MEASUREMENT REPORT

FCC PART 15.249 / RSS-210

FCC ID:	BRWDASRX15
IC:	6157A- AMRX15
APPLICANT:	Horizon Hobby, LLC

Application Type:	Certification
Product:	Receiver
Model No.:	BLH5349
FCC Classification:	Low Power Communication Device Transmitter (DXX)
FCC Rule Part(s):	Part15 Subpart C (Section 15.249)
IC Rule(s):	RSS-210 Issue 9, RSS-GEN Issue 4
Test Procedure(s):	ANSI C63.10 - 2013
Test Date:	January 08 ~ 20, 2018

Reviewed By : Sunny Sun
(Sunny Sun)

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 ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date	Note
1801RSU012-U1	Rev. 01	Draft Report	01-24-2018	

CONTENTS

Description Page

§2.1033 General Information

Applicant:	Horizon Hobby, LLC
Applicant Address:	4105 Fieldstone Rd., Champaign, IL 61822 USA
Manufacturer:	Horizon Hobby, LLC
Manufacturer Address:	4105 Fieldstone Rd., Champaign, IL 61822 USA
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
FCC Registration No.:	893164
IC Registration No.:	11384A
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering

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. 893164) 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-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.**
- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.**

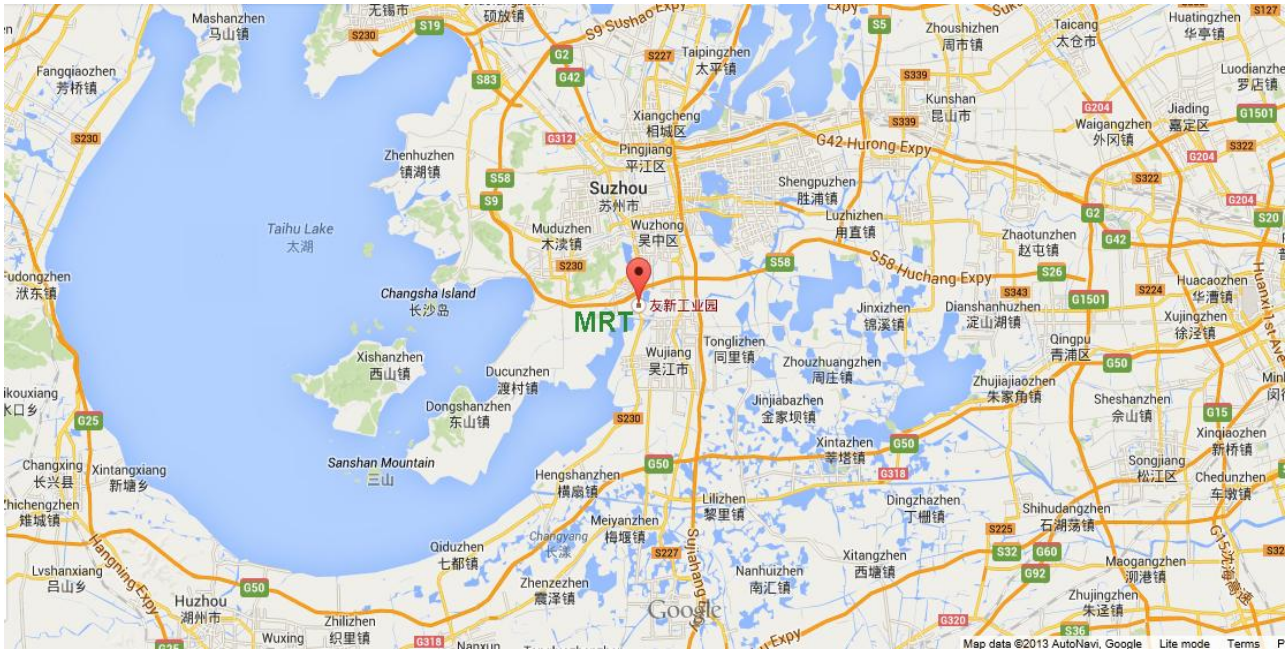
1. INTRODUCTION

1.1. Scope

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

1.2. MRT Test Location

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



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	Receiver
Model No.:	BLH5349
Frequency Range:	2404 ~ 2476 MHz
Channel Number:	23
Type of Modulation:	GFSK

2.2. Working Frequencies and Channel List

Channel	Frequency	Channel	Frequency
01	2404 MHz	02	2412 MHz
03	2416 MHz	04	2418 MHz
05	2422 MHz	06	2424 MHz
07	2426 MHz	08	2428 MHz
09	2430 MHz	10	2432 MHz
11	2434 MHz	12	2438 MHz
13	2440 MHz	14	2444 MHz
15	2452 MHz	16	2460 MHz
17	2462 MHz	18	2464 MHz
19	2466 MHz	20	2468 MHz
21	2470 MHz	22	2472 MHz
23	2476 MHz	--	--

2.3. Test Configuration

The EUT was tested as described in this report is in compliance with the requirements limits of FCC Rules Part 15.207,15.209, 15.215 and 15.249. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing.

2.4. EMI Suppression Device(s)/Modifications

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

2.5. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

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

RSP-100 Issue 11 Section 3

The manufacturer, importer or distributor shall meet the labelling requirements set out in this section for every unit:

(i) prior to marketing in Canada, for products manufactured in Canada

(ii) prior to importation into Canada, for imported products

For information regarding the e-labelling option, see Notice 2014–DRS1003. The label for the certified product represents the manufacturer's or importer's compliance with Innovation, Science and Economic Development Canada's (ISED) regulatory requirements.

