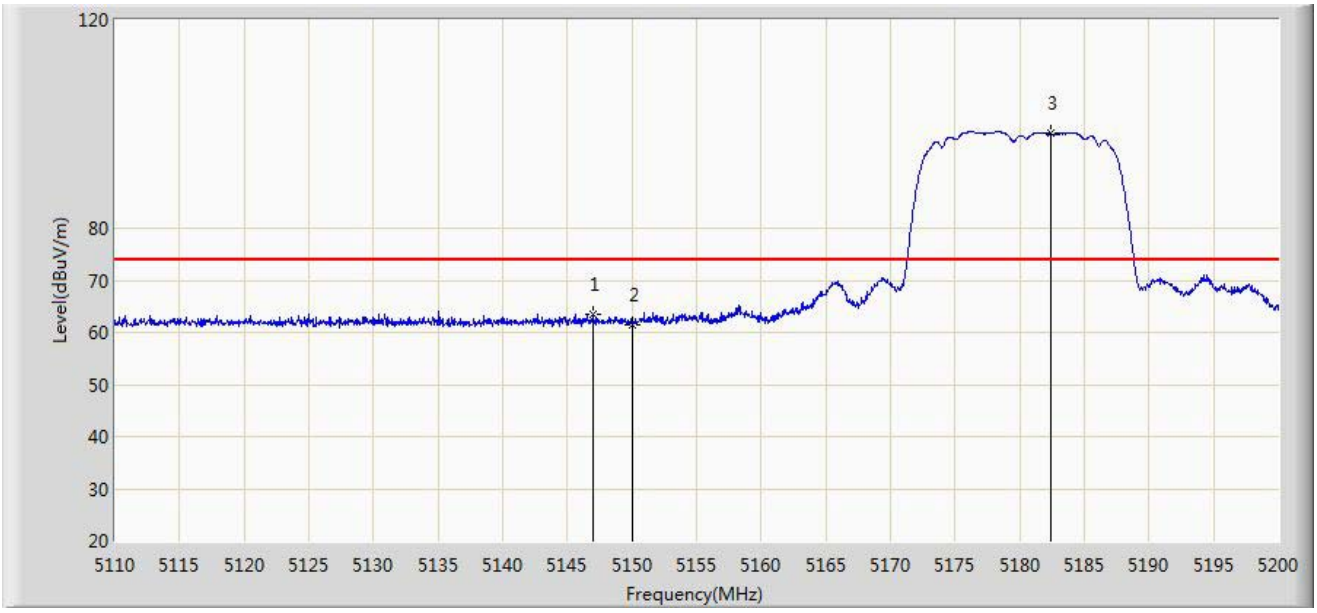



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5150.000 | 51.348 | 13.896 | -2.652 | 54.000 | 37.452 | AV |
| 2 | | * | 5182.540 | 96.557 | 59.189 | N/A | N/A | 37.367 | AV |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 11:42 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5180MHz Ant A | |

