

MEASUREMENT REPORT

FCC PART 15 Subpart C WLAN 802.11b/g/n

FCC ID: BKMAE-STI6110

APPLICANT: SEIKO EPSON CORPORATION

Application Type: Certification

Product: Streaming Media Player

Model No.: STI6110-D101(RoHS)

Brand Name: EPSON

FCC Classification: Digital Transmission System (DTS)

FCC Rule Part(s): Part15 Subpart C (Section 15.247)

Test Procedure(s): ANSI C63.10-2013, KDB 558074 D01v05r02
KDB 662911 D01v02r01

Test Date: May 10 ~ June 11, 2019

Reviewed By:



(Paddy Chen)

Approved By:



(Chenz Ker)



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 ANSI C63.10-2013. 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 (Taiwan) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
1905TW0109-U3	Rev. 01	Initial report	06-18-2019	Valid

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§2.1033 General Information

Applicant:	SEIKO EPSON CORPORATION
Applicant Address:	3-5, Owa 3-chome, Suwa-shi, Nagano-ken 392-8502 Japan
Manufacturer:	SEIKO EPSON CORPORATION
Manufacturer Address:	3-5, Owa 3-chome, Suwa-shi, Nagano-ken 392-8502 Japan
Test Site:	MRT Technology (Taiwan) Co., Ltd
Test Site Address:	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Fuxing Rd., Taoyuan, Taiwan (R.O.C)

- MRT facility is a FCC registered (Reg. No. 153292 and 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Firm.
- MRT facility is an IC registered (MRT Reg. No. 21723-1) test laboratory with the site description on file at Industry Canada.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (TAF) under the American Association for Laboratory Accreditation Program (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC, Industry Taiwan, EU and TELEC Rules.

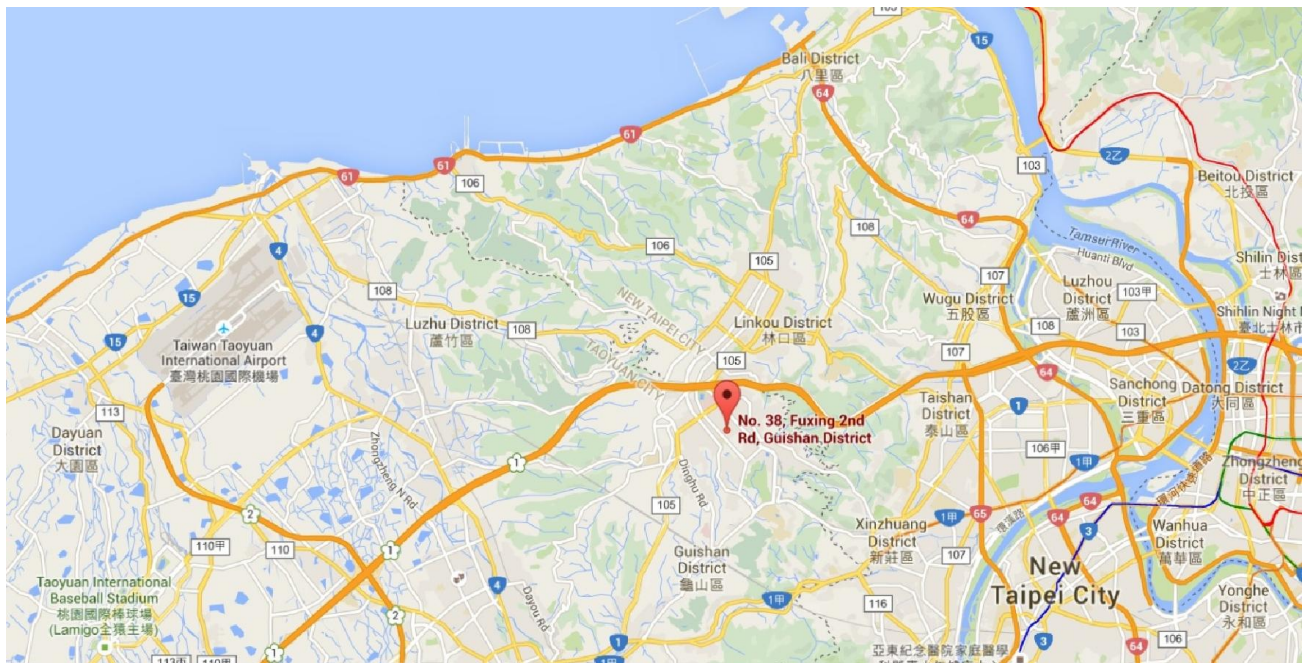
1. INTRODUCTION

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 Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



2. PRODUCT INFORMATION

2.1. Feature of Equipment under Test

Product Name:	Streaming Media Player
Model No.:	STI6110-D101(RoHS)
Brand Name:	EPSON
Wi-Fi Specification:	802.11a/b/g/n/ac
Bluetooth Specification:	v4.2 dual mode

2.2. Product Specification Subjective to this Report

Frequency Range:	802.11b/g/n-HT20: 2412 ~ 2462MHz
Channel Number:	802.11b/g/n-HT20: 11
Type of Modulation:	802.11b: DSSS 802.11g/n: OFDM
Data Rate:	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 144.4Mbps

Note: For other features of this EUT, test report will be issued separately.

2.3. Working Frequencies for this report

802.11b/g/n-HT20

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

2.4. Description of Available Antennas

Antenna Type	Frequency	T _x	Max Antenna Gain	CDD Directional Gain (dBi)	
	Band (MHz)	Paths	(dBi)	For Power	For PSD
Wi-Fi Antenna					
PCB Antenna	2412 ~ 2462	2	1.8	1.8	4.81
	5150 ~ 5250	2	7.1	7.1	10.11
	5725 ~ 5850	2	3.0	3.0	6.01
Bluetooth Antenna					
PCB Antenna	2402 ~ 2480	1	1.6	--	--

Note:

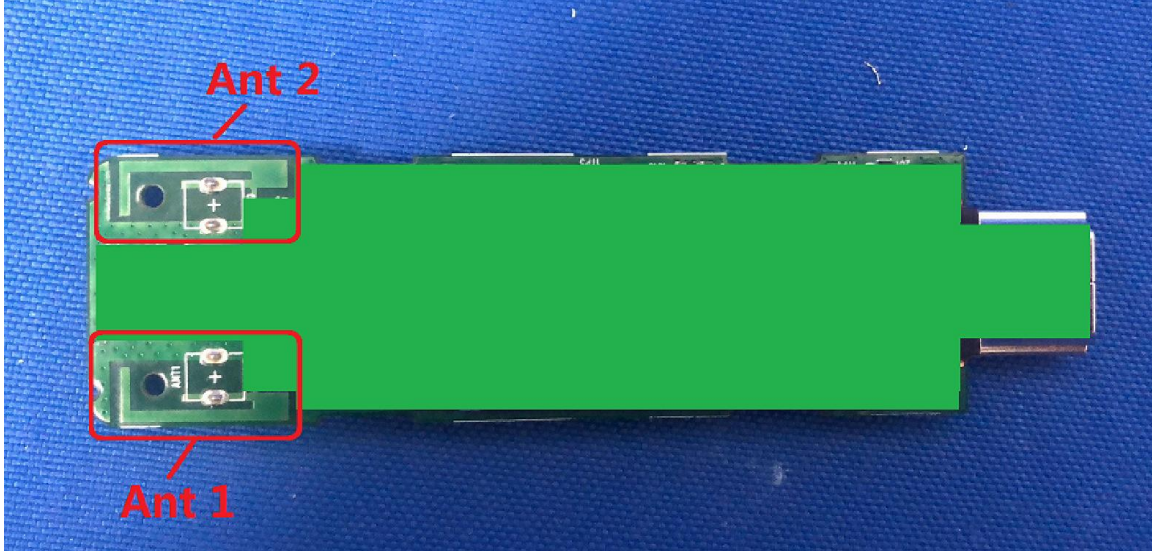
The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

For CDD transmissions, directional gain is calculated as follows, $N_{ANT} = 2$, $N_{SS} = 1$.

If all antennas have the same gain, G_{ANT} , Directional gain = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,
Array Gain = $10 \log (N_{ANT} / N_{SS})$ dB = 3.01;
- For power measurements on IEEE 802.11 devices,
Array Gain = 0 dB for $N_{ANT} \leq 4$;

2.5. Description of Antenna RF Port

Wi-Fi & Bluetooth Antenna RF Port		
Software Control Port	Ant 1 (Wi-Fi)	Ant 2 (Wi-Fi & Bluetooth)
		

2.6. Test Mode

Test Mode	Mode 1: Transmit by 802.11b (1Mbps)
	Mode 2: Transmit by 802.11g (6Mbps)
	Mode 3: Transmit by 802.11n-HT20 (MCS0)

2.7. Description of Test Software

The test utility software used during testing was “Ampak RFTesTool”, and the version was VER 5.8.

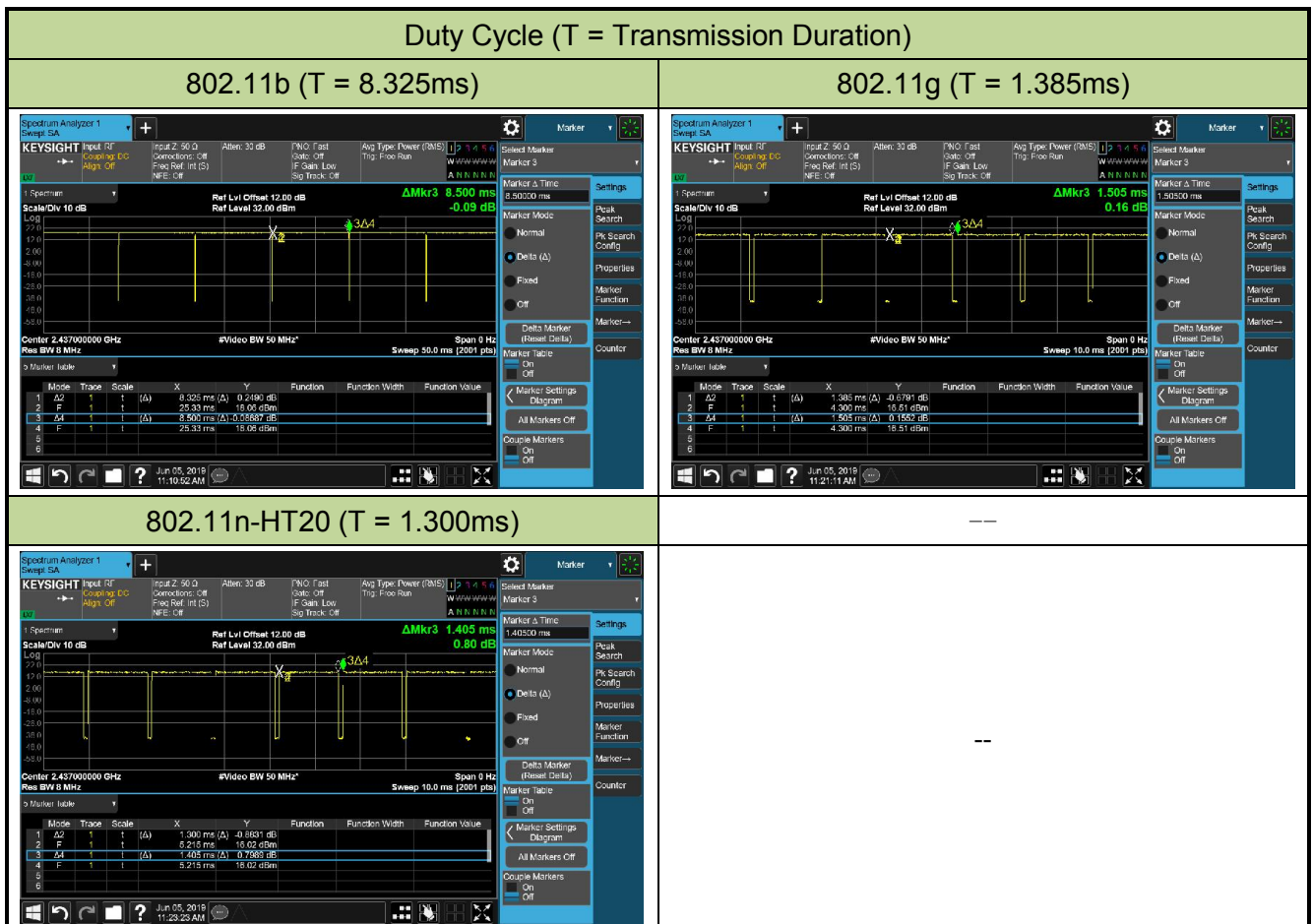
2.8. Device Capabilities

This device contains the following capabilities:

2.4GHz WLAN (DTS), 5GHz WLAN (UNII), Bluetooth v4.2 (DSS / DTS)

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

Model No.	Test Mode	Duty Cycle
STI6110-D101(RoHS)	802.11b	97.94%
	802.11g	92.03%
	802.11n-HT20	92.52%



2.9. Test Configuration

The device was tested per the guidance of ANSI C63.10-2013. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.10. EMI Suppression Device(s)/Modifications

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

2.11. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

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

3. DESCRIPTION of TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance was used in the measurement of the device.

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.

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 device is **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The 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
Two-Line V-Network	R&S	ENV216	MRTTWA00019	1 year	2020/03/25
Two-Line V-Network	R&S	ENV216	MRTTWA00020	1 year	2020/04/25
8-Wire ISN (T8)	R&S	ENY81	MRTTWA00018	1 year	2020/04/23
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2020/03/25
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2020/05/20

Radiated Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	MRTTWA00002	1 year	2020/04/29
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00001	1 year	2020/05/22
Broadband Hornantenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2020/04/22
Breitband Hornantenna	SCHWARZBECK	BBHA 9170	MRTTWA00004	1 year	2020/04/23
Broadband Preamplifier	SCHWARZBECK	BBV 9718	MRTTWA00005	1 year	2020/04/24
Broadband Amplifier	SCHWARZBECK	BBV 9721	MRTTWA00006	1 year	2020/04/24
Signal Analyzer	R&S	FSV40	MRTTWA00007	1 year	2020/03/26
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2020/03/25
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2019/07/30
Antenna Cable	HUBERSUHNER	SF106	MRTTWE00010	1 year	2019/06/18
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00032	1 year	2020/05/20

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
X-Series USB Peak and Average Power Sensor	KEYSIGHT	U2021XA	MRTTWA00014	1 year	2020/04/22
Wideband Radio Communication Taster	R&S	CMW 500	MRTTWA00041	1 year	2020/01/28
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2019/07/30
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTSUE06457	1 year	2019/07/19
Signal Analyzer	R&S	FSV40	MRTTWA00007	1 year	2020/03/26
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2020/05/20

Software	Version	Function
e3	9.160520a	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 - SR1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 150kHz~30MHz: 2.53dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 9kHz ~ 1GHz: 4.25dB 1GHz ~ 25GHz: 4.45dB

7. TEST RESULT

7.1. Summary

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

Notes:

- 1) 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.
- 2) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
- 3) Test Items “6dB Bandwidth” & “Band Edge / Out-of-Band Emissions” have been assessed MIMO transmission, and showed the worst test data in this report.