Please see attachment for IC 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 requirements provided in FCC 15.207, 15.209, 15.215 and 15.249 were performed in the report of the EUT.

Deviation from measurement procedure…….....None

3.2. Radiated Emissions

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

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

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable

containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

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

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

Conclusion:

This unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATE

Radiated Emission - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cal. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2018/08/18
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2018/09/13
Loop Antenna	Schwarzbeck	FMZB1519	MRTSUE06025	1 year	2018/11/20
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2018/11/18
Broad Band Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2018/10/21
Broadband Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06024	1 year	2018/04/25
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2018/11/17
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2018/04/16
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2018/08/14
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2018/05/10

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.

Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB

7. TEST RESULT

7.1. Summary

Company Name: **Horizon Hobby, LLC**

Product: **Receiver**

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.209 15.249	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 7.2 & 7.3

RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
RSS-210 Clause 8.9 Annex A2.9	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in clause 8.10	Radiated	Pass	Section 7.2 & 7.3
RSS-GEN Clause 6.6	99% Occupied Bandwidth	N/A		Pass	Section 7.4

Notes: For radiated emission test, every axis (X, Y, Z) was verified. The test results shown in the following sections represent the worst case emissions.

7.2. Radiated Emission

7.2.1.Test Limit

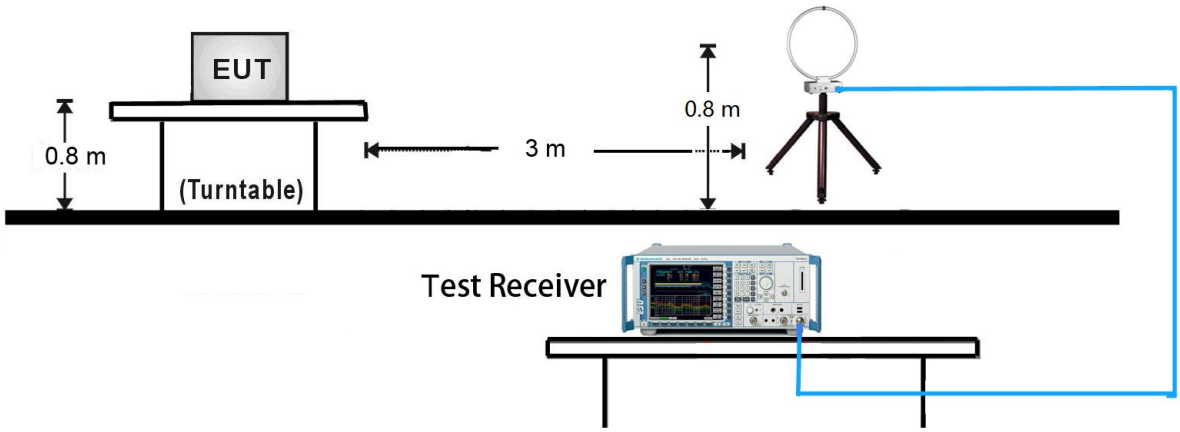
FCC Part 15 Subpart C Paragraph 15.249		
Fundamental Frequency (MHz)	Field Strength of Fundamental (mV/m)	Field Strength of Harmonics (uV/m)
902 ~ 908	50	500
2400 ~ 2483.5	50	500
5725 ~ 5875	50	500
24000 ~ 24250	250	2500

FCC Part 15.249 (d), Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

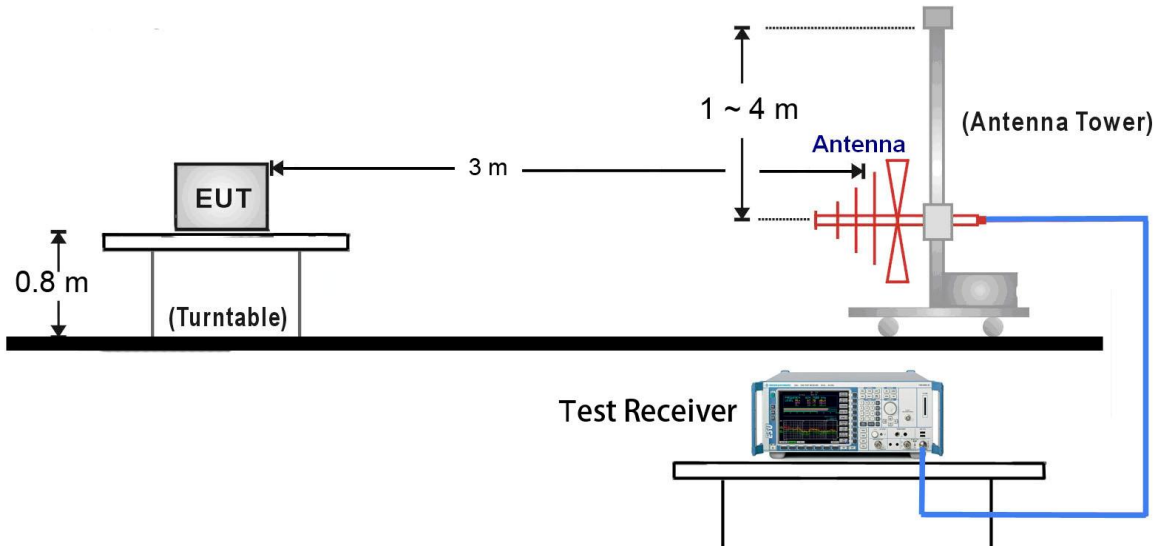
FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 80	100**	3
80 ~ 216	150**	3
216 ~ 960	200**	3
Above 960	500	3
Note 1: The lower limit shall apply at the transition frequency. Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m).		