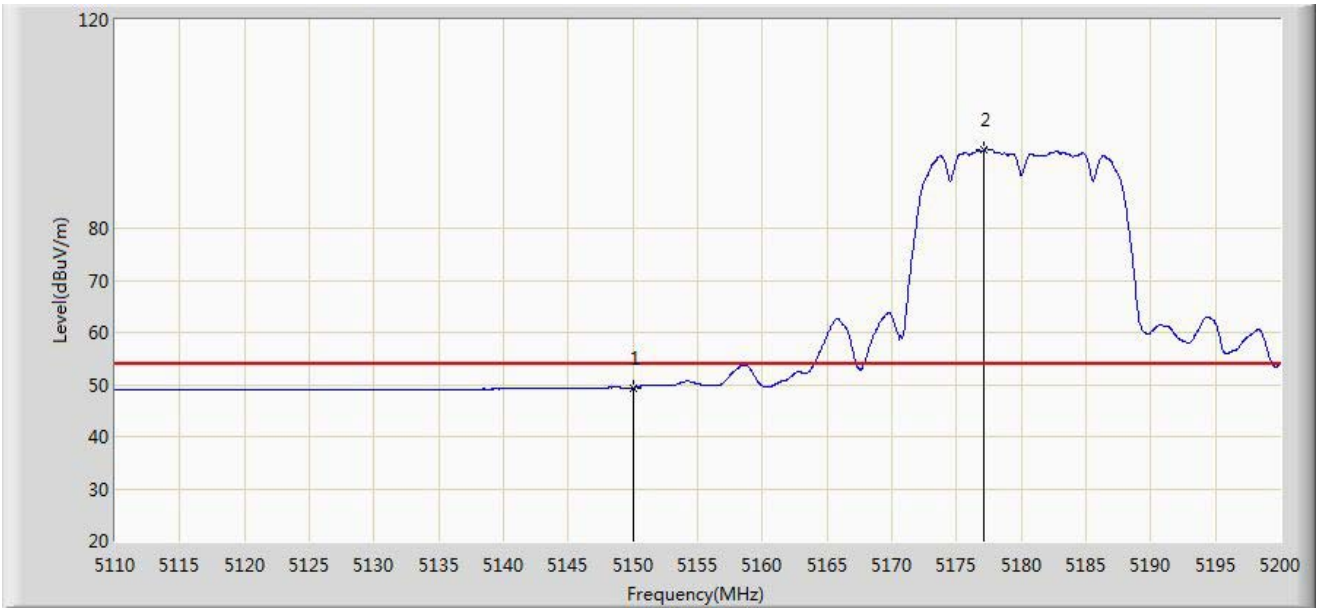



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5146.990 | 63.542 | 26.086 | -10.458 | 74.000 | 37.456 | PK |
| 2 | | | 5150.000 | 61.547 | 24.095 | -12.453 | 74.000 | 37.452 | PK |
| 3 | | * | 5182.450 | 98.130 | 60.762 | N/A | N/A | 37.368 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 11:49 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5180MHz Ant A | |

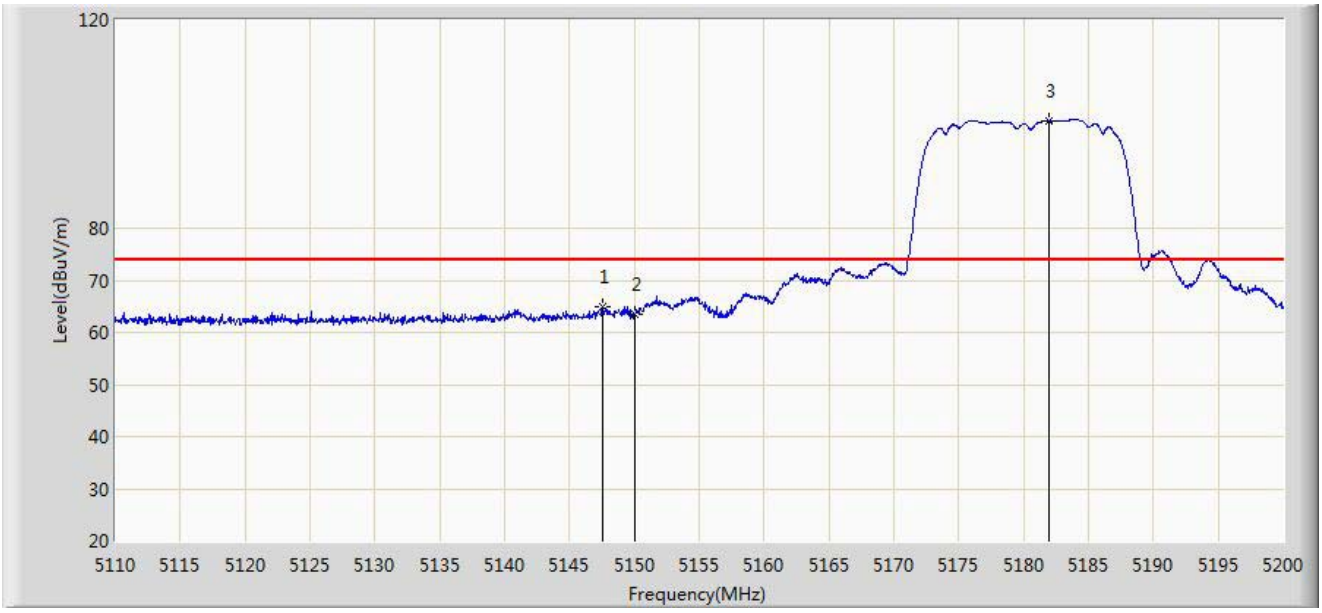



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5150.000 | 49.327 | 11.875 | -4.673 | 54.000 | 37.452 | AV |
| 2 | | * | 5177.095 | 95.012 | 57.632 | N/A | N/A | 37.380 | AV |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 12:03 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5180MHz Ant B | |