7.2. 6dB Bandwidth Measurement

7.2.1. Test Limit

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

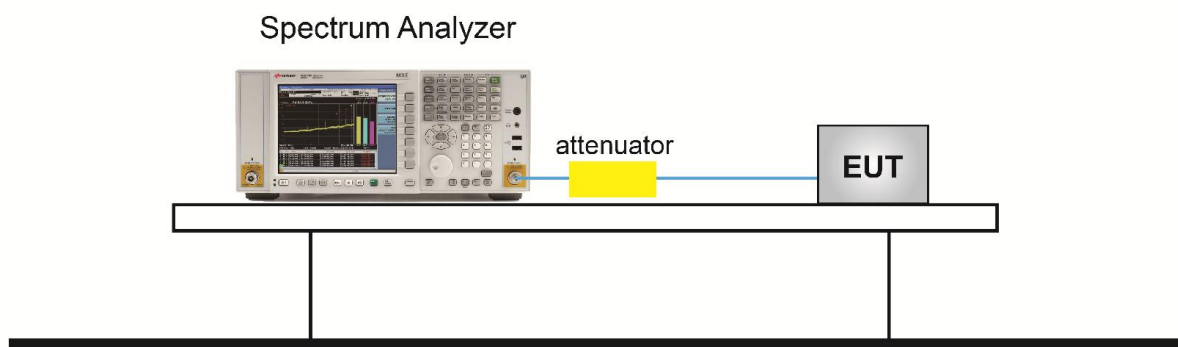
7.2.2. Test Procedure used

ANSI C63.10 Section 11.8

7.2.3. Test Setting

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

7.2.4. Test Setup



7.2.5. Test Result

Product	Streaming Media Player	Temperature	23°C
Test Engineer	Kevin Ker	Relative Humidity	54%
Test Site	SR1	Test Date	2019/06/05

Test Mode	Data Rate / MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11b	1Mbps	01	2412	9.09	≥ 0.5	Pass
802.11b	1Mbps	06	2437	9.10	≥ 0.5	Pass
802.11b	1Mbps	11	2462	9.10	≥ 0.5	Pass
802.11g	6Mbps	01	2412	16.37	≥ 0.5	Pass
802.11g	6Mbps	06	2437	16.36	≥ 0.5	Pass
802.11g	6Mbps	11	2462	16.35	≥ 0.5	Pass
802.11n-HT20	MCS0	01	2412	17.60	≥ 0.5	Pass
802.11n-HT20	MCS0	06	2437	17.60	≥ 0.5	Pass
802.11n-HT20	MCS0	11	2462	17.60	≥ 0.5	Pass

802.11b 6dB Bandwidth - Ant 1 / Ant 1+2

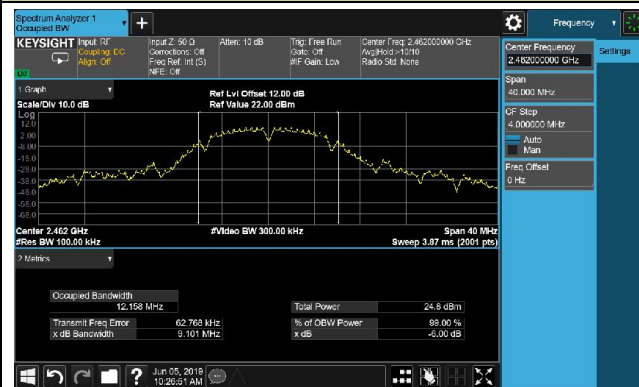
Channel 01 (2412MHz)



Channel 06 (2437MHz)

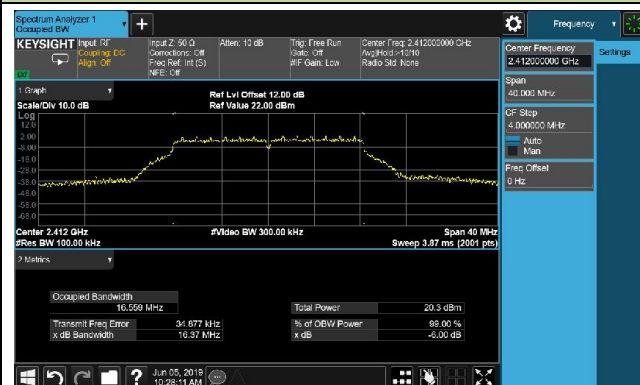


Channel 11 (2462MHz)

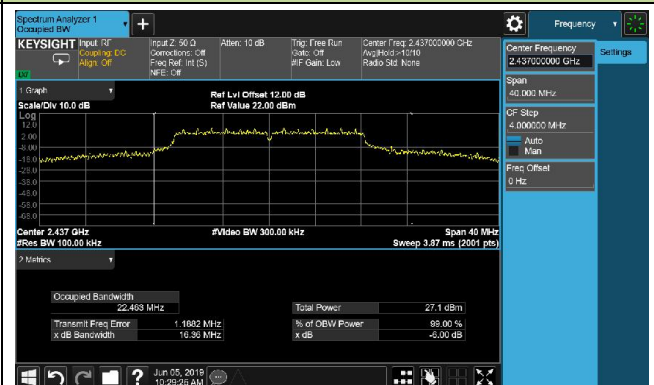


802.11g 6dB Bandwidth - Ant 1 / Ant 1+2

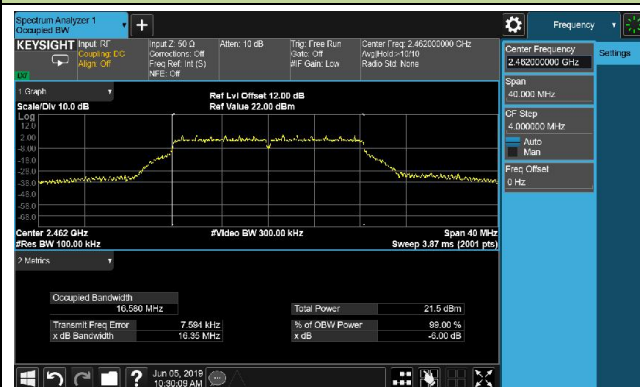
Channel 01 (2412MHz)



Channel 06 (2437MHz)

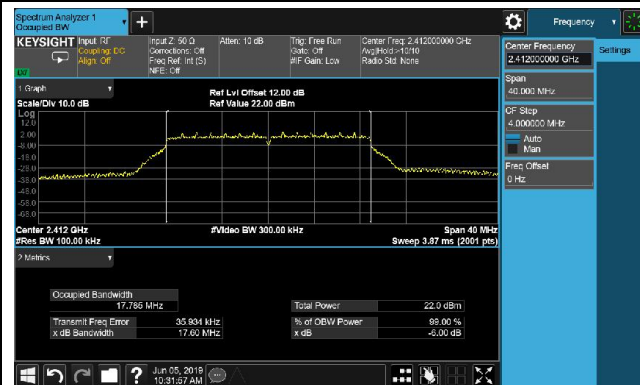


Channel 11 (2462MHz)

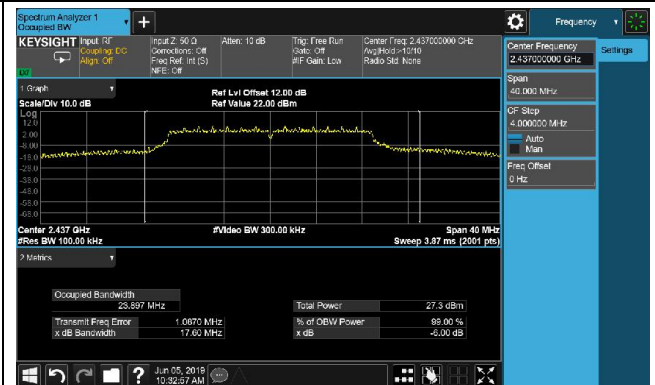


802.11n-HT20 6dB Bandwidth - Ant 1 / Ant 1+2

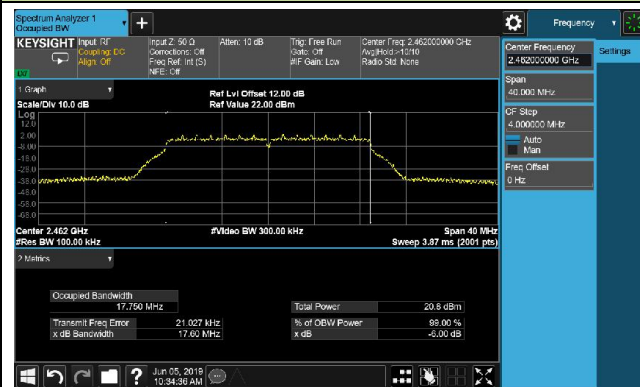
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



7.3. Output Power Measurement

7.3.1. Test Limit

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

The conducted output power limit specified in paragraph FCC Part 15.247(b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs FCC Part 15.247(b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

7.3.2. Test Procedure Used

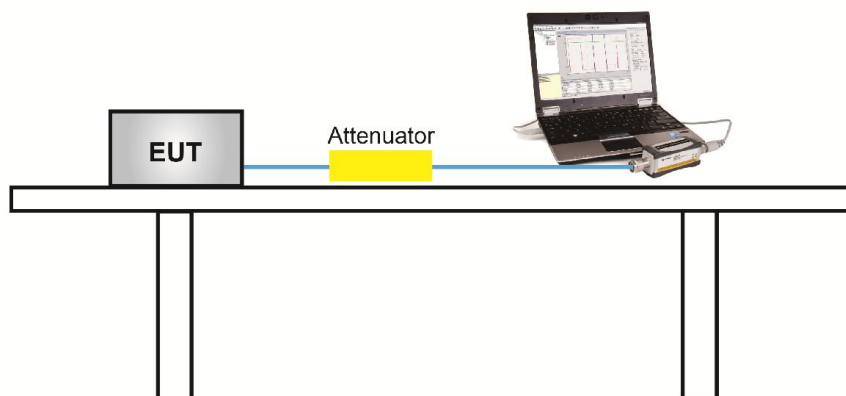
ANSI C63.10 Section 11.9.2.3.2

7.3.3. Test Setting

Average Power Measurement

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The 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.

7.3.4. Test Setup



7.3.5.Test Result

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

Pre-Test RF Output Power at various data rates Ant 1 / Ant 1 + 2

Test Mode	Bandwidth (MHz)	Channel No.	Frequency (MHz)	Data Rate / Mbps	Average Power (dBm)
802.11b	20	06	2437	1Mbps	19.95
				5.5Mbps	19.34
				11Mbps	19.02
802.11g	20	06	2437	6Mbps	19.83
				24Mbps	19.45
				54Mbps	19.10
802.11n	20	06	2437	MCS0	19.98
				MCS3	19.54
				MCS7	19.03

Product	Streaming Media Player	Temperature	25°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	SR1	Test Date	2019/06/04

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Total Average Power (dBm)	Limit (dBm)	Result
802.11b	1Mbps	01	2412	18.37	17.83	21.12	≤ 30.00	Pass
802.11b	1Mbps	06	2437	19.95	19.63	22.80	≤ 30.00	Pass
802.11b	1Mbps	11	2462	18.75	18.34	21.56	≤ 30.00	Pass
802.11g	6Mbps	01	2412	14.39	13.95	17.19	≤ 30.00	Pass
802.11g	6Mbps	06	2437	19.83	19.91	22.88	≤ 30.00	Pass
802.11g	6Mbps	11	2462	15.59	15.13	18.38	≤ 30.00	Pass
802.11n-HT20	MCS0	01	2412	15.73	15.47	18.61	≤ 30.00	Pass
802.11n-HT20	MCS0	06	2437	19.98	20.06	23.03	≤ 30.00	Pass
802.11n-HT20	MCS0	11	2462	14.36	14.17	17.28	≤ 30.00	Pass

Note: Total Average Power (dBm) = $10 \cdot \log \{10^{(\text{Ant 1 Average Power} / 10)} + 10^{(\text{Ant 2 Average Power} / 10)}\}$

7.4. Power Spectral Density Measurement

7.4.1. Test Limit

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

The same method of determining the conducted output power shall be used to determine the power spectral density.

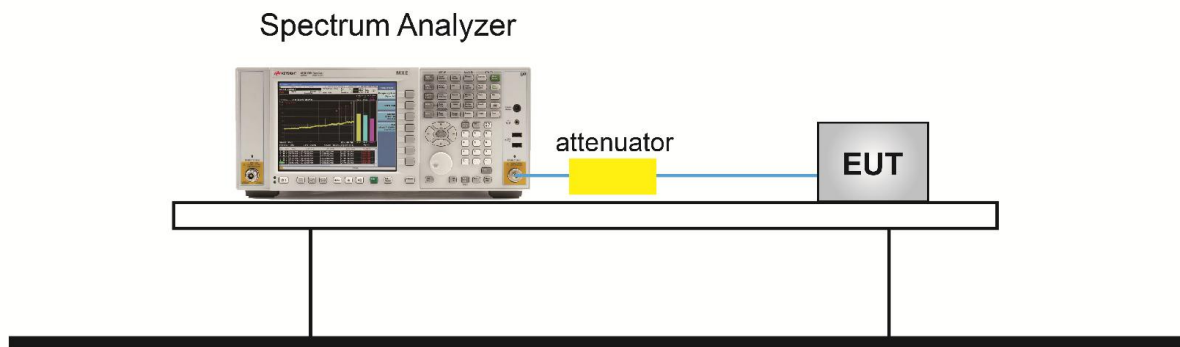
7.4.2. Test Procedure Used

ANSI C63.10 Section 11.10.5

7.4.3. Test Setting

1. Measure the duty cycle (x) of the transmitter output signal.
2. Set instrument center frequency to DTS channel center frequency.
3. Set span to at least 1.5 times the OBW.
4. RBW = 10 kHz.
5. VBW = 30 kHz.
6. Detector = RMS.
7. Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span/RBW}$.
8. Sweep time = auto couple.
9. Don't use sweep triggering. Allow sweep to "free run".
10. Employ trace averaging (RMS) mode over a minimum of 100 traces.
11. Use the peak marker function to determine the maximum amplitude level.
12. Add $10 \log (1/x)$, where x is the duty cycle measured in step (a), to the measured PSD to compute the average PSD during the actual transmission time.
13. Add Constant Factor = $10 \cdot \log(3\text{kHz} / 10\text{kHz}) = -5.23$.

7.4.4. Test Setup



7.4.5. Test Result

Product	Streaming Media Player	Temperature	23°C
Test Engineer	Kevin Ker	Relative Humidity	54%
Test Site	SR1	Test Date	2019/06/05

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 1 PSD (dBm/ 10kHz)	Ant 2 PSD (dBm/ 10kHz)	Duty Cycle (%)	Total PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Result
802.11b	1Mbps	01	2412	-9.76	-8.68	97.94	-11.31	≤ 8.00	Pass
802.11b	1Mbps	06	2437	-7.80	-7.06	97.94	-9.54	≤ 8.00	Pass
802.11b	1Mbps	11	2462	-8.96	-8.33	97.94	-10.76	≤ 8.00	Pass
802.11g	6Mbps	01	2412	-14.89	-15.66	92.03	-17.12	≤ 8.00	Pass
802.11g	6Mbps	06	2437	-8.07	-7.58	92.03	-9.67	≤ 8.00	Pass
802.11g	6Mbps	11	2462	-13.50	-12.65	92.03	-14.91	≤ 8.00	Pass
802.11n-HT20	MCS0	01	2412	-14.63	-14.11	92.52	-16.24	≤ 8.00	Pass
802.11n-HT20	MCS0	06	2437	-9.31	-8.27	92.52	-10.64	≤ 8.00	Pass
802.11n-HT20	MCS0	11	2462	-15.58	-15.13	92.52	-17.23	≤ 8.00	Pass

Note 1: When EUT duty cycle ≥ 98%, Total AVGPSPD = $10 \cdot \log \{10^{(\text{Ant 1 AVGPSPD}/10)} + 10^{(\text{Ant 2 AVGPSPD}/10)}\} + \text{Constant Factor}$.

Note 2: When EUT duty cycle < 98%, Total AVGPSPD = $10 \cdot \log \{10^{(\text{Ant 1 AVGPSPD}/10)} + 10^{(\text{Ant 2 AVGPSPD}/10)}\} + 10 \cdot \log (1/\text{duty cycle}) + \text{Constant Factor}$.