7.2.2.Test Setup

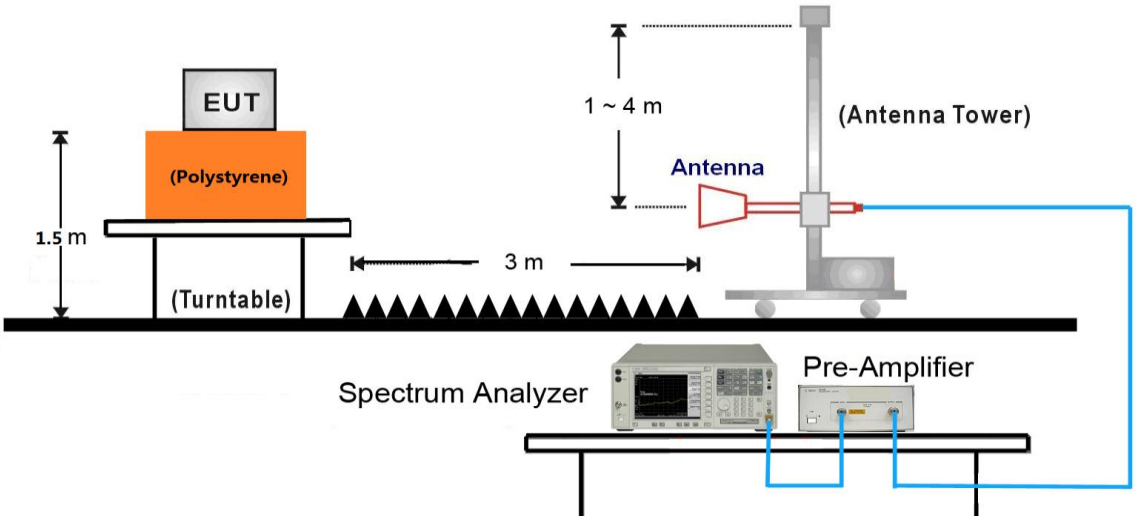
9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



1GHz ~ 25GHz Test Setup:

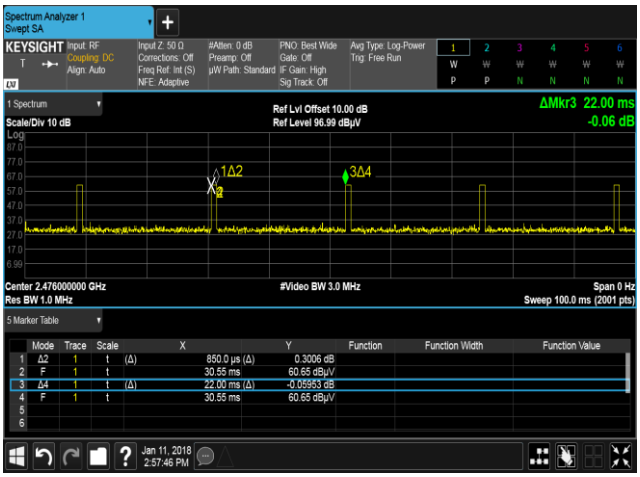


7.2.3.Test Result

Product	Receiver	Temperature	24°C
Test Engineer	Lewis Huang	Relative Humidity	59%
Test Site	AC1	Test Date	2018/01/19

Time On (ms)	One Period (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)
0.9	22.0	4.1	-27.7

Note: Duty Cycle Factor = 20*Log (Duty Cycle)

Channel 2476MHz	
	

Product	Receiver	Temperature	25°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC1	Test Date	2018/01/08
Remark:	**Fundamental** Radiated Emission		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Duty Cycle Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
2404	63.8	32.3	N/A	96.1	114.0	-17.9	PK	Horizontal
	63.8	32.3	-27.7	68.4	94.0	-25.6	AV	Horizontal
	57.4	32.3	N/A	89.7	114.0	-24.3	PK	Vertical
	57.4	32.3	-27.7	62.0	94.0	-32.0	AV	Vertical
2440	62.7	32.3	N/A	95.0	114.0	-19.0	PK	Horizontal
	62.7	32.3	-27.7	67.3	94.0	-26.7	AV	Horizontal
	57.4	32.3	N/A	89.7	114.0	-24.3	PK	Vertical
	57.4	32.3	-27.7	62.0	94.0	-32.0	AV	Vertical
2476	62.2	32.3	N/A	94.5	114.0	-19.5	PK	Horizontal
	62.2	32.3	-27.7	66.8	94.0	-27.2	AV	Horizontal
	57.3	32.3	N/A	89.6	114.0	-24.4	PK	Vertical
	57.3	32.3	-27.7	61.9	94.0	-32.1	AV	Vertical

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

Average Measure Level = Peak Measure Level + Duty Cycle Factor

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

Note 2: All readings below 1GHz are peak, above 1GHz are performed with peak and/or average measurements as necessary.