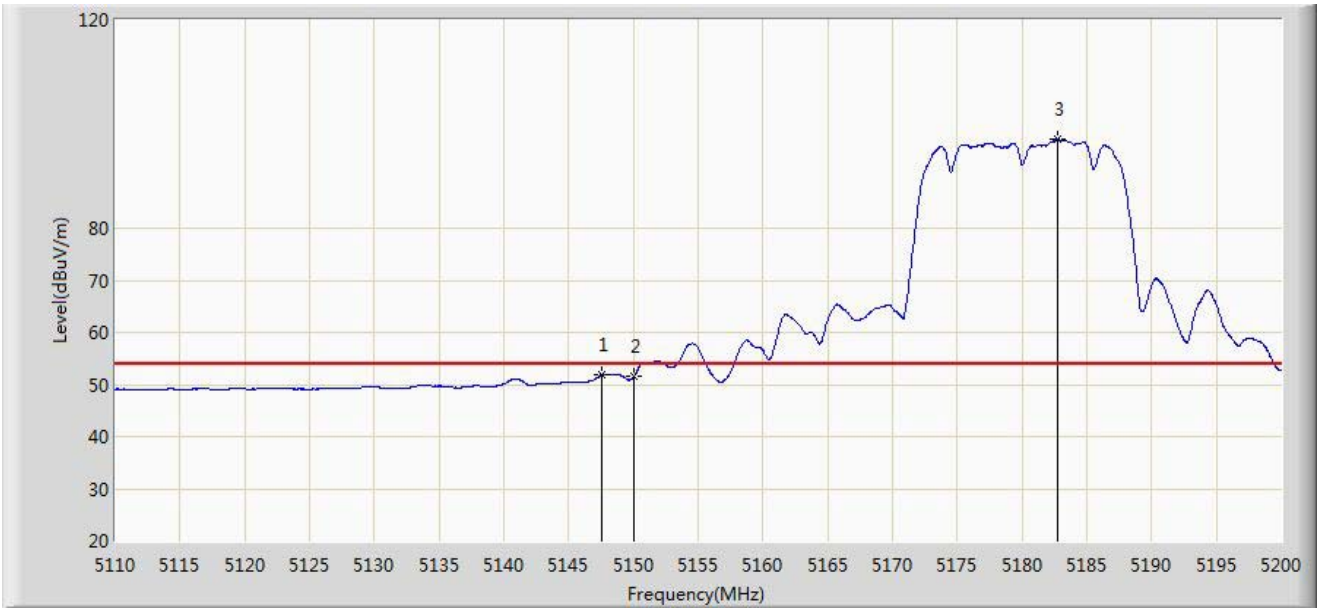



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5147.575 | 64.922 | 27.467 | -9.078 | 74.000 | 37.455 | PK |
| 2 | | | 5150.000 | 63.345 | 25.893 | -10.655 | 74.000 | 37.452 | PK |
| 3 | | * | 5181.910 | 100.609 | 63.240 | N/A | N/A | 37.370 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 12:07 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Horizontal |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5180MHz Ant B | |