Note 3: Constant Factor = -5.23dB

802.11b AVGPSD - Ant 1 / Ant 1+2

Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



802.11g AVGPDS - Ant 1 / Ant 1+2

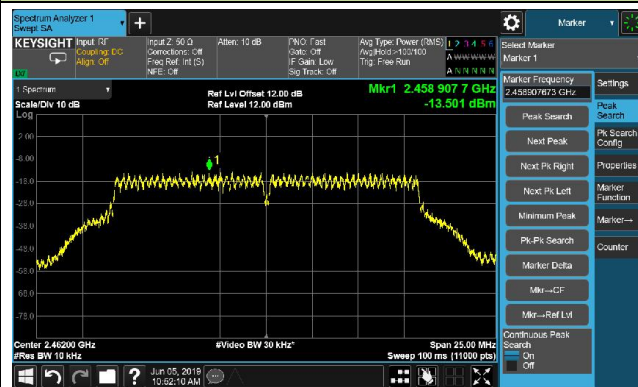
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



802.11n-HT20 AVGPDS - Ant 1 / Ant 1+2

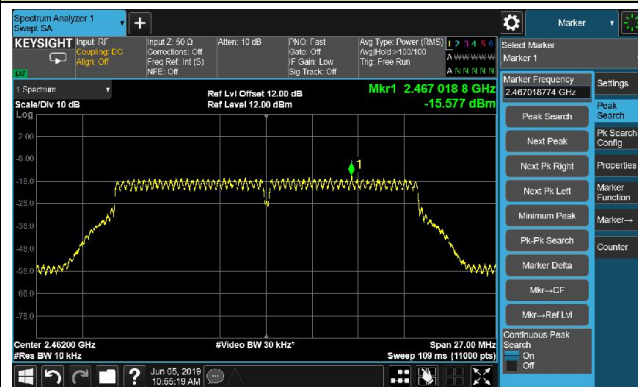
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



802.11b AVGPDS - Ant 2 / Ant 1+2

Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



802.11g AVGPSPD - Ant 2 / Ant 1+2

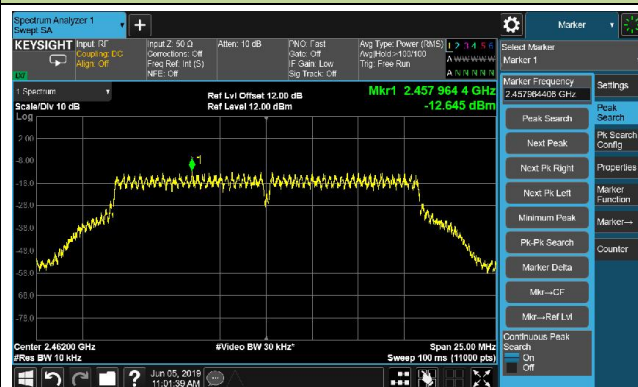
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



802.11n-HT20 AVGPDS - Ant 2 / Ant 1+2

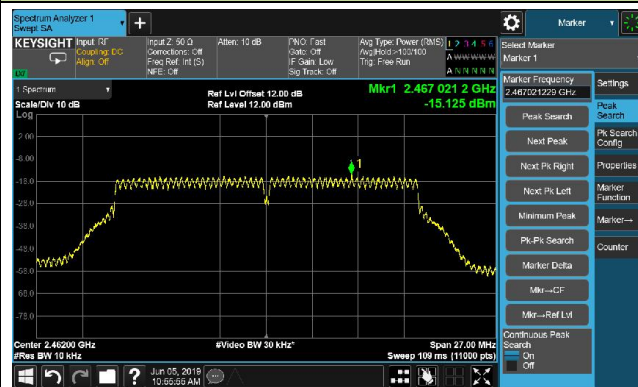
Channel 01 (2412MHz)



Channel 06 (2437MHz)



Channel 11 (2462MHz)



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

7.5.1. Test Limit

The limit for out-of-band spurious emissions at the band edge is 30dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100 kHz bandwidth per the PSD procedure.

7.5.2. Test Procedure Used

ANSI C63.10 Section 11.11

7.5.3. Test Setting

Reference level measurement

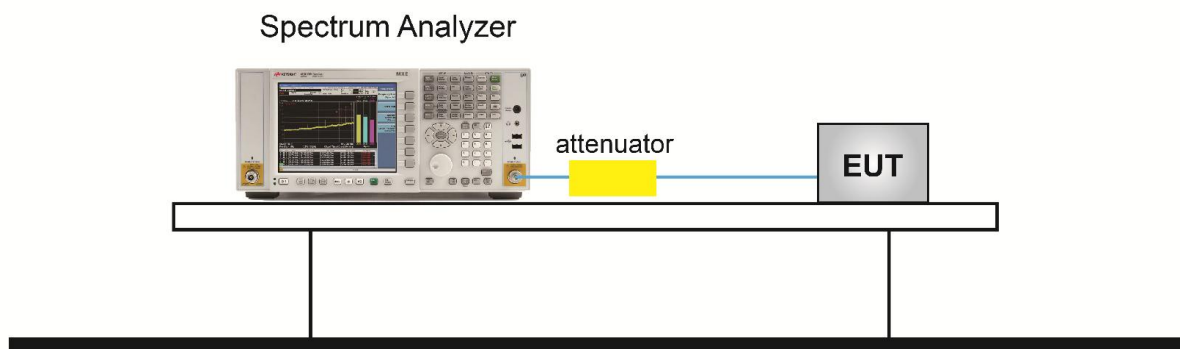
1. Set instrument center frequency to DTS channel center frequency
2. Set the span to ≥ 1.5 times the DTS bandwidth
3. Set the RBW = 100 kHz
4. Set the VBW $\geq 3 \times$ RBW
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Allow trace to fully stabilize

Emission level measurement

1. Set the center frequency and span to encompass frequency range to be measured
2. RBW = 1.3MHz
3. VBW = 4MHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

Test Notes

1. RBW was set to 1.3MHz rather than 100 kHz in order to increase the measurement speed.
2. The display line shown in the following plots denotes the limit at 30dB below the fundamental emission level measured in a 100 kHz bandwidth. However, since the traces in the following plots are measured with a 1.3MHz RBW, the display line may not necessarily appear to be 30dB below the level of the fundamental in a 1.3MHz bandwidth.
3. For plots showing conducted spurious emissions near the limit, the frequencies were investigated with a reduced RBW to ensure that no emissions were present.

7.5.4.Test Setup

7.5.5. Test Result

Product	Streaming Media Player	Temperature	23°C
Test Engineer	Kevin Ker	Relative Humidity	54%
Test Site	SR1	Test Date	2019/06/05

Test Mode	Data Rate / MCS	Channel No.	Frequency (MHz)	Limit (dBc)	Result
802.11b	1Mbps	01	2412	30	Pass
802.11b	1Mbps	06	2437	30	Pass
802.11b	1Mbps	11	2462	30	Pass
802.11g	6Mbps	01	2412	30	Pass
802.11g	6Mbps	06	2437	30	Pass
802.11g	6Mbps	11	2462	30	Pass
802.11n-HT20	MCS0	01	2412	30	Pass
802.11n-HT20	MCS0	06	2437	30	Pass
802.11n-HT20	MCS0	11	2462	30	Pass

802.11b Out-of-Band Emissions - Ant 1 / Ant 1+2

Channel 01 (2412MHz)

100kHz PSD reference Level



Low Band Edge



Spurious Emission



Channel 06 (2437MHz)

100kHz PSD reference Level



Spurious Emission



802.11b Out-of-Band Emissions - Ant 1 / Ant 1+2

Channel 11 (2462MHz)

100kHz PSD reference Level



High Band Edge



Spurious Emission



802.11g Out-of-Band Emissions - Ant 1 / Ant 1+2

Channel 01 (2412MHz)

100kHz PSD reference Level



Low Band Edge



Spurious Emission



Channel 06 (2437MHz)

100kHz PSD reference Level



Spurious Emission



802.11g Out-of-Band Emissions - Ant 1 / Ant 1+2

Channel 11 (2462MHz)

100kHz PSD reference Level



High Band Edge



Spurious Emission



802.11n-HT20 Out-of-Band Emissions - Ant 1 / Ant 1+2

Channel 01 (2412MHz)

100kHz PSD reference Level



Low Band Edge



Spurious Emission



Channel 06 (2437MHz)

100kHz PSD reference Level



Spurious Emission



802.11n-HT20 Out-of-Band Emissions - Ant 1 / Ant 1+2

Channel 11 (2462MHz)

100kHz PSD reference Level



High Band Edge



Spurious Emission



7.6. Radiated Spurious Emission Measurement

7.6.1. Test Limit

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

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

7.6.2. Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

7.6.3. Test Setting

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 = as specified in Table 1
4. Detector = CISPR quasi-peak or average
5. Sweep time = auto couple
6. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

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

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

Average Measurements above 1GHz (Method VB)

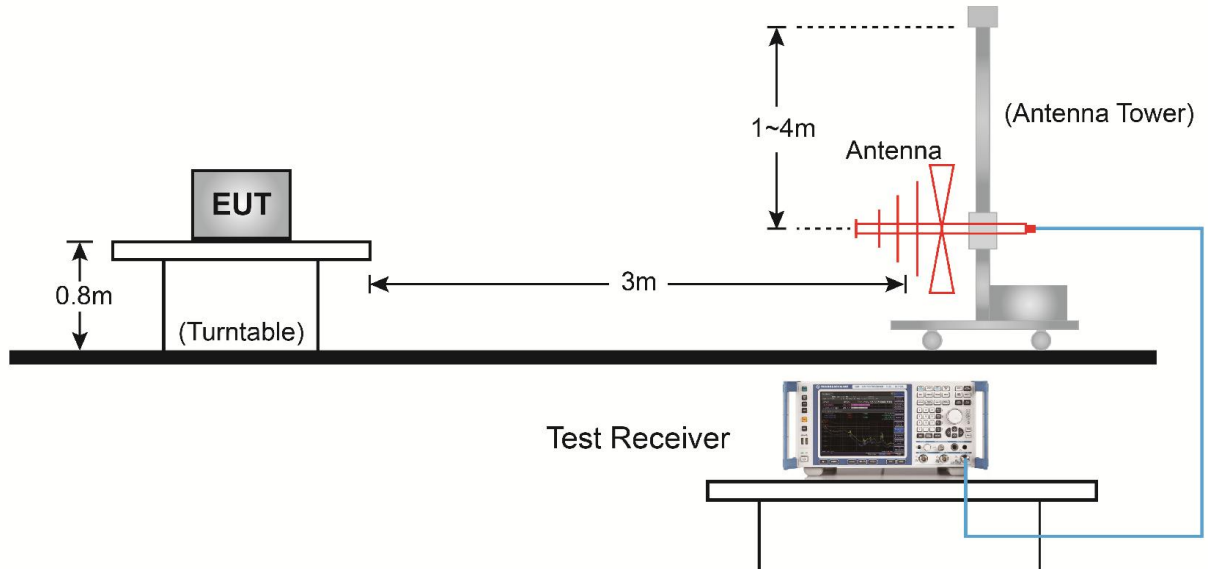
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.

If the EUT duty cycle is $< 98\%$, set $VBW \geq 1/T$. T is the minimum transmission duration.

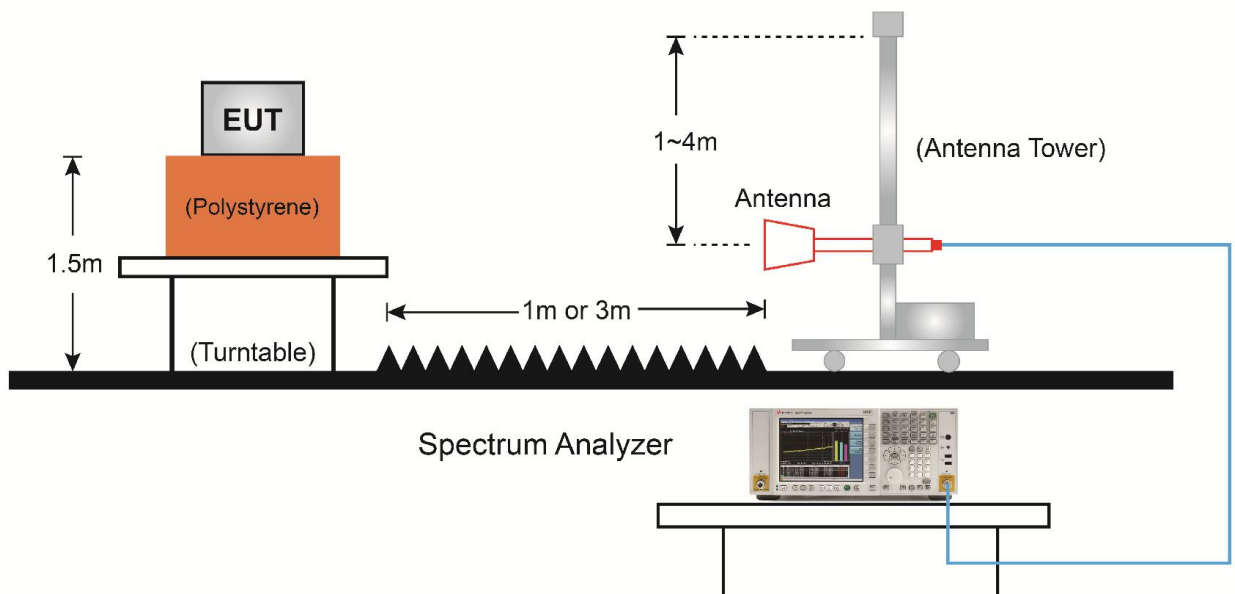
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

7.6.4.Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



7.6.5. Test Result

Product	Streaming Media Player	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2019/05/29
Test Mode	802.11b - Ant 1+2	Test Channel	01
Note	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4026.0	40.5	0.7	41.2	74.0	-32.8	Peak	Horizontal
	4825.0	44.7	3.4	48.1	74.0	-25.9	Peak	Horizontal
*	6151.0	38.2	6.8	45.0	79.2	-34.2	Peak	Horizontal
*	6575.0	37.2	8.9	46.1	79.2	-33.1	Peak	Horizontal
	4230.0	39.8	1.5	41.3	74.0	-32.7	Peak	Vertical
	4825.0	49.7	3.4	53.1	74.0	-20.9	Peak	Vertical
*	5760.0	38.6	5.2	43.8	79.2	-35.4	Peak	Vertical
*	6100.0	38.3	6.6	44.9	79.2	-34.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (109.2dBμV/m) or 15.209 which is higher.

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

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

Product	Streaming Media Player	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2019/05/29
Test Mode	802.11b - Ant 1+2	Test Channel	06
Note	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4298.0	40.0	1.8	41.8	74.0	-32.2	Peak	Horizontal
	4876.0	42.0	3.5	45.5	74.0	-28.5	Peak	Horizontal
*	6006.5	38.0	6.1	44.1	78.5	-34.4	Peak	Horizontal
*	6593.0	37.8	9.0	46.8	78.5	-31.7	Peak	Horizontal
	4298.0	40.1	1.8	41.9	74.0	-32.1	Peak	Vertical
	4876.0	45.5	3.5	49.0	74.0	-25.0	Peak	Vertical
*	5953.0	39.7	5.9	45.6	78.5	-32.9	Peak	Vertical
*	6567.5	37.3	8.9	46.2	78.5	-32.3	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (108.5dBμV/m) or 15.209 which is higher.

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

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

Product	Streaming Media Player	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2019/05/29
Test Mode	802.11b - Ant 1+2	Test Channel	11
Note	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4111.0	40.4	1.0	41.4	74.0	-32.6	Peak	Horizontal
	4927.0	44.4	3.6	48.0	74.0	-26.0	Peak	Horizontal
*	6561.0	37.1	8.8	45.9	77.1	-31.2	Peak	Horizontal
*	6992.5	35.6	11.3	46.9	77.1	-30.2	Peak	Horizontal
	4187.5	39.5	1.4	40.9	74.0	-33.1	Peak	Vertical
	4927.0	46.8	3.6	50.4	74.0	-23.6	Peak	Vertical
*	6380.5	37.6	7.9	45.5	77.1	-31.6	Peak	Vertical
*	6950.0	35.7	11.0	46.7	77.1	-30.4	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (107.1dBμV/m) or 15.209 which is higher.

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

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

Product	Streaming Media Player	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2019/05/29
Test Mode	802.11g - Ant 1+2	Test Channel	01
Note	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4264.0	39.1	1.7	40.8	74.0	-33.2	Peak	Horizontal
	4825.0	41.0	3.4	44.4	74.0	-29.6	Peak	Horizontal
*	5785.5	39.1	5.3	44.4	79.1	-34.7	Peak	Horizontal
*	7009.5	36.0	11.3	47.3	79.1	-31.8	Peak	Horizontal
	4043.0	40.4	0.8	41.2	74.0	-32.8	Peak	Vertical
	4825.0	44.0	3.4	47.4	74.0	-26.6	Peak	Vertical
*	5938.5	39.6	5.9	45.5	79.1	-33.6	Peak	Vertical
*	6748.0	37.2	9.9	47.1	79.1	-32.0	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (109.1dBμV/m) or 15.209 which is higher.

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

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

Product	Streaming Media Player	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2019/05/29
Test Mode	802.11g - Ant 1+2	Test Channel	06
Note	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4272.0	39.5	1.7	41.2	74.0	-32.8	Peak	Horizontal
	4876.0	46.7	3.5	50.2	74.0	-23.8	Peak	Horizontal
*	5751.5	39.3	5.1	44.4	79.3	-34.9	Peak	Horizontal
*	7120.0	36.4	11.6	48.0	79.3	-31.3	Peak	Horizontal
	4077.0	40.7	0.9	41.6	74.0	-32.4	Peak	Vertical
	4884.5	48.8	3.5	52.3	74.0	-21.7	Peak	Vertical
*	5760.0	38.3	5.2	43.5	79.3	-35.8	Peak	Vertical
*	6889.0	35.9	10.7	46.6	79.3	-32.7	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (109.3dBμV/m) or 15.209 which is higher.