Product	Receiver	Temperature	25°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC1	Test Date	2018/01/20
Remark:	**Harmonics** Radiated Emission - 2404MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
603.3	3.3	20.7	24.0	46.0	-22.0	QP	Horizontal
813.8	6.8	23.4	30.2	46.0	-15.8	QP	Horizontal
636.7	3.1	21.3	24.4	46.0	-21.6	QP	Vertical
811.8	4.0	23.4	27.4	46.0	-18.6	QP	Vertical
3210.0	40.9	1.2	42.1	74.0 (Note2)	-31.9	PK	Horizontal
4000.5	44.1	3.3	47.4	74.0 (Note2)	-26.6	PK	Horizontal
4808.0	37.8	5.9	43.7	74.0 (Note2)	-30.3	PK	Horizontal
5641.0	37.1	7.0	44.1	74.0 (Note2)	-29.9	PK	Horizontal
3201.5	40.8	1.2	42.0	74.0 (Note2)	-32.0	PK	Vertical
4000.5	42.7	3.3	46.0	74.0 (Note2)	-28.0	PK	Vertical
5097.0	36.6	6.6	43.2	74.0 (Note2)	-30.8	PK	Vertical
6567.5	36.5	10.2	46.7	74.0 (Note2)	-27.3	PK	Vertical

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

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

Note 2: Average measurement was not performed when the peak level lower than average limit.

Note 3: The test trace is same as the ambient noise (the test frequency range: 9 kHz ~ 30 MHz and 18 GHz ~ 25 GHz), therefore no data appear in the report.

Product	Receiver	Temperature	25°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC1	Test Date	2018/01/11
Remark:	**Harmonics** Radiated Emission - 2440MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
726.0	2.9	22.5	25.4	46.0	-20.6	QP	Horizontal
831.7	3.1	23.6	26.7	46.0	-19.3	QP	Horizontal
594.1	3.5	20.5	24.0	46.0	-22.0	QP	Vertical
858.4	2.6	23.8	26.4	46.0	-19.6	QP	Vertical
3252.5	44.6	1.1	45.7	74.0 (Note2)	-28.3	PK	Horizontal
4068.5	40.6	3.5	44.1	74.0 (Note2)	-29.9	PK	Horizontal
4876.0	37.1	6.0	43.1	74.0 (Note2)	-30.9	PK	Horizontal
6414.5	37.0	9.4	46.4	74.0 (Note2)	-27.6	PK	Horizontal
3252.5	41.1	1.1	42.2	74.0 (Note2)	-31.8	PK	Vertical
4068.5	42.0	3.5	45.5	74.0 (Note2)	-28.5	PK	Vertical
4880.0	38.5	6.0	44.5	74.0 (Note2)	-29.5	PK	Vertical
6584.5	36.3	10.2	46.5	74.0 (Note2)	-27.5	PK	Vertical

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

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

Note 2: Average measurement was not performed when the peak level lower than average limit.

Note 3: The test trace is same as the ambient noise (the test frequency range: 9 kHz ~ 30 MHz and 18 GHz ~ 25 GHz), therefore no data appear in the report.

Product	Receiver	Temperature	25°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	AC1	Test Date	2018/01/20
Remark:	**Harmonics** Radiated Emission - 2476MHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
718.2	3.0	22.4	25.4	46.0	-20.6	QP	Horizontal
803.1	2.3	23.3	25.6	46.0	-20.4	QP	Horizontal
682.8	2.5	21.9	24.4	46.0	-21.6	QP	Vertical
885.1	2.2	24.2	26.4	46.0	-19.6	QP	Vertical
3303.5	45.2	0.9	46.1	74.0 (Note 2)	-27.9	PK	Horizontal
4128.0	40.8	3.8	44.6	74.0 (Note 2)	-29.4	PK	Horizontal
4833.5	37.5	5.9	43.4	74.0 (Note 2)	-30.6	PK	Horizontal
6593.0	37.2	10.2	47.4	74.0 (Note 2)	-26.6	PK	Horizontal
3303.5	41.7	0.9	42.6	74.0 (Note 2)	-31.4	PK	Vertical
4128.0	41.1	3.8	44.9	74.0 (Note 2)	-29.1	PK	Vertical
5114.0	36.1	6.6	42.7	74.0 (Note 2)	-31.3	PK	Vertical
6576.0	36.2	10.2	46.4	74.0 (Note 2)	-27.6	PK	Vertical

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

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

Note 2: Average measurement was not performed when the peak level lower than average limit.

Note 3: The test trace is same as the ambient noise (the test frequency range: 9 kHz ~ 30 MHz and 18 GHz ~ 25 GHz), therefore no data appear in the report.

7.3. Radiated Restricted Band Edge Measurement

7.3.1.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	8.25 - 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 - 156.525	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 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

For RSS-Gen Section 8.10 Requirement:

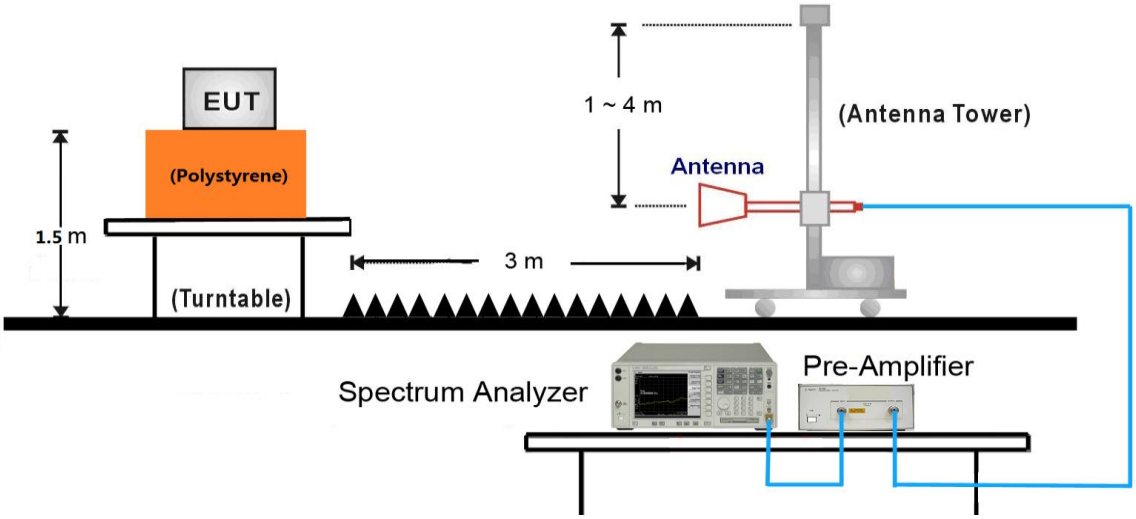
Radiated emissions which fall in the restricted bands, as defined in Section 8.10 of RSS-Gen, must also comply with the radiated emission limits specified in Section 8.9.