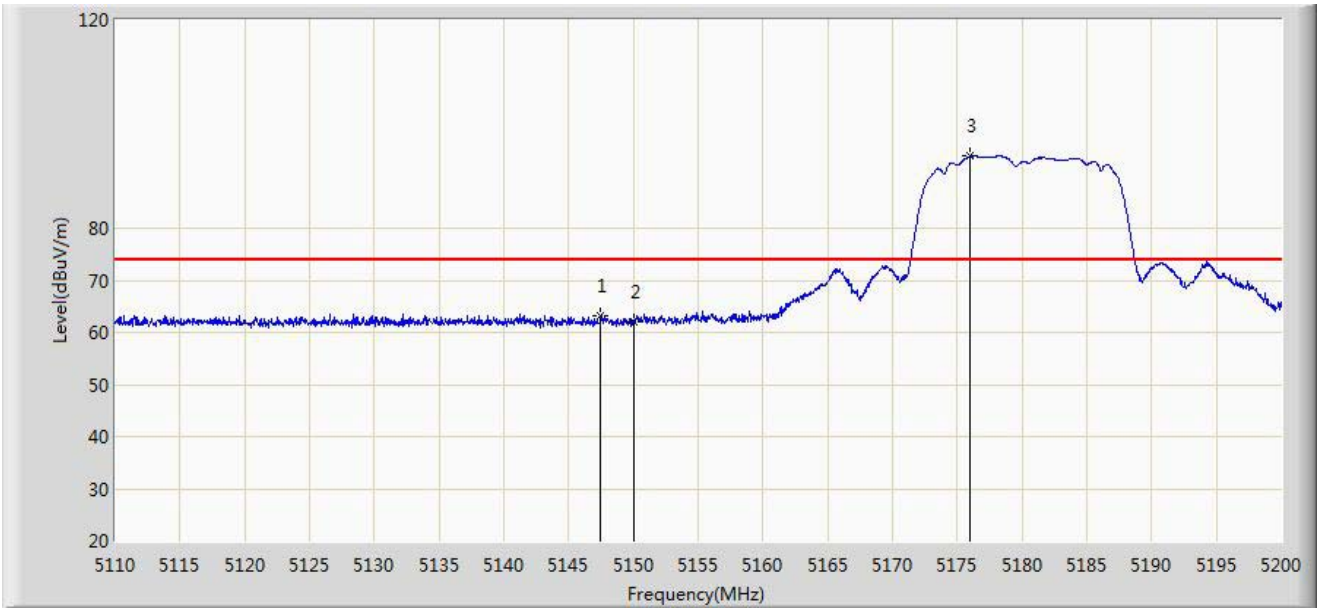



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5147.575 | 51.866 | 14.411 | -2.134 | 54.000 | 37.455 | AV |
| 2 | | | 5150.000 | 51.479 | 14.027 | -2.521 | 54.000 | 37.452 | AV |
| 3 | | * | 5182.720 | 97.175 | 59.808 | N/A | N/A | 37.368 | AV |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 12:16 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5180MHz Ant B | |

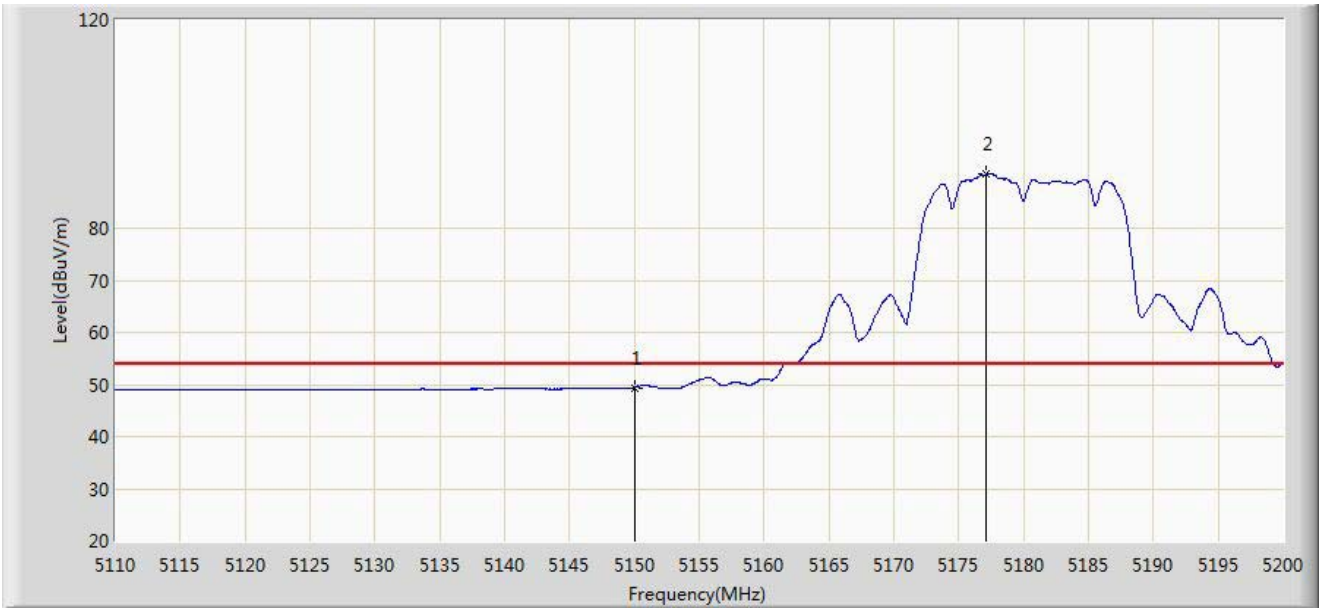



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5147.440 | 63.059 | 25.603 | -10.941 | 74.000 | 37.456 | PK |
| 2 | | | 5150.000 | 62.149 | 24.697 | -11.851 | 74.000 | 37.452 | PK |
| 3 | | * | 5176.015 | 93.773 | 56.390 | N/A | N/A | 37.383 | PK |