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

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

Product	Streaming Media Player	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2019/05/29
Test Mode	802.11g - Ant 1+2	Test Channel	11
Note	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4272.5	38.9	1.7	40.6	74.0	-33.4	Peak	Horizontal
	4918.5	39.8	3.6	43.4	74.0	-30.6	Peak	Horizontal
*	5462.5	39.1	4.1	43.2	79.6	-36.4	Peak	Horizontal
*	6454.0	36.9	8.3	45.2	79.6	-34.4	Peak	Horizontal
	4034.5	40.4	0.7	41.1	74.0	-32.9	Peak	Vertical
	4935.5	42.6	3.6	46.2	74.0	-27.8	Peak	Vertical
*	5938.5	38.8	5.9	44.7	79.6	-34.9	Peak	Vertical
*	6312.5	37.3	7.6	44.9	79.6	-34.7	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (109.6dBμV/m) or 15.209 which is higher.

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

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

Product	Streaming Media Player	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2019/05/29
Test Mode	802.11n-HT20 - Ant 1+2	Test Channel	01
Note	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4085.5	39.8	0.9	40.7	74.0	-33.3	Peak	Horizontal
	4816.5	40.5	3.3	43.8	74.0	-30.2	Peak	Horizontal
*	5751.5	38.0	5.1	43.1	77.8	-34.7	Peak	Horizontal
*	6593.0	37.8	9.0	46.8	77.8	-31.0	Peak	Horizontal
	4051.5	39.8	0.8	40.6	74.0	-33.4	Peak	Vertical
	4833.5	42.0	3.4	45.4	74.0	-28.6	Peak	Vertical
*	5930.0	39.9	5.8	45.7	77.8	-32.1	Peak	Vertical
*	6491.0	36.8	8.5	45.3	77.8	-32.5	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (107.8dBμV/m) or 15.209 which is higher.

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

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

Product	Streaming Media Player	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2019/05/29
Test Mode	802.11n-HT20 - Ant 1+2	Test Channel	06
Note	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4094.0	39.5	1.0	40.5	74.0	-33.5	Peak	Horizontal
	4876.0	45.2	3.5	48.7	74.0	-25.3	Peak	Horizontal
*	6100.0	37.7	6.6	44.3	77.4	-33.1	Peak	Horizontal
*	7239.0	35.8	12.0	47.8	77.4	-29.6	Peak	Horizontal
	4026.0	39.8	0.7	40.5	74.0	-33.5	Peak	Vertical
	4884.5	47.5	3.5	51.0	74.0	-23.0	Peak	Vertical
*	5930.0	39.2	5.8	45.0	77.4	-32.4	Peak	Vertical
*	6593.0	36.8	9.0	45.8	77.4	-31.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (107.4dBμV/m) or 15.209 which is higher.

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

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

Product	Streaming Media Player	Temperature	26°C
Test Engineer	Kevin Ker	Relative Humidity	56%
Test Site	AC1	Test Date	2019/05/29
Test Mode	802.11n-HT20 - Ant 1+2	Test Channel	11
Note	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	3847.5	40.3	0.1	40.4	74.0	-33.6	Peak	Horizontal
	4833.5	39.5	3.4	42.9	74.0	-31.1	Peak	Horizontal
*	5998.0	37.5	6.1	43.6	78.4	-34.8	Peak	Horizontal
*	6576.0	36.3	8.9	45.2	78.4	-33.2	Peak	Horizontal
	4017.5	40.8	0.7	41.5	74.0	-32.5	Peak	Vertical
	4927.0	40.8	3.6	44.4	74.0	-29.6	Peak	Vertical
*	5930.0	39.0	5.8	44.8	78.4	-33.6	Peak	Vertical
*	7094.5	36.5	11.6	48.1	78.4	-30.3	Peak	Vertical

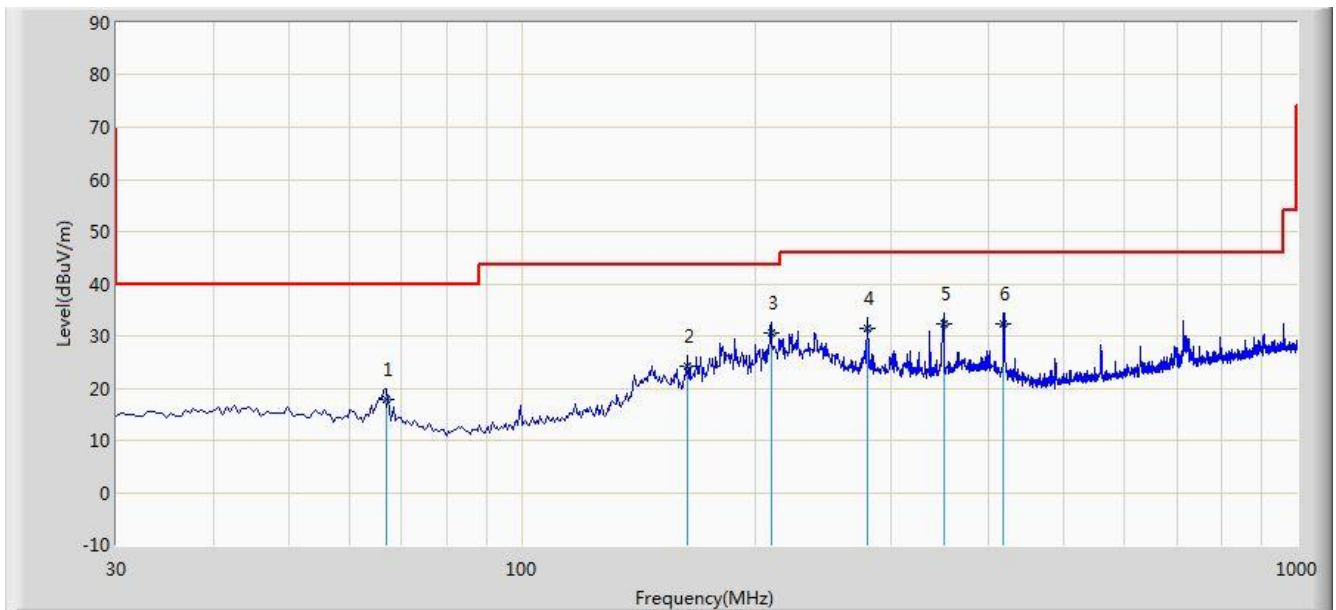
Note 1: "*" is not in restricted band, its limit is 30dBc of the fundamental emission level (108.4dBμV/m) or 15.209 which is higher.

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

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

The Worst Case of Radiated Emission below 1GHz:

Site: AC1	Time: 2019/06/06 - 19:02
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: VULB 9168 _20-2000MHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Test Mode: There is the worst case within frequency range 30MHz~1GHz.	



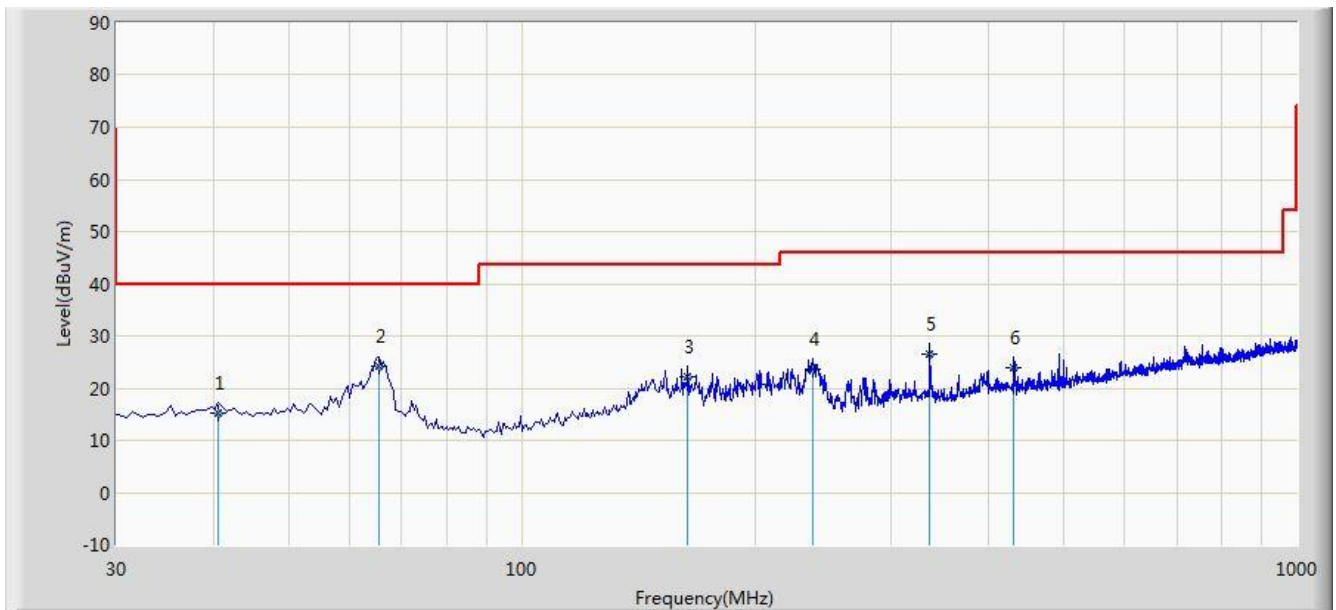
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			66.860	17.767	5.528	-22.233	40.000	12.239	QP
2			163.860	24.171	9.112	-19.329	43.500	15.059	QP
3		*	209.935	30.484	18.957	-13.016	43.500	11.527	QP
4			279.775	31.357	17.341	-14.643	46.000	14.016	QP
5			350.100	32.311	16.615	-13.689	46.000	15.696	QP
6			418.000	32.256	15.025	-13.744	46.000	17.232	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

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

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

Site: AC1	Time: 2019/06/06 - 19:05
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: VULB 9168 _20-2000MHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Test Mode: There is the worst case within frequency range 30MHz~1GHz.	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			40.670	15.188	0.554	-24.812	40.000	14.634	QP
2		*	65.405	24.071	11.552	-15.929	40.000	12.519	QP
3			163.860	22.092	7.033	-21.408	43.500	15.059	QP
4			237.095	23.611	10.685	-22.389	46.000	12.926	QP
5			336.035	26.513	11.071	-19.487	46.000	15.442	QP
6			431.500	24.030	6.435	-21.970	46.000	17.595	QP

Note 1: Measure Level (dBuV/m) = Reading Level (dBuV) + Factor (dB)

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

Note 2: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

7.7. Radiated Restricted Band Edge Measurement

7.7.1. 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).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (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)
13.36 - 13.41	--	--	--

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

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

7.7.2.Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

ANSI C63.10 Section 6.6 (Standard test method above 1GHz)

7.7.3.Test Setting

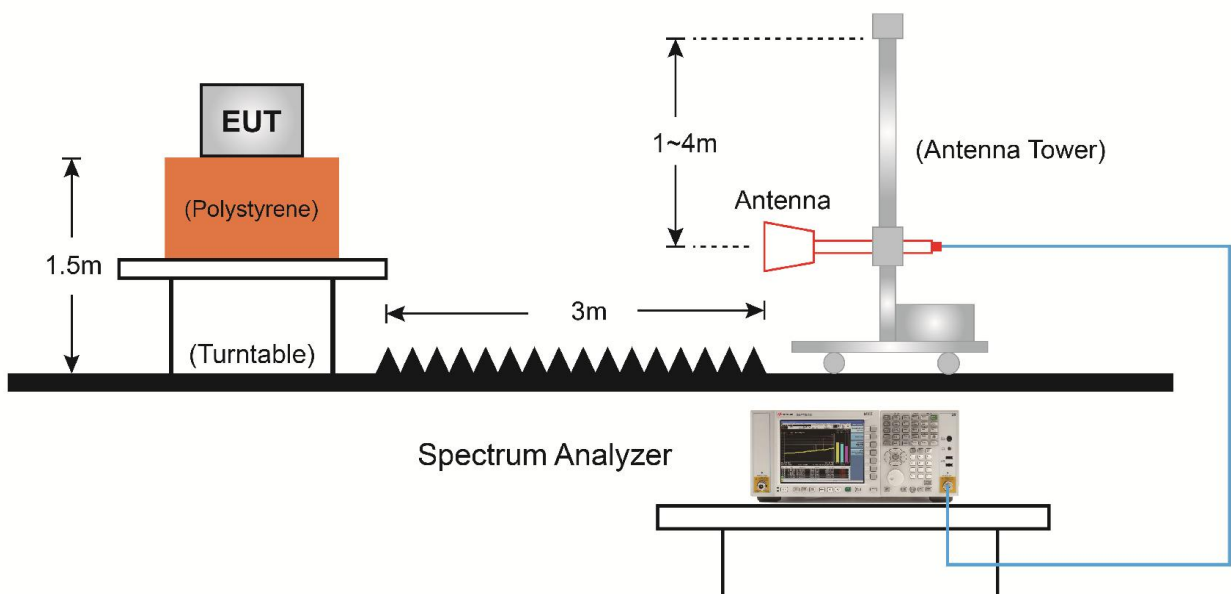
Peak Field Strength Measurements

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

Average Measurements above 1GHz (Method VB)

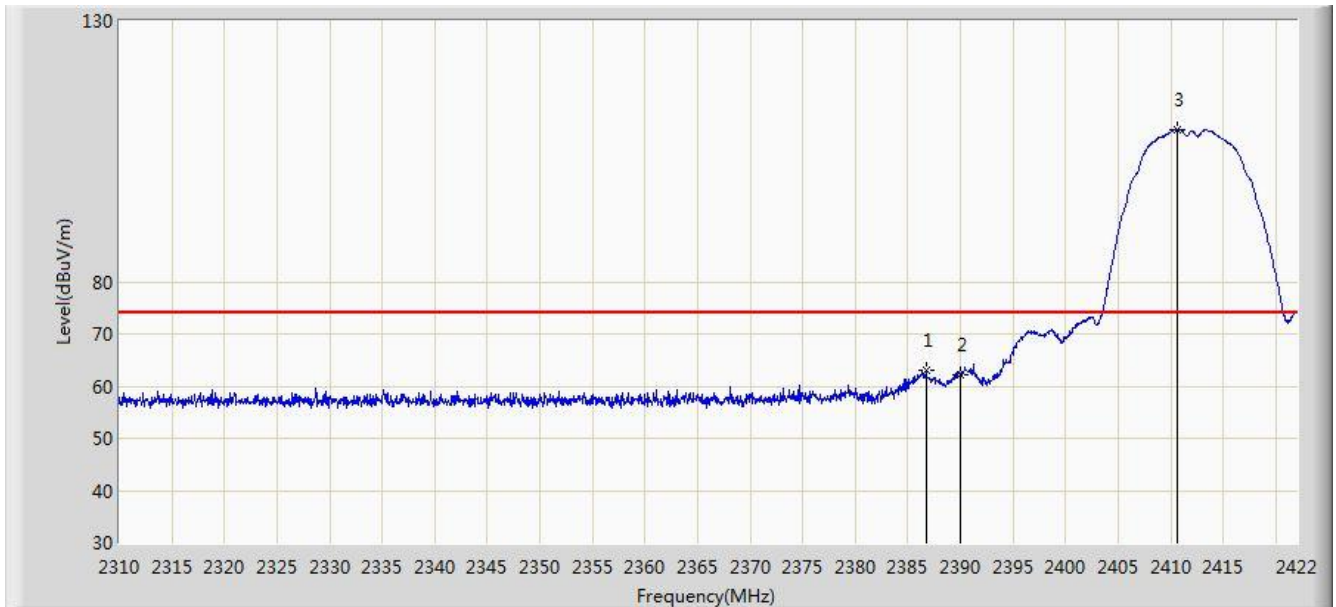
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW; If the EUT is configured to transmit with duty cycle $\geq 98\%$, set VBW = 10 Hz.
If the EUT duty cycle is $< 98\%$, set VBW $\geq 1/T$. T is the minimum transmission duration.
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

7.7.4.Test Setup



7.7.5.Test Result

Site: AC1	Time: 2019/05/30 - 06:27
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11b at Channel 2412MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2386.720	62.922	30.418	-11.078	74.000	32.504	PK
2			2390.000	62.135	29.617	-11.865	74.000	32.518	PK
3		*	2410.632	109.164	76.560	N/A	N/A	32.604	PK

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

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

Site: AC1	Time: 2019/05/30 - 06:25
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11b at Channel 2412MHz	