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
0.009 - 0.110	240 - 285	9.0 - 9.2
2.1735 - 2.1905	322 - 335.4	9.3 - 9.5
3.020 - 3.026	399.9 - 410	10.6 - 12.7
4.125 - 4.128	608 - 614	13.25 - 13.4
4.17725 - 4.17775	960 - 1427	14.47 - 14.5
4.20725 - 4.20775	1435 - 1626.5	15.35 - 16.2
5.677 - 5.683	1645.5 - 1646.5	17.7 - 21.4
6.215 - 6.218	1660 - 1710	22.01 - 23.12
6.26775 - 6.26825	1718.8 -1722.2	23.6 - 24.0
6.31175 - 6.31225	2200 - 2300	31.2 - 31.8
8.291 - 8.294	2310 -2390	36.43 - 36.5
8.362 - 8.366	2655 - 2900	Above 38.6
8.37625 - 8.38675	3260 - 3267	--
8.41425 - 8.41475	3332 -3339	
12.29 - 12.293	334.5 - 3358	
12.51975 - 12.52025	3500 - 4400	
12.57675 - 12.57725	4500 - 5150	
13.36 -13.41	5350 - 5460	
16.42 - 16.423	7250 - 7750	
16.69475 - 16.69525	8025 - 8500	
16.80425 - 16.80475	--	
25.5 - 25.67		
37.5 - 38.25		
73 - 74.6		
74.8 - 75.2		
108 - 138		
156.52475 - 156.525225		
156.7 - 156.9		

Note: *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 apparatu

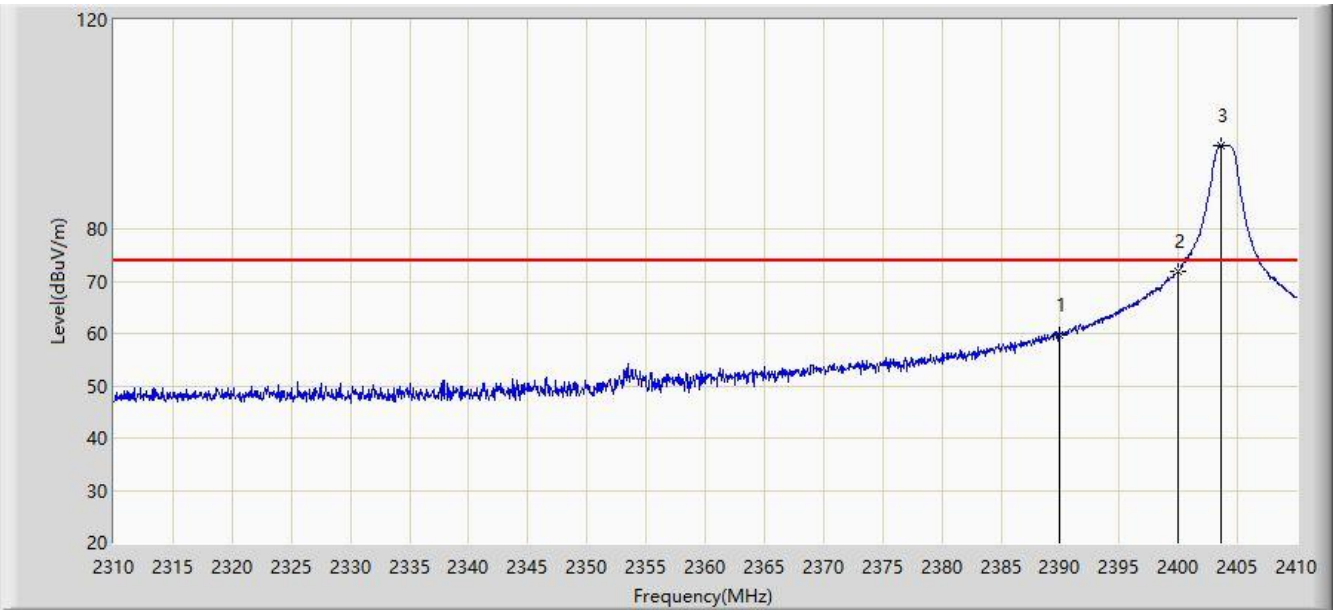
7.3.2.Test Setup

1GHz ~ 18GHz Test Setup:



7.3.3.Test Result

Site: AC1	Time: 2018/01/08 - 16:15
Limit: FCC_Part15.209_RE(3m)	Engineer: Bruce Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Receiver	Power: DC 5V
Test Mode: Transmit at low channel 2404MHz	



