MEASUREMENT REPORT

FCC PART 15.247 / ISED RSS-247

FCC ID:	2A2S9-AWOL-RC
IC:	27620-AWOLRC
Applicant:	Elevation Technology Partners LLC

Application Type:	Certification
Product:	Remote Control
Model No.:	AWOL-RC
Brand Name:	AWOL
FCC Classification:	Digital Transmission System (DTS)
FCC Rule Part(s):	Part15 Subpart C (Section 15.247)
ISED Rule(s):	RSS-247 Issue 2, RSS-GEN Issue 5
Test Procedure(s):	ANSI C63.10-2013, KDB 558074 D01v05r02
Test Date:	November, 17~ 26, 2021

Reviewed By: Sunny Sun

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.02

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 (Shenzhen) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2108RSZ015-U2	Rev. 01	Initial Report	01-04-2022	Valid

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1. General Information

1.1. Applicant

Elevation Technology Partners LLC

6574 N State Rd 7, Coconut Creek, FL, 33073, USA

1.2. Manufacturer

Shenzhen WeProTalk Technology Co., Ltd

Room 201, R3-B Building, Virtual Univessity Park, Nanshan Disctrict, Shenzhen City, Guangdong Province, China

1.3. Testing Facility

☐	**Test Site – MRT Suzhou Laboratory**				
	Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China **Laboratory Location (Suzhou - SIP)** 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China				
	Laboratory Accreditations				
	A2LA: 3628.01		CNAS: L10551		
	FCC: CN1166		ISED: CN0001		
	VCCI:	☐R-20025	☐G-20034	☐C-20020	☐T-20020
		☐R-20141	☐G-20134	☐C-20103	☐T-20104
☒	**Test Site – MRT Shenzhen Laboratory**				
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China				
	Laboratory Accreditations				
	A2LA: 3628.02		CNAS: L10551		
	FCC: CN1284		ISED: CN0105		
☐	**Test Site – MRT Taiwan Laboratory**				
	Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)				
	Laboratory Accreditations				
	TAF: L3261-190725				
	FCC: 291082, TW3261		ISED: TW3261		

1.4. Product Information

Product Name	Remote Control
Model No. (HVIN/PMN)	AWOL-RC
Brand Name	AWOL
Firmware Version	VER.A
Software Version	CRF5M60A_V1.01
Frequency Range	2402MHz ~ 2480MHz
Modulation	GFSK
Number of Channels	40
Antenna Type	Metal external antenna
Antenna Gain	1.9 dBi
Data Rate	1Mbps
Working Voltage	2*AAA Battery
Operating Temp.	0 ~ 40°C
Sample No.	20211101Sample#01
Note: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