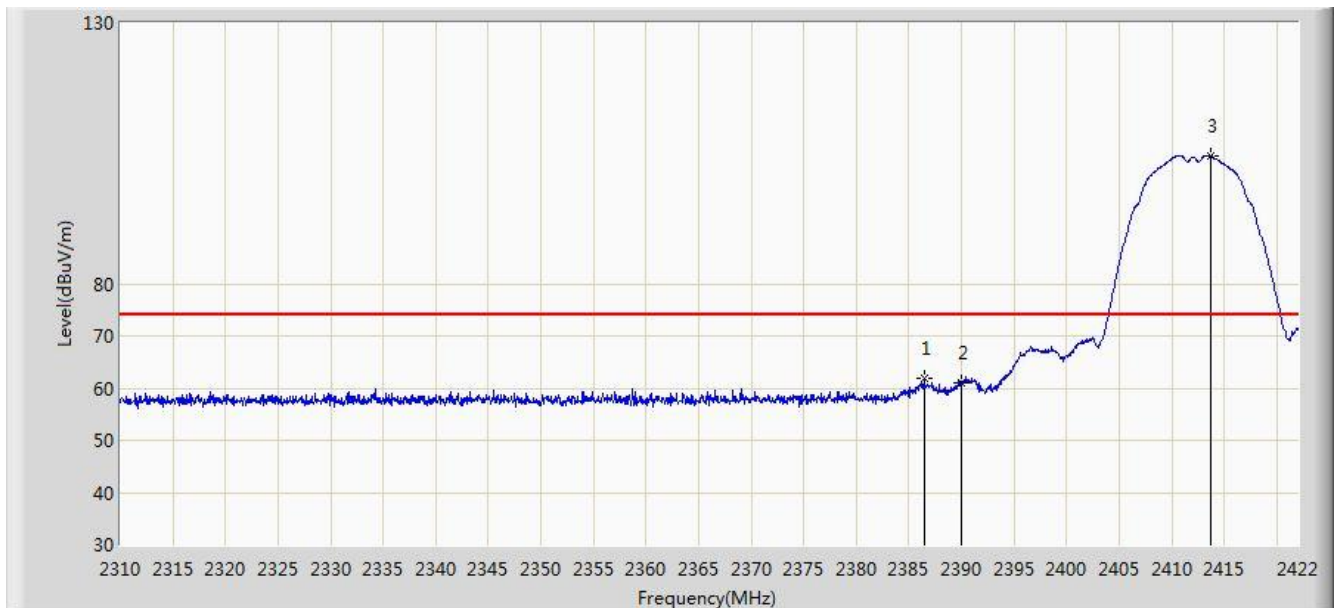


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2387.224	53.083	20.577	-0.917	54.000	32.507	AV
2			2390.000	52.327	19.809	-1.673	54.000	32.518	AV
3		*	2411.304	104.287	71.680	N/A	N/A	32.607	AV

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

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

Site: AC1	Time: 2019/05/30 - 06:31
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11b at Channel 2412MHz	

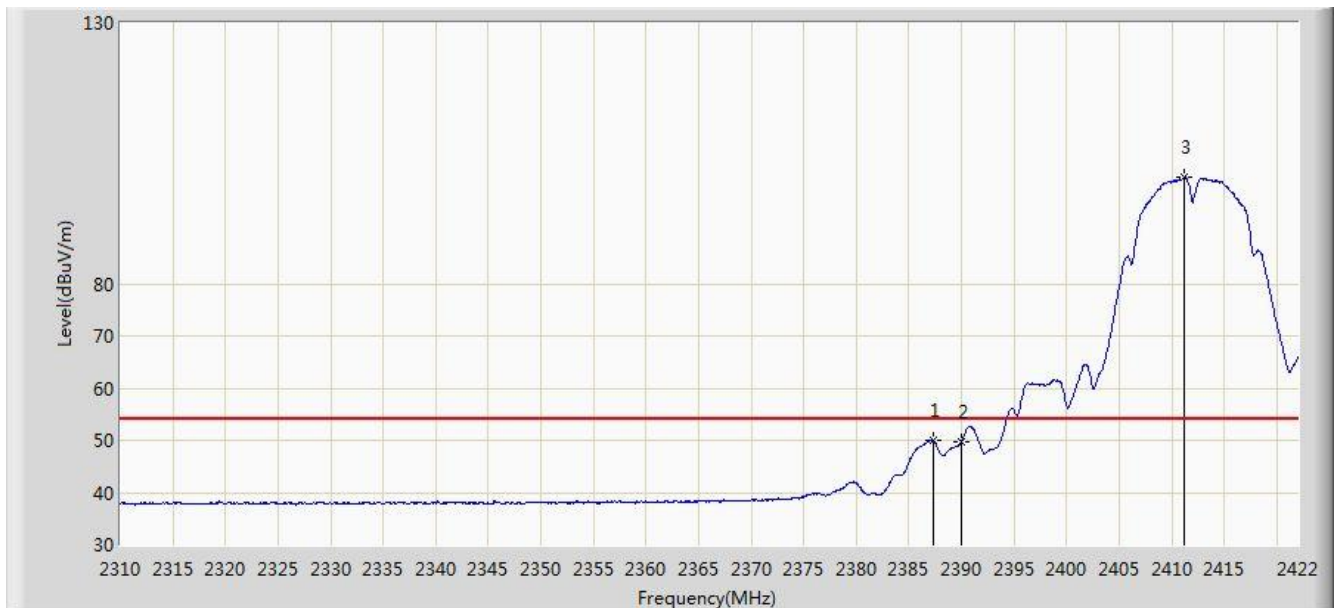


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2386.440	61.814	29.311	-12.186	74.000	32.503	PK
2			2390.000	61.042	28.524	-12.958	74.000	32.518	PK
3		*	2413.768	104.405	71.788	N/A	N/A	32.617	PK

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

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

Site: AC1	Time: 2019/05/30 - 06:35
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11b at Channel 2412MHz	

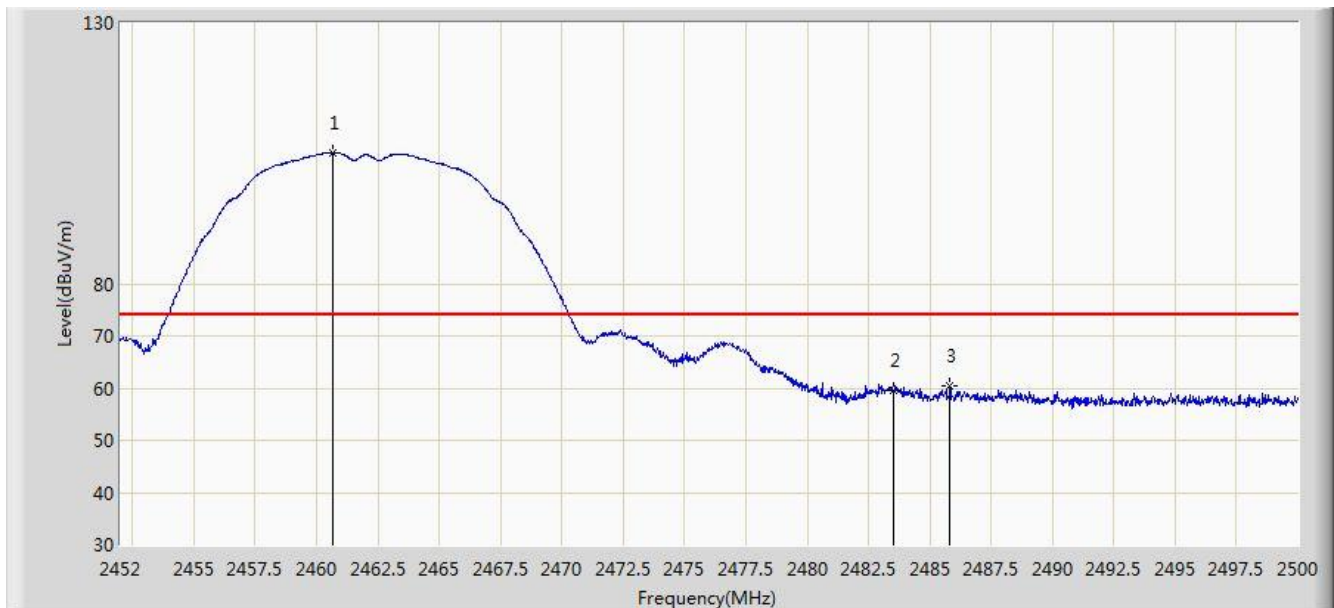


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2387.280	49.997	17.490	-4.003	54.000	32.507	AV
2			2390.000	49.789	17.271	-4.211	54.000	32.518	AV
3		*	2411.192	100.373	67.766	N/A	N/A	32.607	AV

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

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

Site: AC1	Time: 2019/06/04 - 14:07
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11b at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2460.640	105.118	72.303	N/A	N/A	32.815	PK
2			2483.500	59.554	26.643	-14.446	74.000	32.911	PK
3			2485.816	60.392	27.471	-13.608	74.000	32.920	PK

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

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

Site: AC1	Time: 2019/06/04 - 14:09
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11b at Channel 2462MHz	

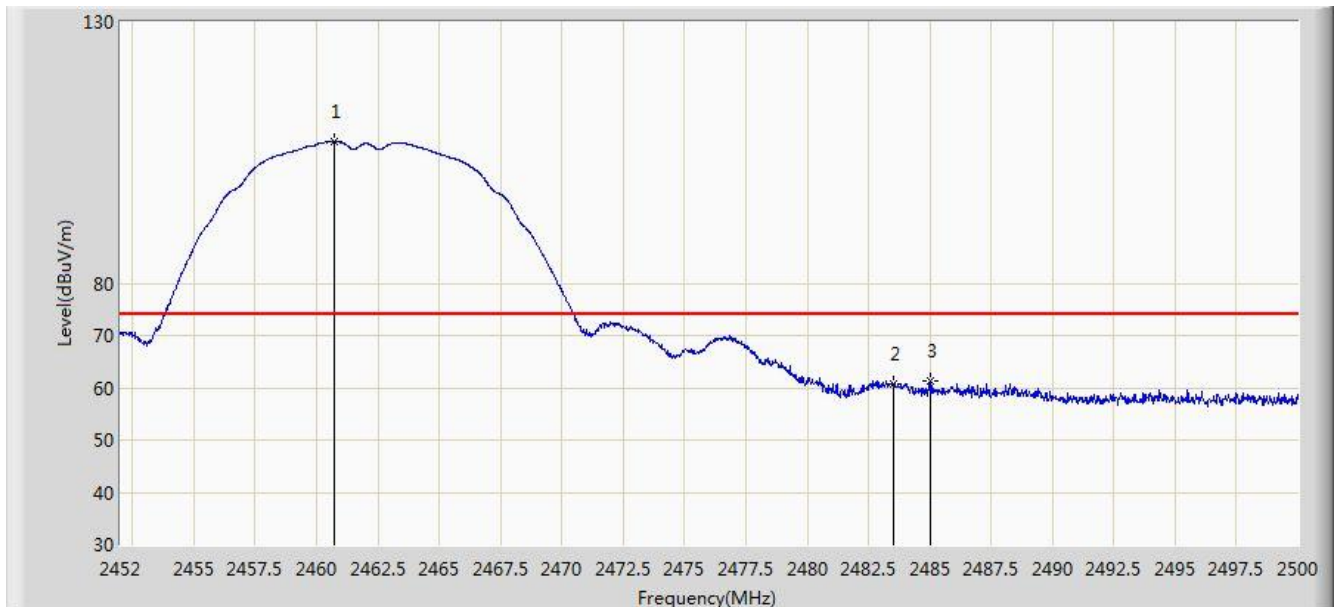


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2461.240	101.129	68.312	N/A	N/A	32.817	AV
2			2483.500	51.582	18.671	-2.418	54.000	32.911	AV

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

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

Site: AC1	Time: 2019/06/04 - 14:05
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11b at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2460.736	107.072	74.257	N/A	N/A	32.815	PK
2			2483.500	60.764	27.853	-13.236	74.000	32.911	PK
3			2485.000	61.162	28.245	-12.838	74.000	32.917	PK

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

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

Site: AC1	Time: 2019/06/04 - 14:04
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11b at Channel 2462MHz	

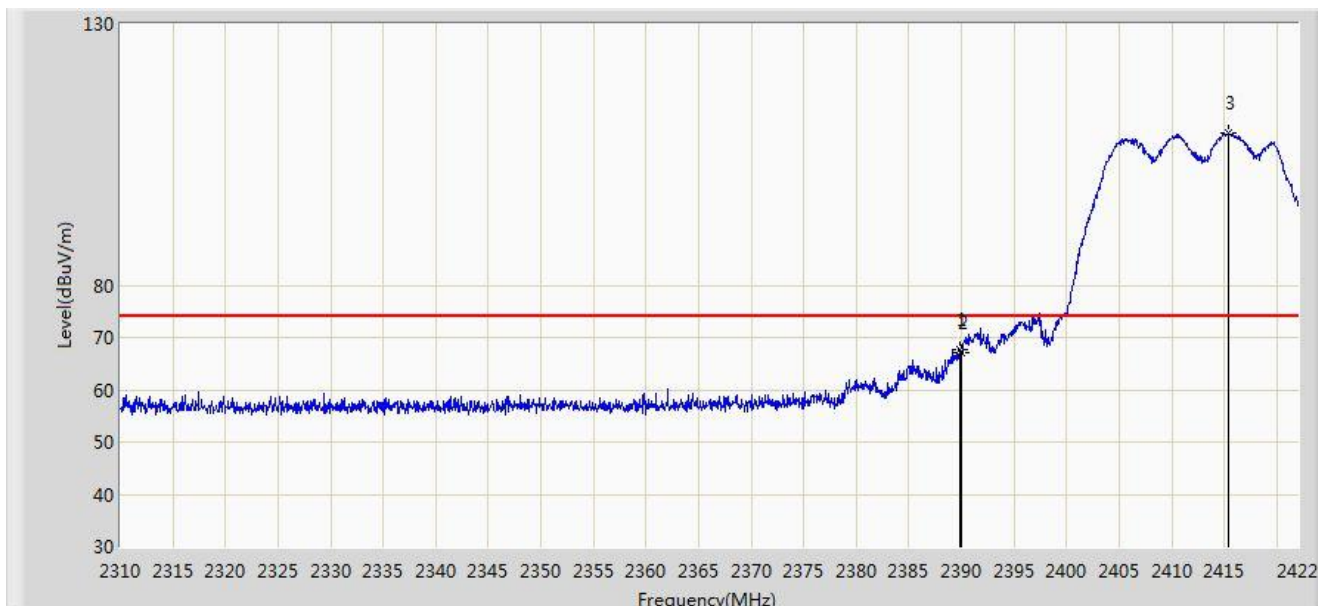


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2461.312	103.415	70.598	N/A	N/A	32.818	AV
2			2483.500	53.036	20.125	-0.964	54.000	32.911	AV

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

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

Site: AC1	Time: 2019/06/04 - 03:13
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11g at Channel 2412MHz	

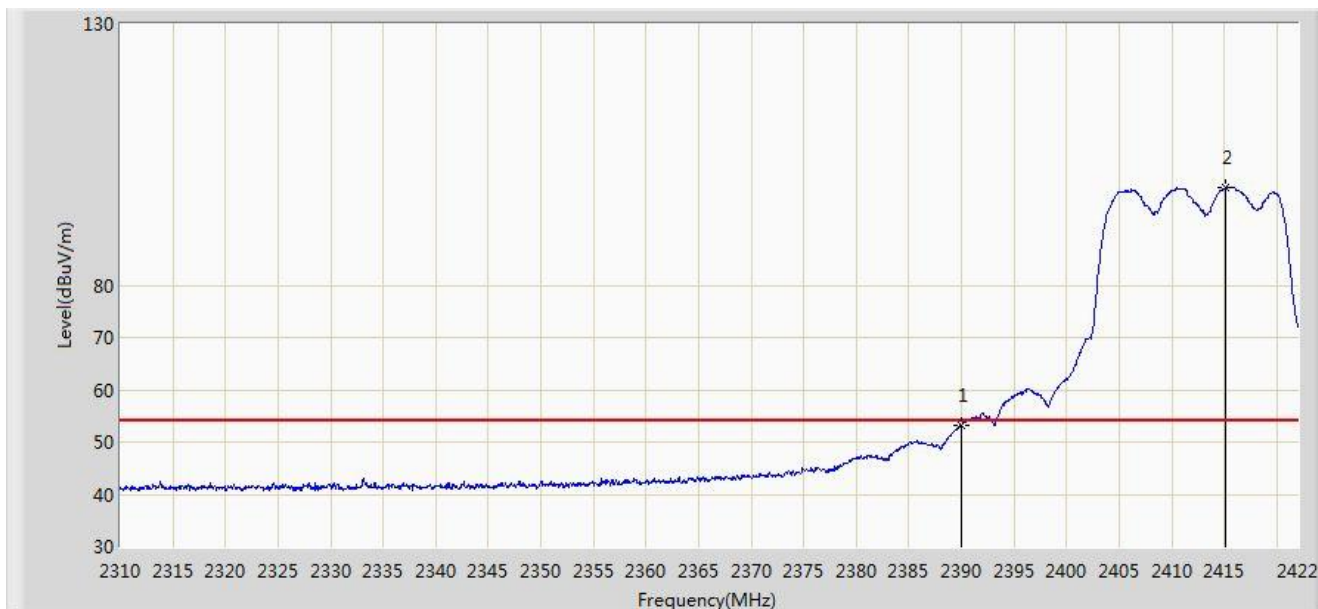


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.912	67.728	35.210	-6.272	74.000	32.518	PK
2			2390.000	67.181	34.663	-6.819	74.000	32.518	PK
3		*	2415.448	109.141	76.516	N/A	N/A	32.624	PK