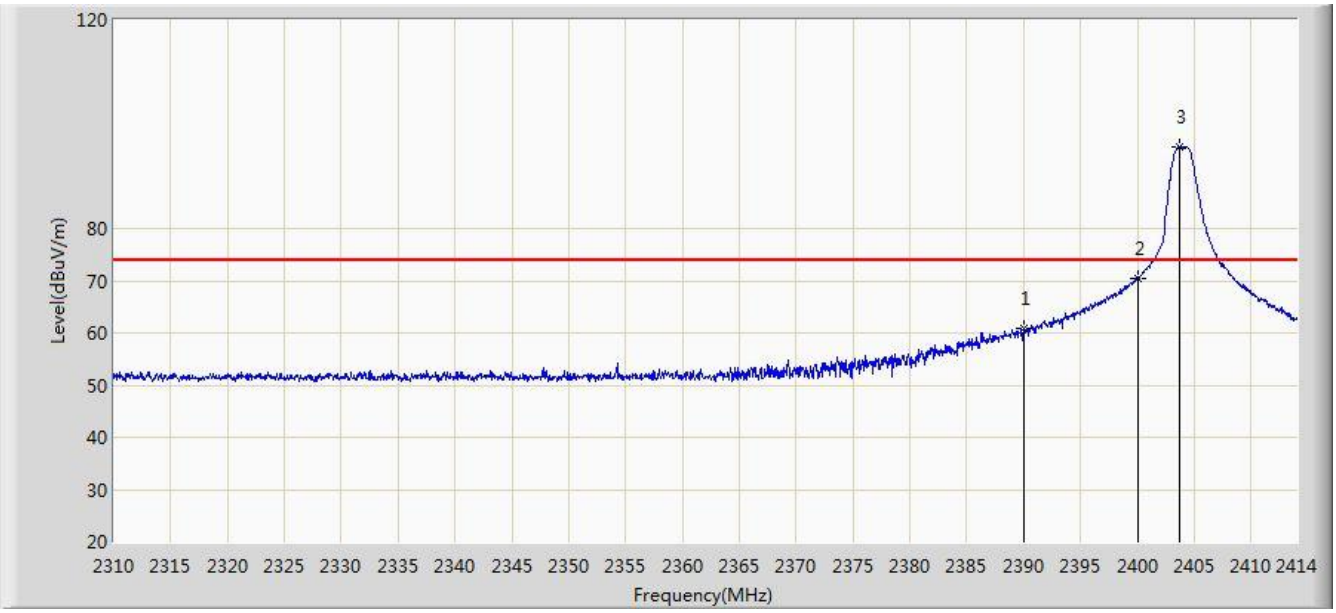
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Duty Cycle Factor (dB)	Type
1			2390.000	59.597	27.270	-14.403	74.000	32.327	N/A	PK
			2390.000	31.897	27.270	-22.103	54.000	32.327	-27.7	AV
2			2400.000	72.019	39.710	-1.981	74.000	32.309	N/A	PK
			2400.000	44.319	39.710	-9.681	54.000	32.309	-27.7	AV
3		*	2403.650	96.077	63.776	N/A	N/A	32.301	N/A	PK

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

Average Measure Level = Peak Measure Level + Duty Cycle Factor

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

Site: AC1	Time: 2018/01/08 - 16:27
Limit: FCC_Part15.209_RE(3m)	Engineer: Bruce Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Receiver	Power: DC 5V
Test Mode: Transmit at low channel 2404MHz	



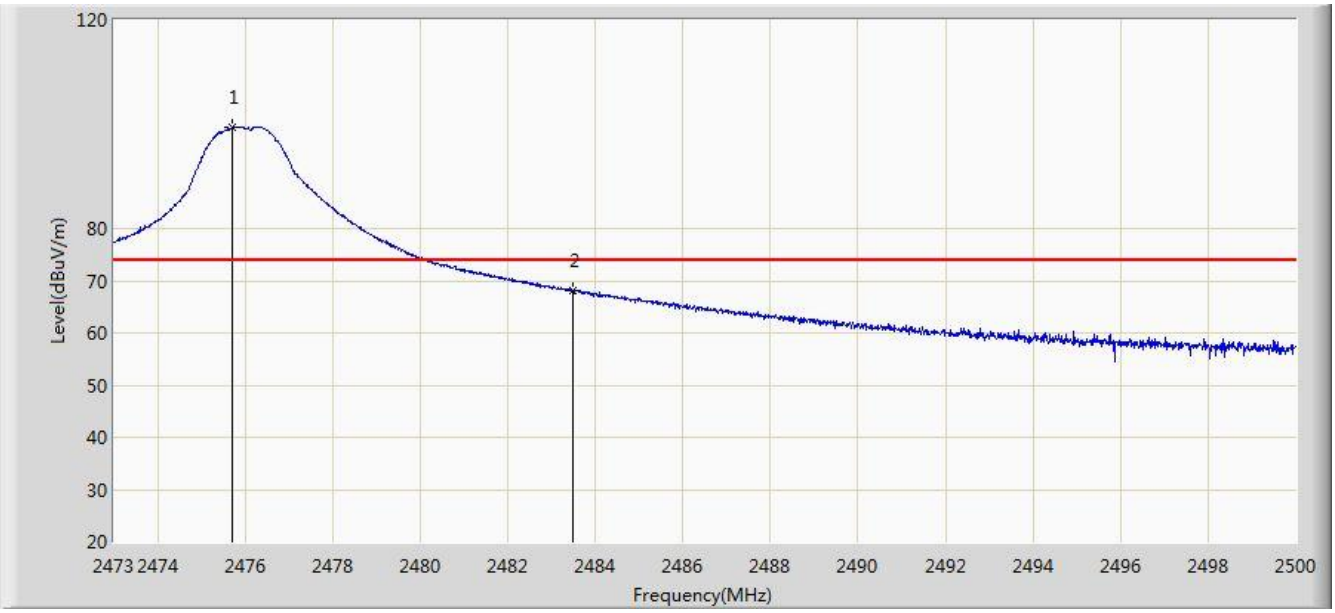
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Duty Cycle Factor (dB)	Type
1			2390.000	52.453	20.126	-21.547	74.000	32.327	N/A	PK
			2390.000	24.753	20.126	-29.247	54.000	32.327	-27.7	AV
2			2400.000	65.081	32.772	-8.919	74.000	32.309	N/A	PK
			2400.000	37.381	32.772	-16.619	54.000	32.309	-27.7	AV
3		*	2403.650	89.693	57.392	N/A	N/A	32.301	N/A	PK