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

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

| | |
|---|---|
| Site: AC1 | Time: 2015/06/23 - 12:25 |
| Limit: FCC_Part15.209_RE(3m) | Engineer: Lewis Huang |
| Probe: BBHA9120D_1-18GHz | Polarity: Vertical |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Test Mode: Transmit at channel 5180MHz Ant B | |




| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 5150.000 | 49.391 | 11.939 | -4.609 | 54.000 | 37.452 | AV |
| 2 | | * | 5177.140 | 90.386 | 53.006 | N/A | N/A | 37.380 | AV |

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

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

## 7.10. AC Conducted Emissions Measurement

### 7.10.1. Test Limit

| FCC Part 15 Subpart E Paragraph 15.207 | | |
|---|---|---|
| Frequency (MHz) | QP (dBμV) | AV (dBμV) |
| 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.

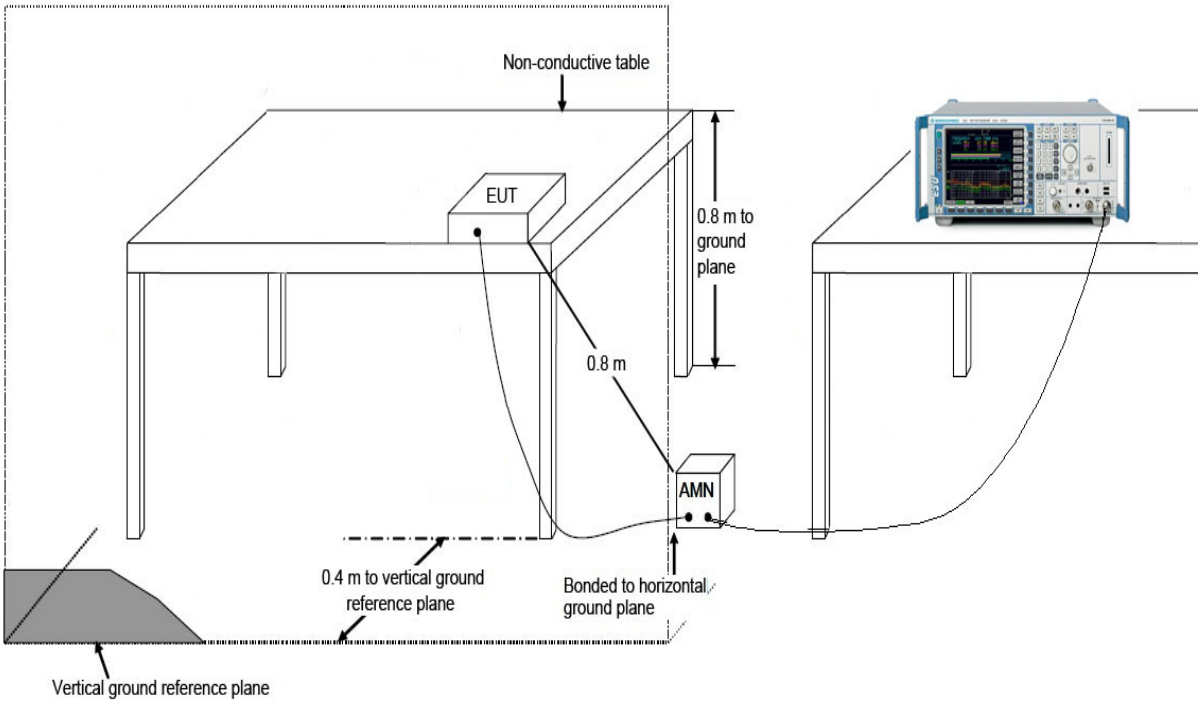
### 7.10.2. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to KDB 789033 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