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

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

Site: AC1	Time: 2019/06/04 - 03:08
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11g at Channel 2412MHz	

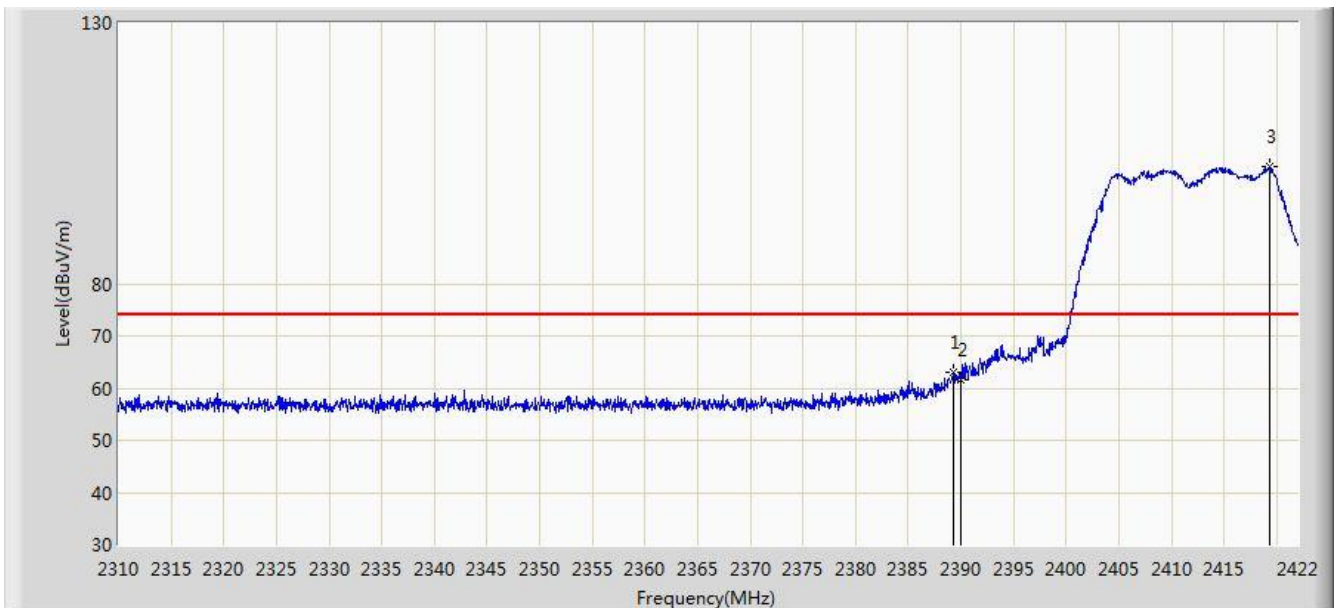


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	53.261	20.743	-0.739	54.000	32.518	AV
2		*	2415.168	98.688	66.065	N/A	N/A	32.624	AV

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

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

Site: AC1	Time: 2019/06/04 - 03:15
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11g at Channel 2412MHz	

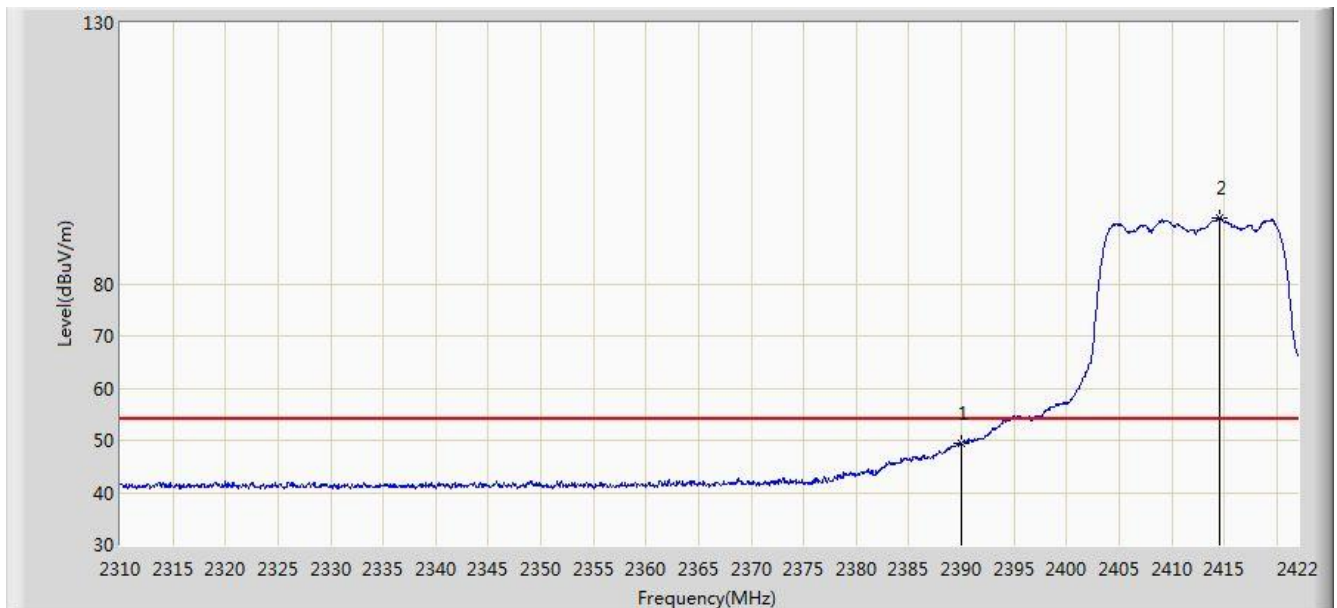


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.352	63.089	30.574	-10.911	74.000	32.515	PK
2			2390.000	61.718	29.200	-12.282	74.000	32.518	PK
3		*	2419.368	102.326	69.685	N/A	N/A	32.641	PK

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

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

Site: AC1	Time: 2019/06/04 - 03:18
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11g at Channel 2412MHz	

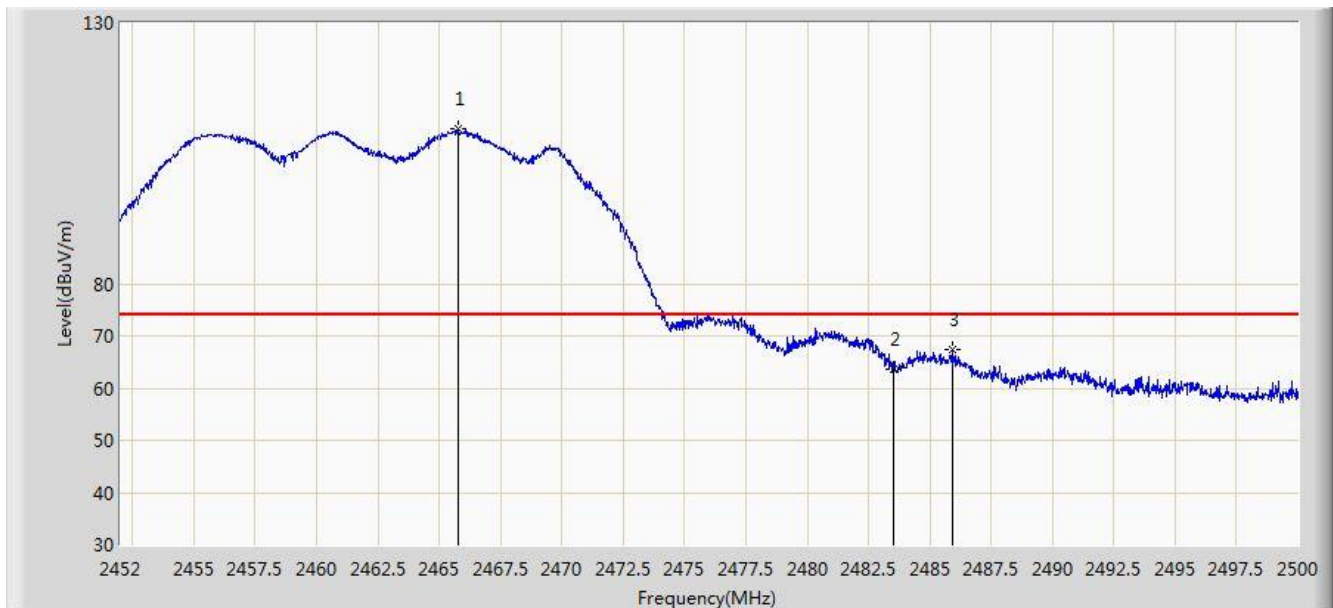


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	49.421	16.903	-4.579	54.000	32.518	AV
2		*	2414.496	92.625	60.004	N/A	N/A	32.620	AV

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

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

Site: AC1	Time: 2019/06/04 - 04:18
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11g at Channel 2462MHz	

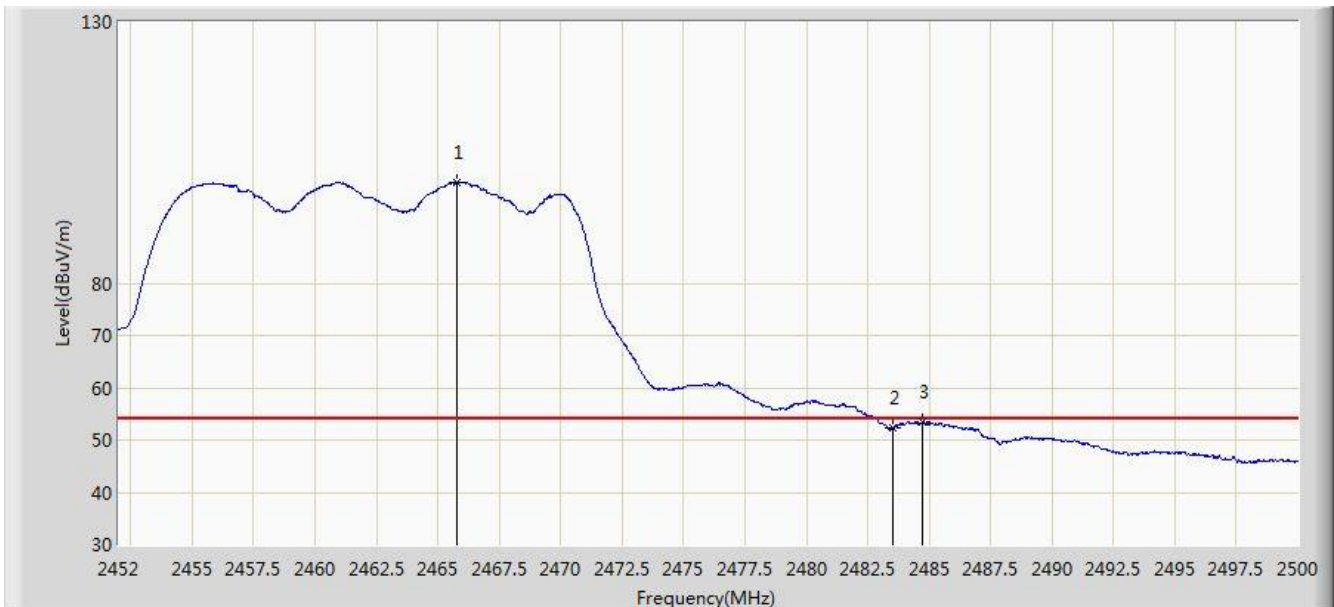


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2465.752	109.580	76.744	N/A	N/A	32.836	PK
2			2483.500	63.495	30.584	-10.505	74.000	32.911	PK
3			2485.912	67.255	34.334	-6.745	74.000	32.921	PK

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

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

Site: AC1	Time: 2019/06/04 - 04:16
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11g at Channel 2462MHz	

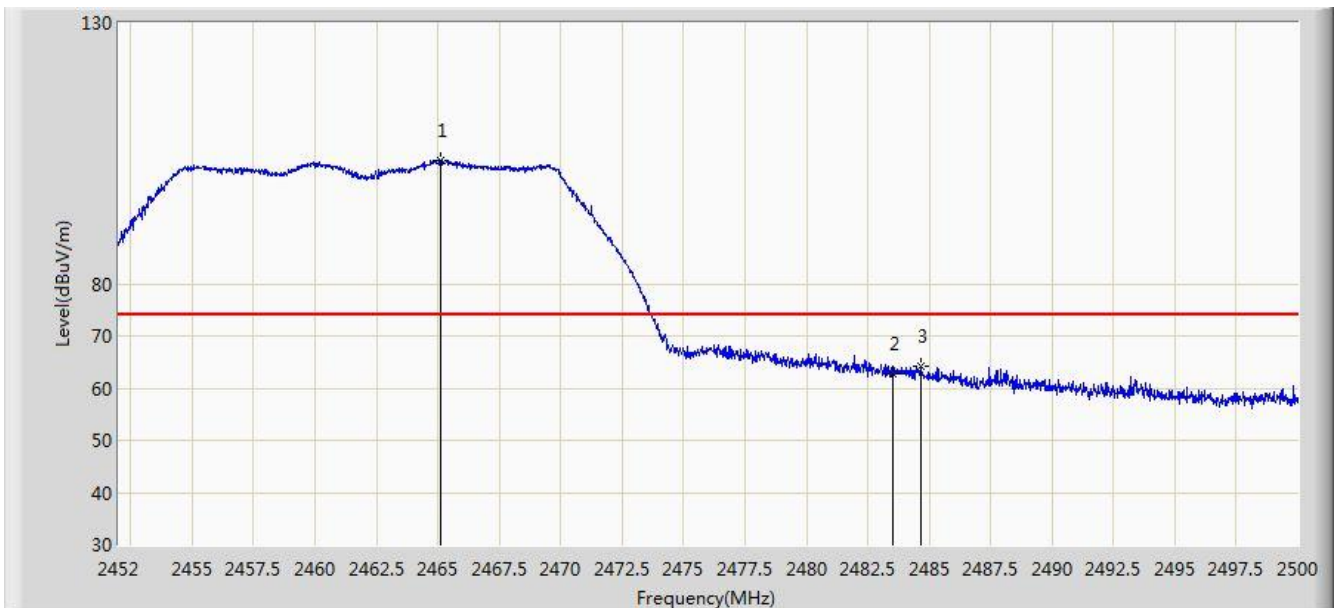


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2465.776	99.248	66.412	N/A	N/A	32.836	AV
2			2483.500	52.331	19.420	-1.669	54.000	32.911	AV
3			2484.736	53.451	20.535	-0.549	54.000	32.916	AV

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

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

Site: AC1	Time: 2019/06/04 - 04:18
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11g at Channel 2462MHz	