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

Average Measure Level = Peak Measure Level + Duty Cycle Factor

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

Site: AC1	Time: 2018/01/08 - 14:40
Limit: FCC_Part15.209_RE(3m)	Engineer: Bruce Wang
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Receiver	Power: DC 5V
Test Mode: Transmit at high channel 2476MHz	



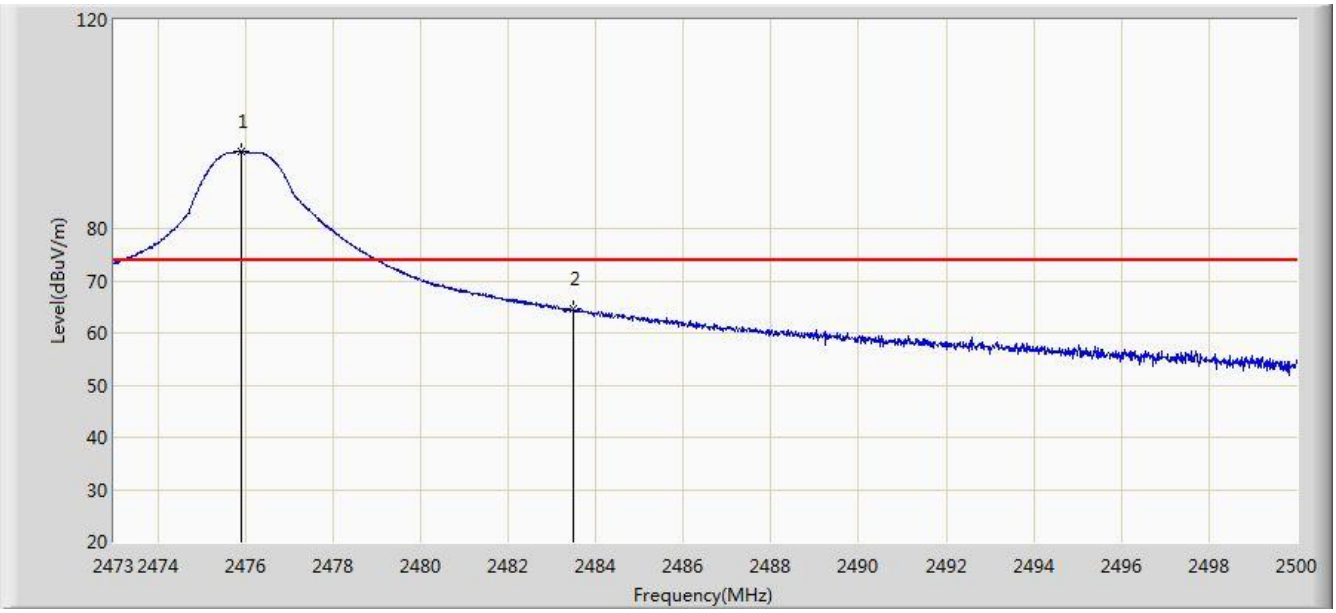
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Duty Cycle Factor (dB)	Type
1		*	2475.685	94.503	62.190	20.503	74.000	32.313	N/A	PK
2			2483.500	62.001	29.662	-11.999	74.000	32.340	N/A	PK
			2483.500	34.301	29.662	-19.699	54.000	32.340	-27.7	AV
3			2483.545	63.125	30.786	-10.875	74.000	32.340	N/A	PK
			2483.545	35.425	30.786	-18.575	54.000	32.340	-27.7	AV

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

Average Measure Level = Peak Measure Level + Duty Cycle Factor

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

Site: AC1	Time: 2018/01/08 - 14:53
Limit: FCC_Part15.209_RE(3m)	Engineer: Bruce Wang
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Receiver	Power: DC 5V
Test Mode: Transmit at high channel 2476MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Duty Cycle Factor (dB)	Type
1		*	2475.685	89.654	57.341	15.654	74.000	32.313	N/A	PK
2			2483.500	59.608	27.269	-14.392	74.000	32.340	N/A	PK
			2483.500	31.908	27.269	-22.092	54.000	32.340	-27.7	AV
3			2483.590	59.755	27.416	-14.245	74.000	32.340	N/A	PK
			2483.590	32.055	27.416	-21.945	54.000	32.340	-27.7	AV