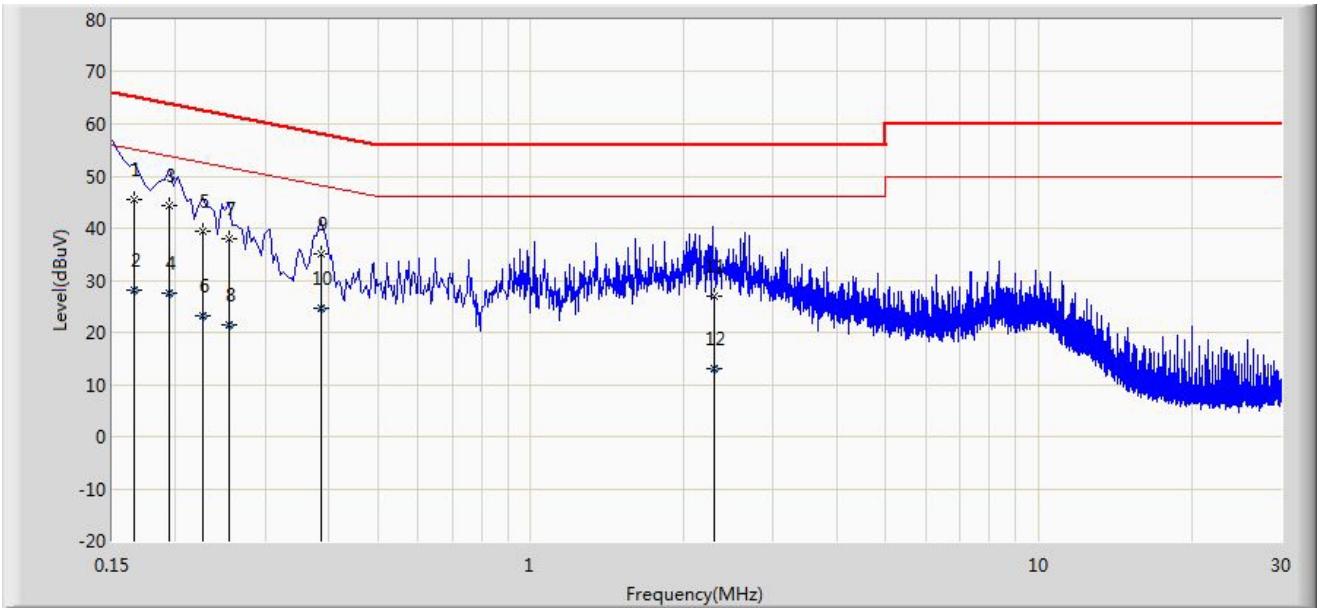
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

### 7.10.3. Test Setup



### 7.10.4. Test Result

| | |
|---|---|
| Site: SR2 | Time: 2015/06/22 - 15:02 |
| Limit: FCC_Part15.207_CE_AC Power | Engineer: Lewis Huang |
| Probe: ENV216_101683_Filter On | Polarity: Line |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Mode1 | |