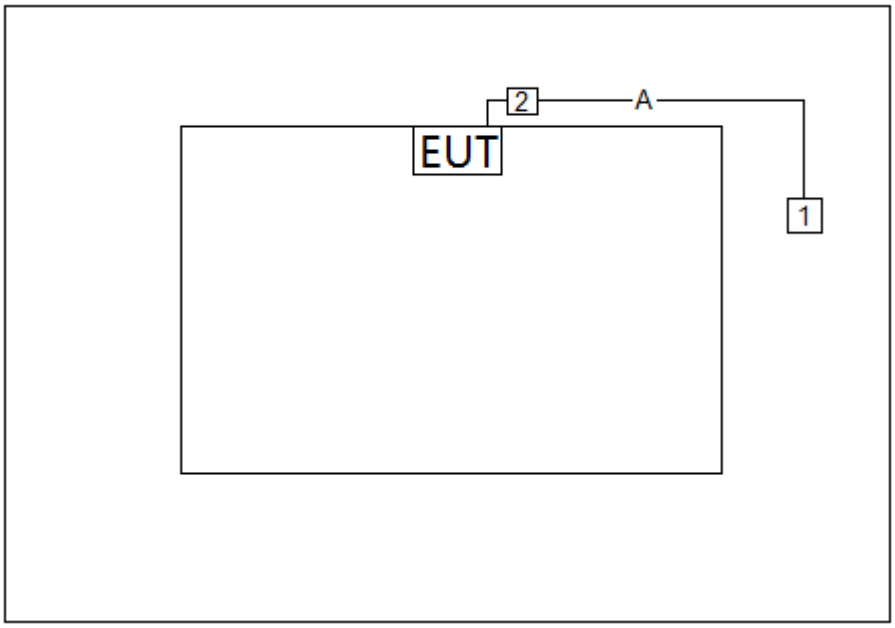
1.5. Working Frequencies

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	00	2402 MHz
03	2408 MHz	04	2410 MHz	05	2412 MHz	03	2408 MHz
06	2414 MHz	07	2416 MHz	08	2418 MHz	06	2414 MHz
09	2420 MHz	10	2422 MHz	11	2424 MHz	09	2420 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	12	2426 MHz
15	2432 MHz	16	2434 MHz	17	2436 MHz	15	2432 MHz
18	2438 MHz	19	2440 MHz	20	2442 MHz	18	2438 MHz
21	2444 MHz	22	2446 MHz	23	2448 MHz	21	2444 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	24	2450 MHz
27	2456 MHz	28	2458 MHz	29	2460 MHz	27	2456 MHz
30	2462 MHz	31	2464 MHz	32	2466 MHz	30	2462 MHz
33	2468 MHz	34	2470 MHz	35	2472 MHz	33	2468 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	36	2474 MHz
39	2480 MHz	--	--	--	--	--	--

1.6. Test Mode

Test Mode	Mode 1: Transmit by BLE-1Mbps

1.7. Configuration of Test System

Connection Diagram		
		
Cable Type		Cable Description
A	USB Cable	Non-Shielded, < 2.0m
Product		Manufacturer
1	PC	HP
2	Telink BDT	Telink

Note: The engineer test sample was provided by the manufacturer, it was configured into fixed frequency transmitter status after power on.

1.8. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20 ~ 75%RH

1.9. EMI Suppression Device(s)/Modifications

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

1.10. Labelling 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.

RSS-Gen Issue 5 Section 4

In addition to complying with the applicable RSSs and RSP-100, each unit of a product model (i.e. of a radio apparatus) shall meet the labelling requirements set out in this section prior to being marketed in Canada or imported into Canada.

For information regarding the labelling option, see Section 4.1, 4.2, 4.3 4.4. 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.

2. 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.

3. TEST EQUIPMENT CALIBRATION DATE

Conducted Emission (NS-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Shielding Room	BOOMWAVE	NS-SR2	MRTSUE06551	/	/
Two-Line V-Network	R&S	ENV216	MRTSUE06577	1 year	2022/07/04
Two-Line V-Network	R&S	ENV216	MRTSUE06578	1 year	2022/07/04
Thermohygrometer	DELI	NO.8813	MRTSUE06587	1 year	2022/06/30

Radiated Emission (NS-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06292	1 year	2022/10/20
Anechoic Chamber	BOOMWAVE	NS-AC1	MRTSUE06496	1 year	2022/07/24
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06572	1 year	2022/03/14
TRILOG Antenna	Schwarzbeck	VULB 9162	MRTSUE06573	1 year	2022/06/29
Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06574	1 year	2022/07/12
EMI Test Receiver	R&S	ESR3	MRTSUE06575	1 year	2022/06/27
Thermohygrometer	DELI	NO.8813	MRTSUE06588	1 year	2022/06/30
Preamplifier	EMCI	EMC184045SE	MRTSUE06641	1 year	2022/01/14
Signal Analyzer	Agilent	N9010A	MRTSUE06195	1 year	2022/03/17
Signal Analyzer	Keysight	N9020A	MRTSUE10065	1 year	2022/06/17

Conducted Test Equipment (NS-TR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
USB Power Sensor	Keysight	U2021XA	MRTSUE06581	1 year	2022/08/15
Signal Analyzer	Agilent	N9010A	MRTSUE06195	1 year	2022/03/17
Signal Analyzer	Keysight	N9020A	MRTSUE10065	1 year	2022/06/17
Thermohygrometer	DELI	NO.8813	MRTSUE06783	1 year	2022/05/09

Software	Version	Function
EMI Software	V3	EMI Test Software

4. 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.