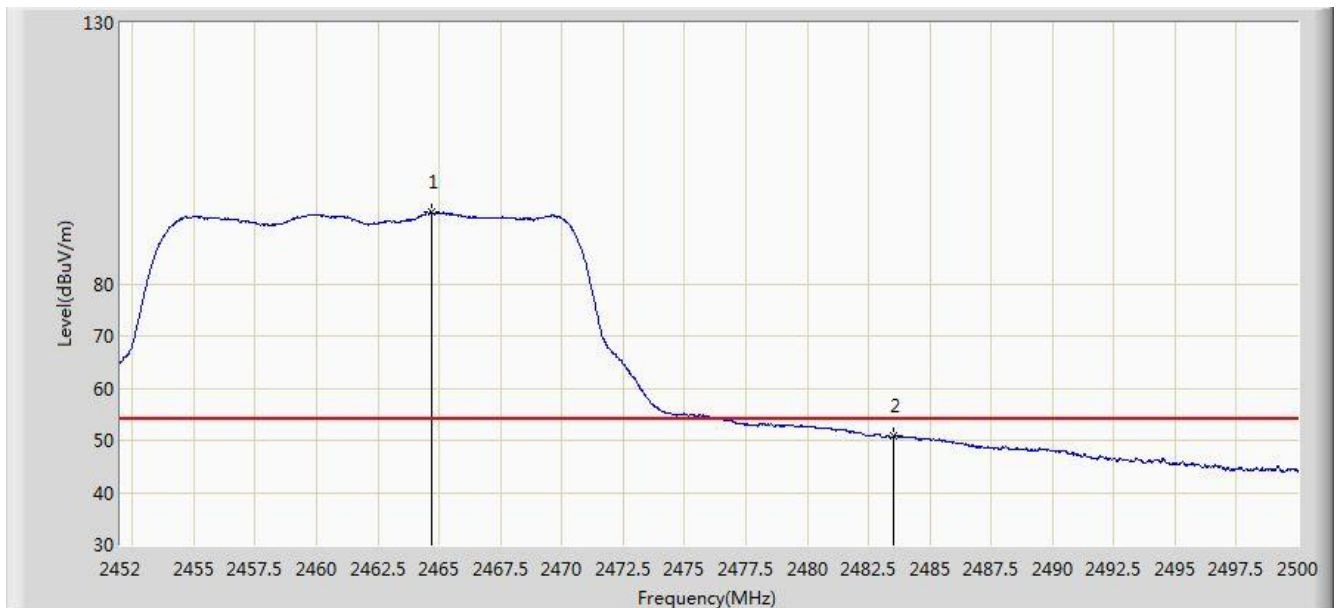


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2465.104	103.699	70.866	N/A	N/A	32.833	PK
2			2483.500	62.886	29.975	-11.114	74.000	32.911	PK
3			2484.640	64.093	31.177	-9.907	74.000	32.916	PK

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

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

Site: AC1	Time: 2019/06/04 - 04:18
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11g at Channel 2462MHz	

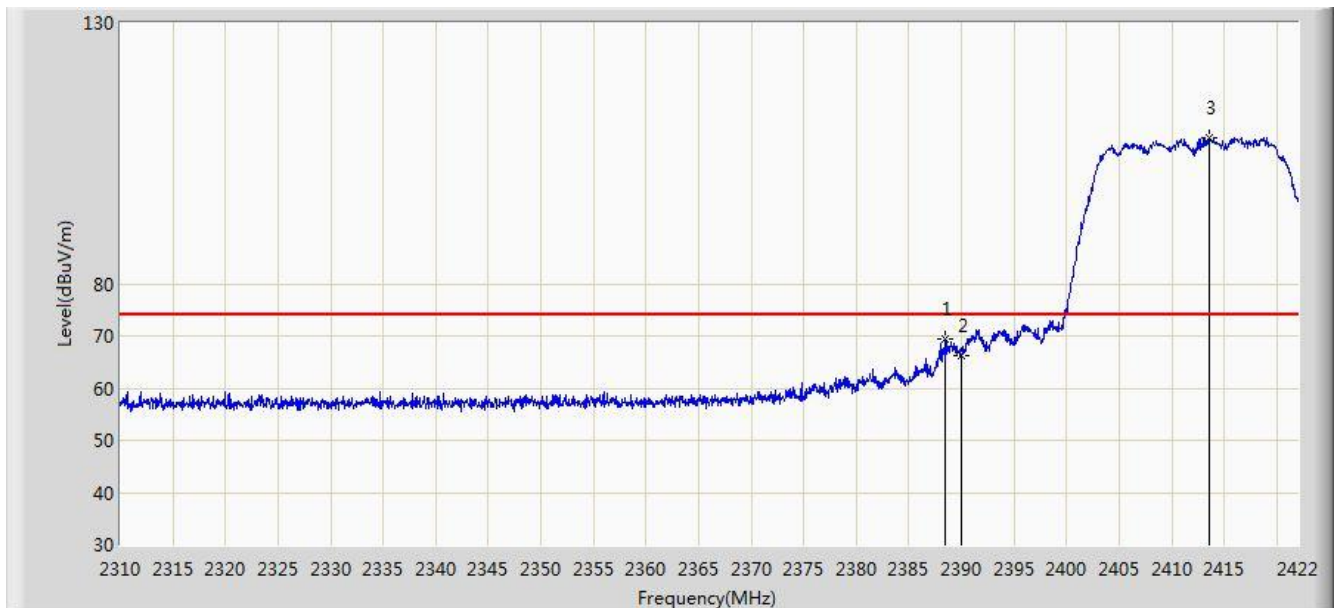


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2464.672	93.730	60.899	N/A	N/A	32.831	AV
2			2483.500	50.726	17.815	-3.274	54.000	32.911	AV

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

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

Site: AC1	Time: 2019/06/04 - 04:33
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11n-HT20 at Channel 2412MHz	

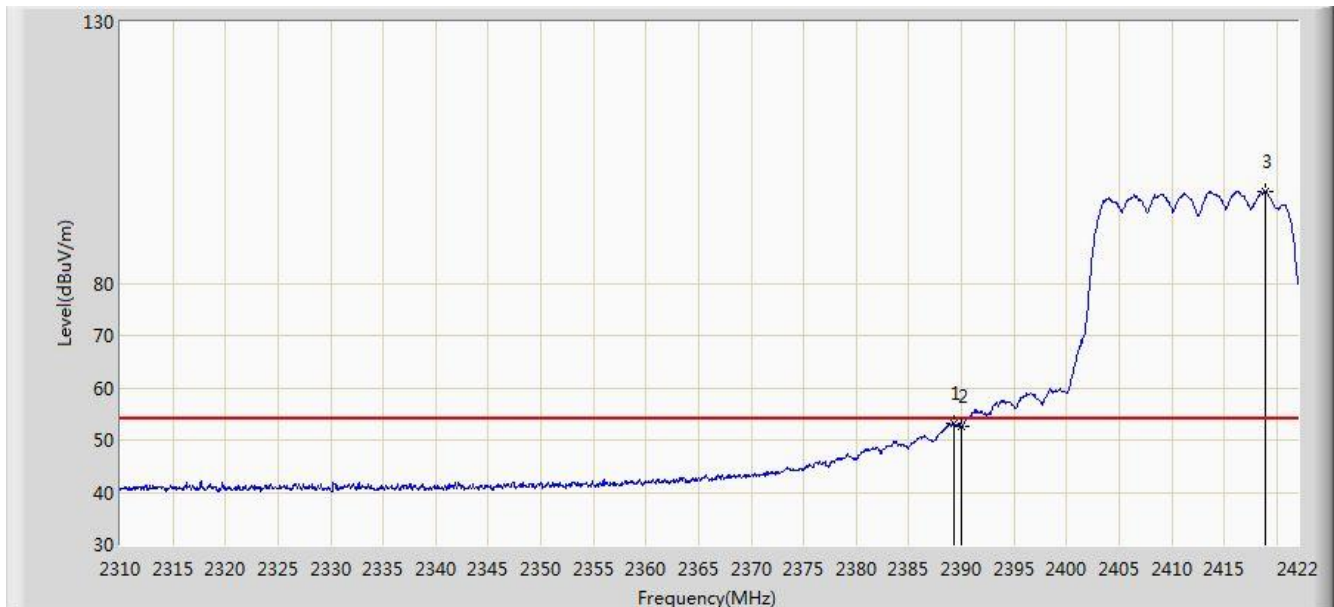


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2388.512	69.498	36.986	-4.502	74.000	32.512	PK
2			2390.000	66.276	33.758	-7.724	74.000	32.518	PK
3		*	2413.600	107.833	75.216	N/A	N/A	32.617	PK

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

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

Site: AC1	Time: 2019/06/04 - 04:32
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11n-HT20 at Channel 2412MHz	

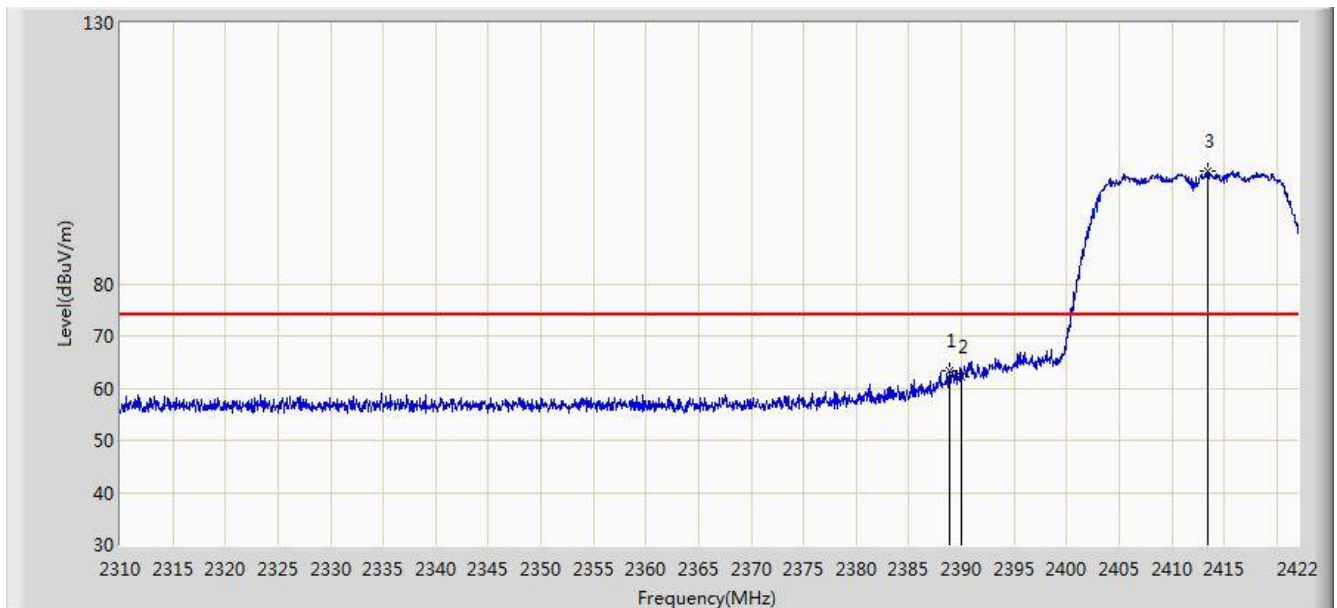


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2389.352	53.180	20.665	-0.820	54.000	32.515	AV
2			2390.000	52.559	20.041	-1.441	54.000	32.518	AV
3		*	2418.976	97.594	64.955	N/A	N/A	32.640	AV

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

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

Site: AC1	Time: 2019/06/04 - 04:33
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11n-HT20 at Channel 2412MHz	

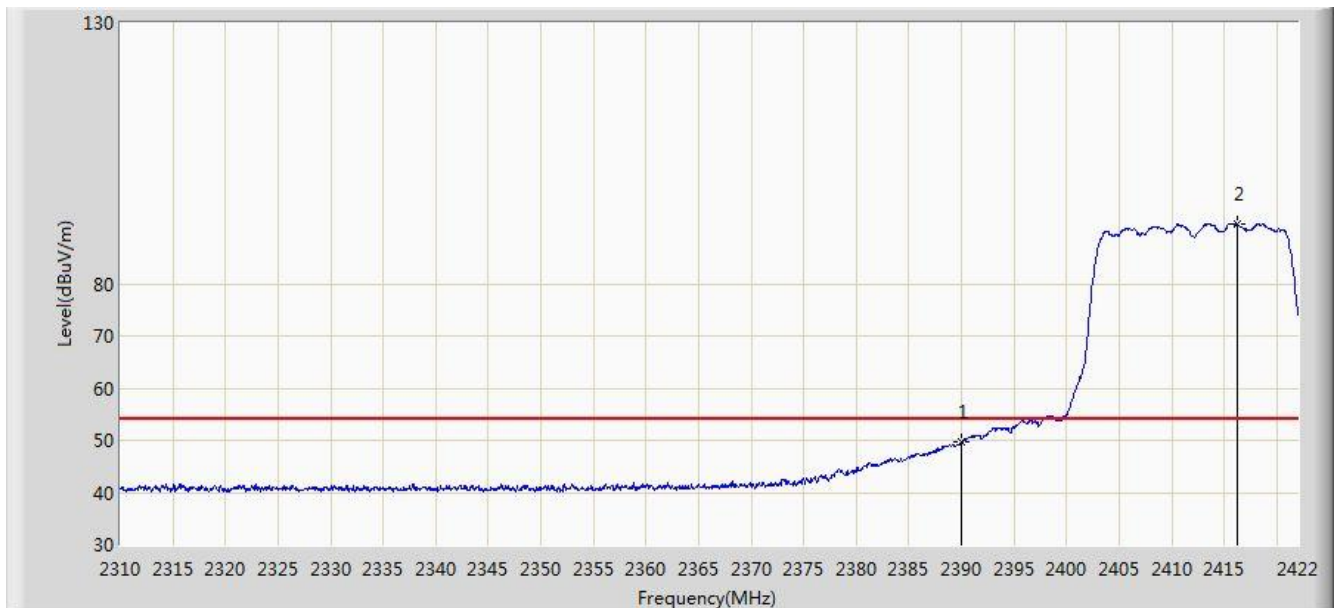


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2388.848	63.452	30.939	-10.548	74.000	32.514	PK
2			2390.000	62.139	29.621	-11.861	74.000	32.518	PK
3		*	2413.432	101.734	69.118	N/A	N/A	32.616	PK

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

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

Site: AC1	Time: 2019/06/04 - 04:34
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11n-HT20 at Channel 2412MHz	

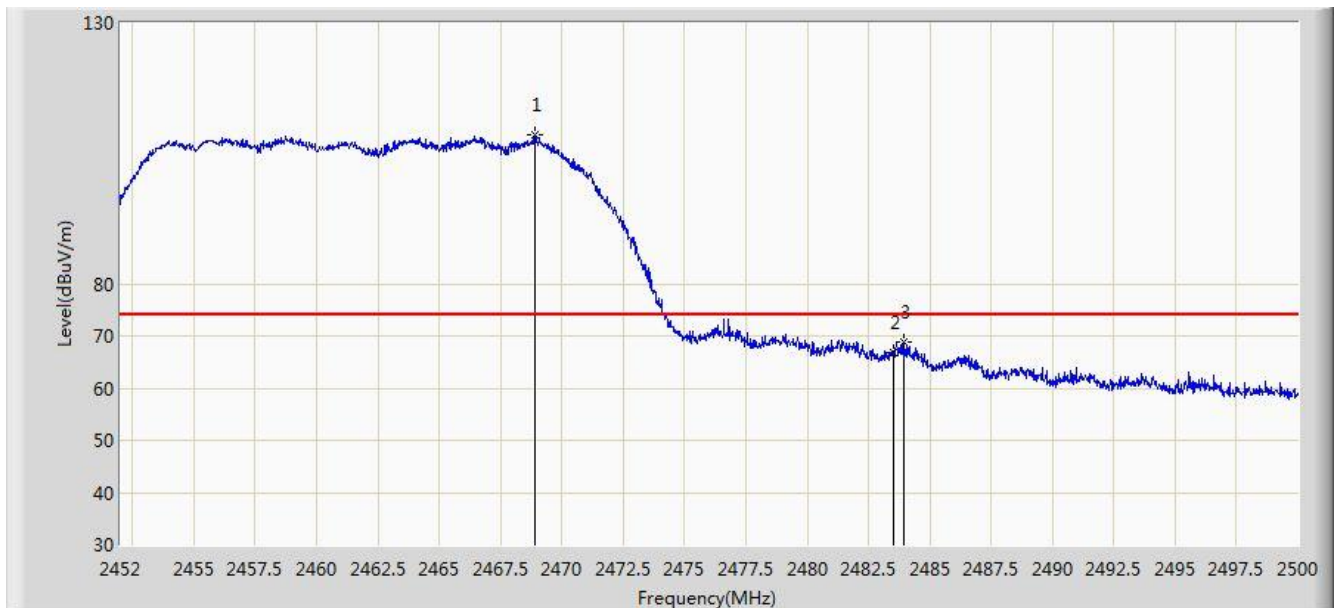


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2390.000	49.626	17.108	-4.374	54.000	32.518	AV
2		*	2416.176	91.449	58.821	N/A	N/A	32.628	AV

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

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

Site: AC1	Time: 2019/06/04 - 05:09
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11n-HT20 at Channel 2462MHz	