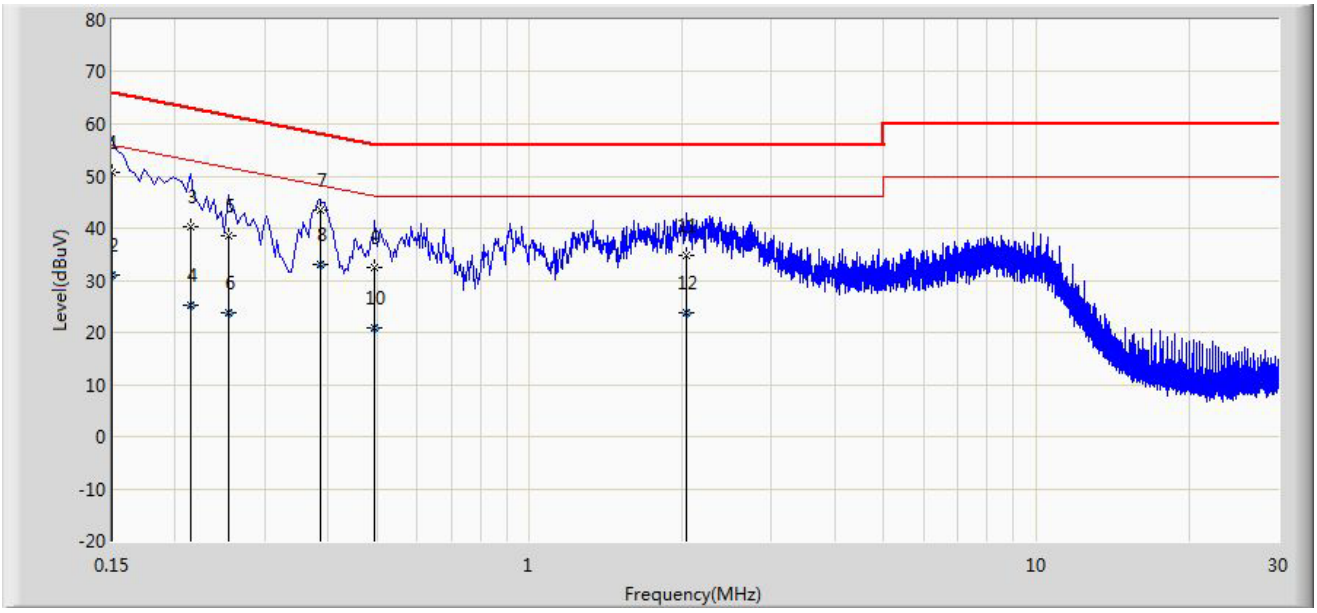



| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0.166 | 45.387 | 35.300 | -19.771 | 65.158 | 10.087 | QP |
| 2 | | | 0.166 | 28.187 | 18.099 | -26.971 | 55.158 | 10.087 | AV |
| 3 | | * | 0.194 | 44.205 | 34.188 | -19.659 | 63.864 | 10.017 | QP |
| 4 | | | 0.194 | 27.441 | 17.425 | -26.422 | 53.864 | 10.017 | AV |
| 5 | | | 0.226 | 39.409 | 29.465 | -23.187 | 62.595 | 9.944 | QP |
| 6 | | | 0.226 | 23.239 | 13.295 | -29.357 | 52.595 | 9.944 | AV |
| 7 | | | 0.254 | 37.829 | 27.861 | -23.797 | 61.625 | 9.967 | QP |
| 8 | | | 0.254 | 21.451 | 11.484 | -30.174 | 51.625 | 9.967 | AV |
| 9 | | | 0.386 | 35.147 | 25.073 | -23.002 | 58.149 | 10.074 | QP |
| 10 | | | 0.386 | 24.637 | 14.563 | -23.512 | 48.149 | 10.074 | AV |
| 11 | | | 2.293 | 26.865 | 17.002 | -29.135 | 56.000 | 9.863 | QP |
| 12 | | | 2.293 | 12.978 | 3.115 | -33.022 | 46.000 | 9.863 | AV |

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

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

| | |
|---|---|
| Site: SR2 | Time: 2015/06/22 - 15:43 |
| Limit: FCC_Part15.207_CE_AC Power | Engineer: Lewis Huang |
| Probe: ENV216_101683_Filter On | Polarity: Neutral |
| EUT: Wireless Subwoofer Adapter | Power: AC 120V/60Hz |
| Note: Mode1 | |




| No | Flag | Mark | Frequency (MHz) | Measure Level (dBuV) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV) | Factor (dB) | Type |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 0.150 | 50.751 | 39.609 | -15.249 | 66.000 | 11.142 | QP |
| 2 | | | 0.150 | 31.008 | 19.866 | -24.992 | 56.000 | 11.142 | AV |
| 3 | | | 0.214 | 40.299 | 30.311 | -22.750 | 63.049 | 9.988 | QP |
| 4 | | | 0.214 | 25.159 | 15.171 | -27.889 | 53.049 | 9.988 | AV |
| 5 | | | 0.254 | 38.621 | 28.617 | -23.005 | 61.625 | 10.004 | QP |
| 6 | | | 0.254 | 23.807 | 13.803 | -27.818 | 51.625 | 10.004 | AV |
| 7 | | * | 0.386 | 43.493 | 33.391 | -14.656 | 58.149 | 10.102 | QP |
| 8 | | | 0.386 | 33.168 | 23.066 | -14.981 | 48.149 | 10.102 | AV |
| 9 | | | 0.494 | 32.486 | 22.308 | -23.614 | 56.100 | 10.178 | QP |
| 10 | | | 0.494 | 20.778 | 10.599 | -25.322 | 46.100 | 10.178 | AV |
| 11 | | | 2.038 | 34.859 | 24.987 | -21.141 | 56.000 | 9.872 | QP |
| 12 | | | 2.038 | 23.758 | 13.886 | -22.242 | 46.000 | 9.872 | 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 **Wireless Subwoofer Adapter**

**FCC ID: 2ABX8SH-000000009** is in compliance with Part 15E of the FCC Rules.

The End