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

Average Measure Level = Peak Measure Level + Duty Cycle Factor

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

7.4. 99% Bandwidth Measurement

7.4.1.Test Limit

N/A

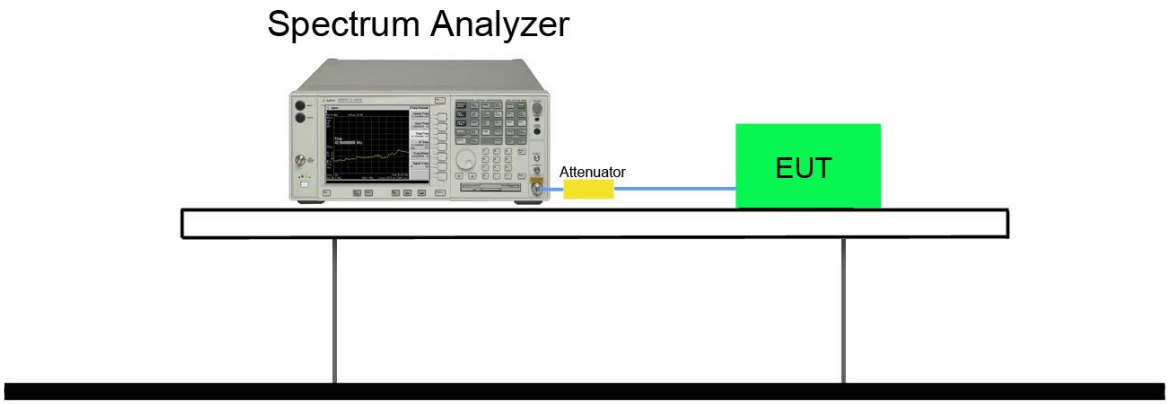
7.4.2.Test Procedure used

ANSI C63.10 Section 6.9

7.4.3.Test Setting

1. The analyzers' automatic bandwidth measurement capability was used to perform the 99% bandwidth measurement. The bandwidth measurement was not influenced by any intermediated power nulls in the fundamental emission.
2. RBW = approximately 1% to 5% of the OBW.
3. VBW ≥ 3 × RBW.
4. Detector = Peak.
5. Trace mode = max hold.

7.4.4.Test Setup



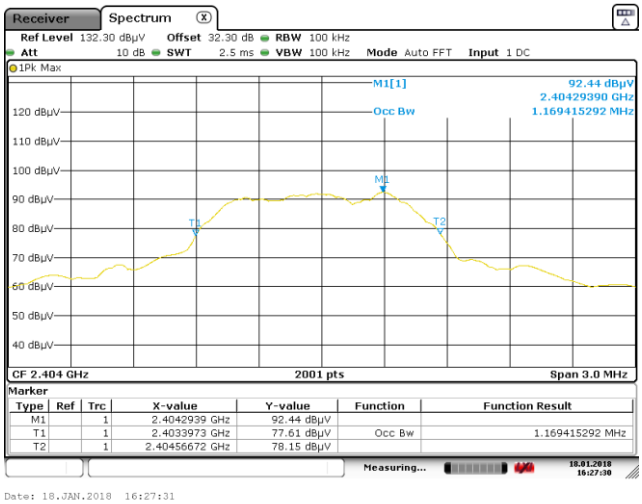
7.4.5.Test Result

Product	Receiver	Temperature	24°C
Test Engineer	Lewis Huang	Relative Humidity	59%
Test Site	AC1	Test Date	2018/01/19

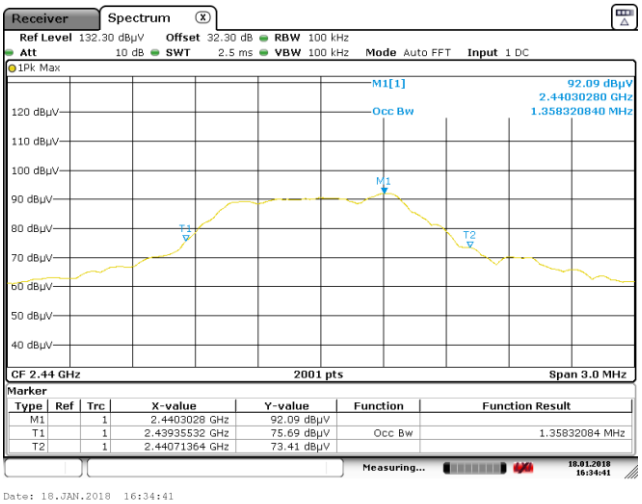
Frequency (MHz)	99% Bandwidth (MHz)
2404	1.17
2440	1.36
2476	1.54

99% Occupied Bandwidth

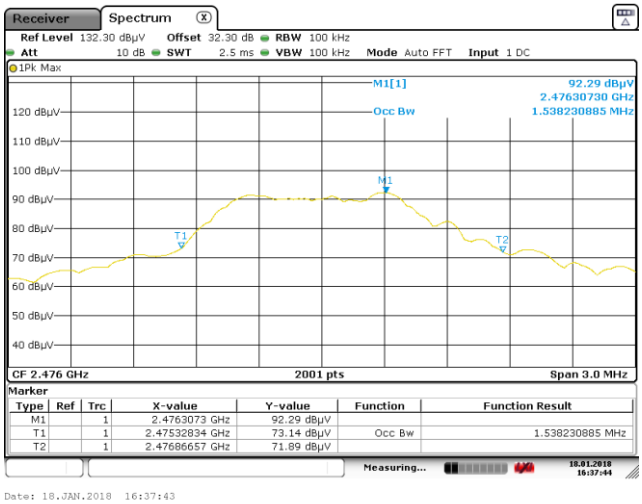
2404 MHz



2440 MHz



2476 MHz



8. CONCLUSION

The data collected relate only the item(s) tested and show that the **Receiver** is in compliance with Part 15C of the FCC Rules and ISED Rules.

The End