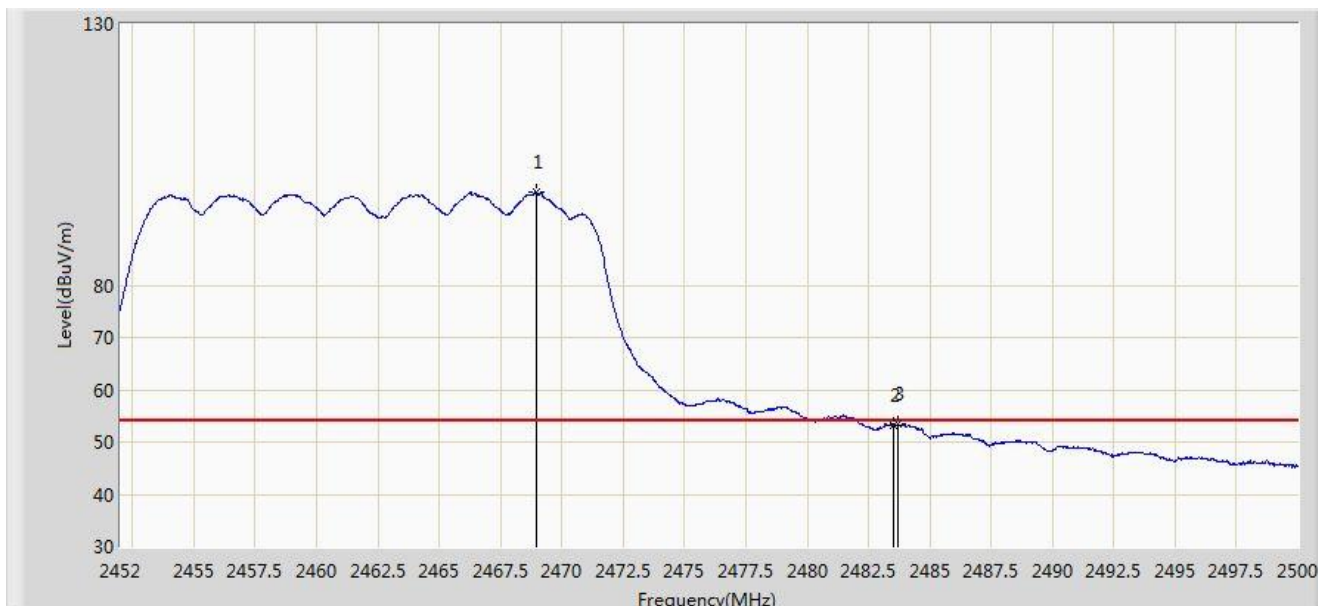


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2468.896	108.446	75.597	N/A	N/A	32.850	PK
2			2483.500	66.790	33.879	-7.210	74.000	32.911	PK
3			2483.920	68.737	35.824	-5.263	74.000	32.913	PK

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

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

Site: AC1	Time: 2019/06/04 - 05:08
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Horizontal
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11n-HT20 at Channel 2462MHz	

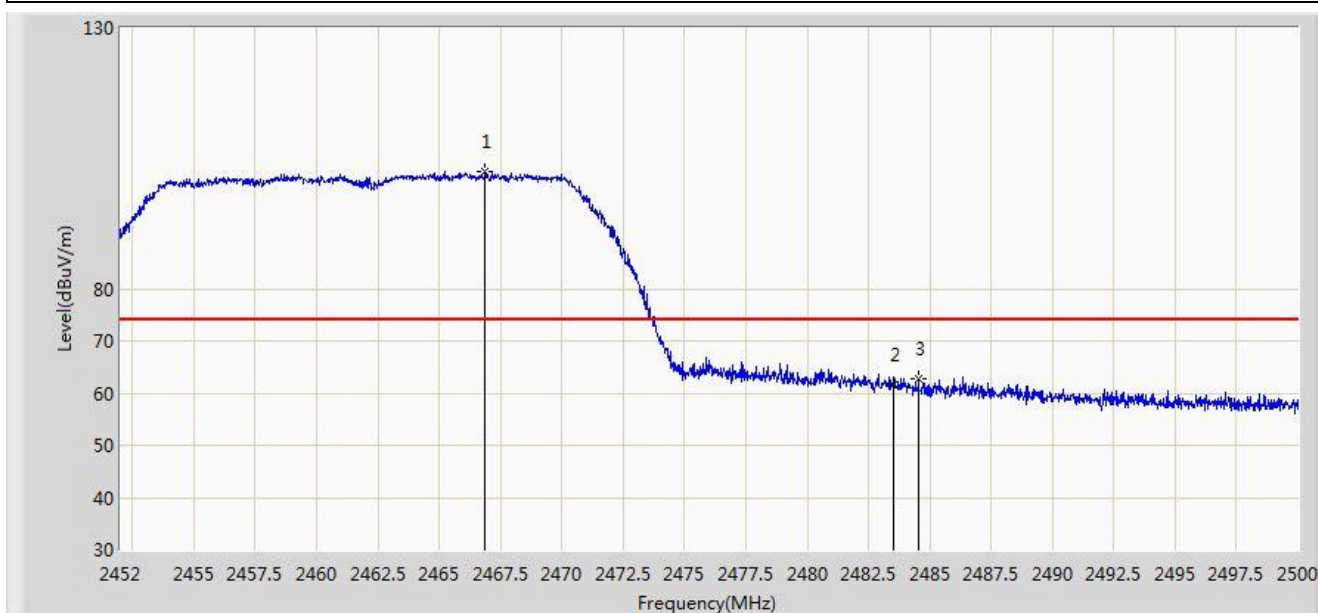


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2468.992	97.792	64.942	N/A	N/A	32.850	AV
2			2483.500	53.240	20.329	-0.760	54.000	32.911	AV
3			2483.680	53.402	20.490	-0.598	54.000	32.912	AV

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

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

Site: AC1	Time: 2019/06/04 - 05:10
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11n-HT20 at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2466.880	102.342	69.501	N/A	N/A	32.841	PK
2			2483.500	61.537	28.626	-12.463	74.000	32.911	PK
3			2484.544	62.839	29.924	-11.161	74.000	32.916	PK

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

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

Site: AC1	Time: 2019/06/04 - 05:10
Limit: FCC_Part15.209_RSE(3m)	Engineer: Kevin Ker
Probe: BBHA 9120D_1-18GHz	Polarity: Vertical
EUT: Streaming Media Player	Power: By USB
Note: Transmit by 802.11n-HT20 at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	2468.920	92.382	59.533	N/A	N/A	32.850	AV
2			2483.500	49.871	16.960	-4.129	54.000	32.911	AV

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

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

7.8. AC Conducted Emissions Measurement

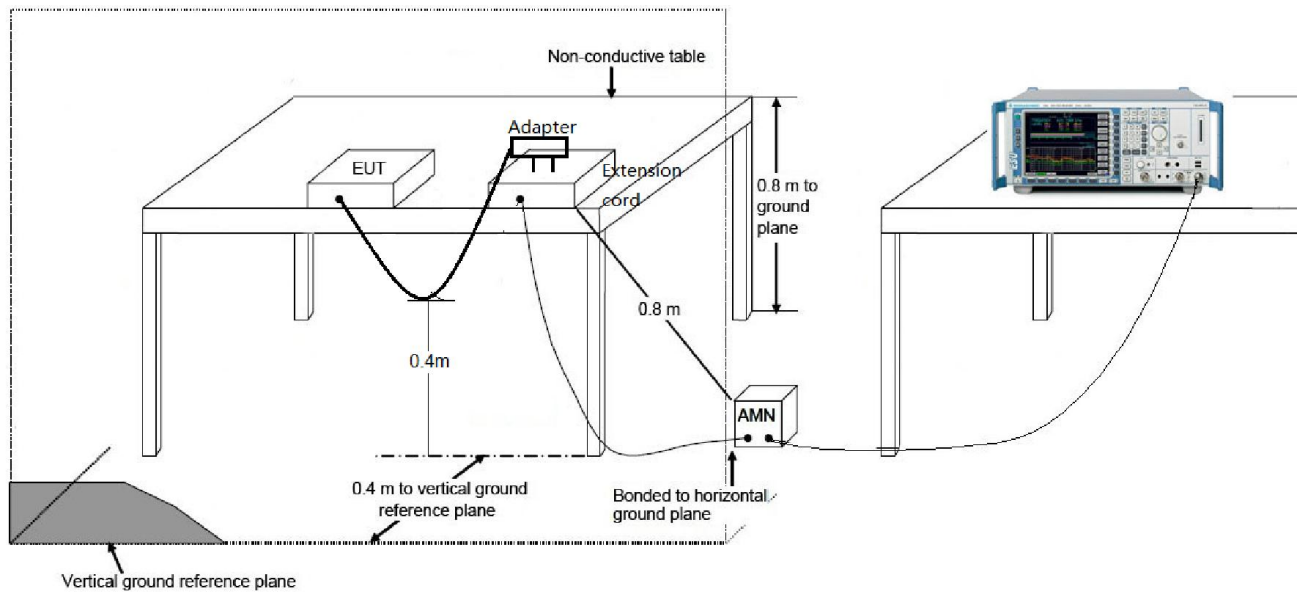
7.8.1. Test Limit

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

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

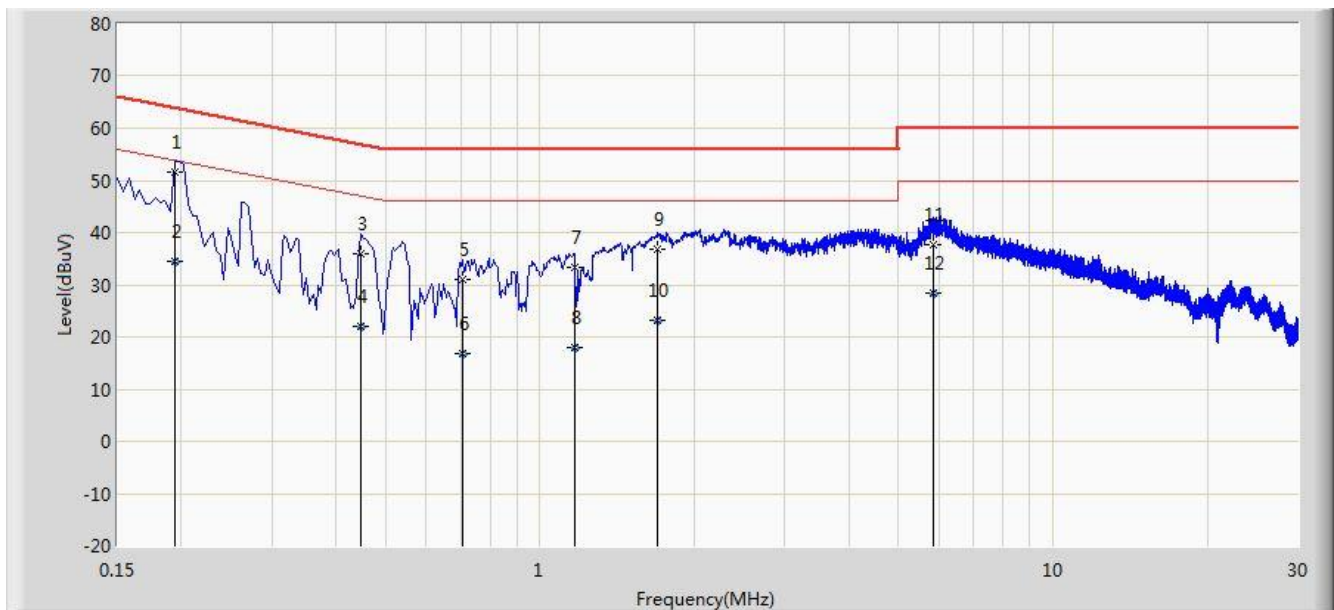
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.8.2. Test Setup



7.8.3.Test Result

Site: SR2	Time: 2019/06/11 - 19:57
Limit: FCC_Part15.207_CE_AC Power	Engineer: Kevin Ker
Probe: ENV216 (Filter On)	Polarity: Line
EUT: Streaming Media Player	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	

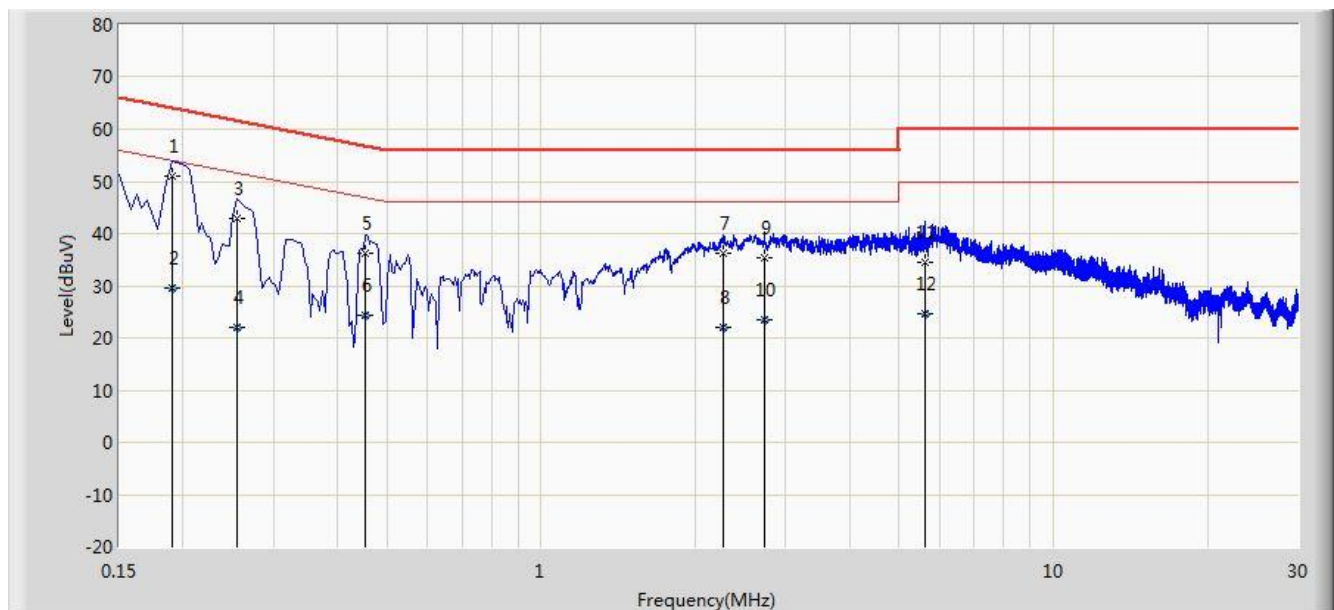


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.194	51.682	41.647	-12.182	63.864	10.034	QP
2			0.194	34.359	24.324	-19.505	53.864	10.034	AV
3			0.446	35.899	25.822	-21.050	56.949	10.077	QP
4			0.446	21.898	11.821	-25.052	46.949	10.077	AV
5			0.706	30.875	20.855	-25.125	56.000	10.019	QP
6			0.706	16.673	6.653	-29.327	46.000	10.019	AV
7			1.166	33.445	23.559	-22.555	56.000	9.886	QP
8			1.166	18.018	8.132	-27.982	46.000	9.886	AV
9			1.690	36.735	26.862	-19.265	56.000	9.873	QP
10			1.690	23.046	13.173	-22.954	46.000	9.873	AV
11			5.826	37.617	27.842	-22.383	60.000	9.775	QP
12			5.826	28.495	18.720	-21.505	50.000	9.775	AV

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

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

Site: SR2	Time: 2019/06/11 - 20:01
Limit: FCC_Part15.207_CE_AC Power	Engineer: Kevin Ker
Probe: ENV216 (Filter On)	Polarity: Neutral
EUT: Streaming Media Player	Power: AC 120V/60Hz
Test Mode: Transmit by 802.11n-HT20 at Channel 2462MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.190	50.888	40.861	-13.149	64.037	10.026	QP
2			0.190	29.578	19.551	-24.459	54.037	10.026	AV
3			0.254	42.976	33.048	-18.649	61.625	9.928	QP
4			0.254	22.143	12.215	-29.482	51.625	9.928	AV
5			0.454	36.362	26.270	-20.439	56.802	10.092	QP
6			0.454	24.428	14.336	-22.374	46.802	10.092	AV
7			2.270	36.094	26.248	-19.906	56.000	9.846	QP
8			2.270	21.917	12.071	-24.083	46.000	9.846	AV
9			2.730	35.277	25.451	-20.723	56.000	9.826	QP
10			2.730	23.380	13.553	-22.620	46.000	9.826	AV
11			5.630	34.570	24.825	-25.430	60.000	9.745	QP
12			5.630	24.539	14.794	-25.461	50.000	9.745	AV

Note: Measure Level (dBuV) = Reading Level (dBuV) + 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 **Streaming Media Player** is in compliance with Part 15C of the FCC Rules.

_____ The End _____

Appendix A - Test Setup Photograph

Refer to “1905TW0109-UT” file.

Appendix B - EUT Photograph

Refer to “1905TW0109-UE” file.