Conducted Emission Measurement
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 9KHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~6GHz: 6.40dB Vertical: 9KHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.13dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.15dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.28%

5. TEST RESULT

5.1. Summary

FCC Section(s)	ISED Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(2)	RSS-247 [5.2]	6dB Bandwidth	≥ 500kHz	Conducted	Pass	Section 5.2
N/A	RSS-Gen [6.7]	99% Bandwidth	N/A		NA	
15.247(b)(3)	RSS-247 [5.4(d)]	Output Power	≤ 1Watt (30dBm) & EIRP ≤ 4Watt (36dBm)		Pass	Section 5.3
15.247(e)	RSS-247 [5.2]	Power Spectral Density	≤ 8dBm/3kHz		Pass	Section 5.4
15.247(d)	RSS-247 [5.5]	Band Edge / Out-of-Band Emissions	20dBc		Pass	Section 5.5
15.205 15.209	RSS-247 [5.5]	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 5.6 & 5.7
15.207	RSS-Gen [8.8]	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	N/A	Section 5.8

Notes:

1) For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.
2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
3) N/A means test item is not applicable

5.2. Occupied Bandwidth Measurement

5.2.1.Test Limit

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

5.2.2.Test Procedure used

ANSI C63.10-2013 - Section 11.8 (6dB bandwidth)

ANSI C63.10-2013 - Section 6.9.3 (99% bandwidth)

5.2.3.Test Setting

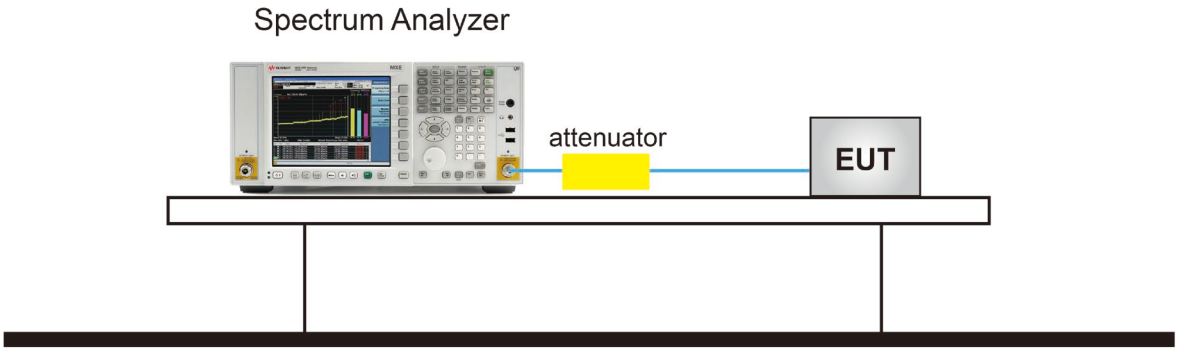
For 6dB bandwidth

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 ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace was allowed to stabilize

For 99% bandwidth

1. Span = 1.5 times to 5 times the OBW
2. Set RBW = 1% to 5% the OBW
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace was allowed to stabilize

5.2.4.Test Setup



5.2.5.Test Result

Test Site	NS-TR2	Test Engineer	Summer Tang
Test Date	2021/11/24 ~ 2021/11/30		

Test Mode	Channel No.	Frequency (MHz)	6dB Bandwidth (KHz)	Limit (kHz)	99% Bandwidth (kHz)	Result
BLE	00	2402	677.2	≥ 500	1012.5	Pass
BLE	19	2440	680.3	≥ 500	1019.3	Pass
BLE	39	2480	685.9	≥ 500	1015.7	Pass

6dB Bandwidth

Channel 00 (2402MHz)

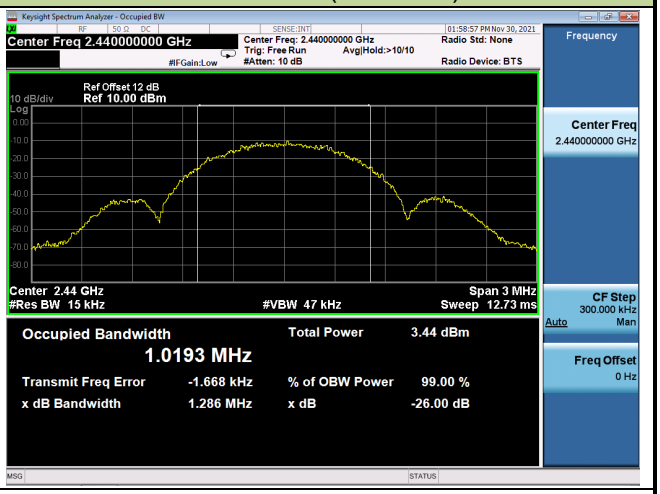
Channel 19 (2440MHz)

Channel 39 (2480MHz)

99% Bandwidth

Channel 00 (2402MHz)

Channel 19 (2440MHz)



Channel 39 (2480MHz)

5.3. Output Power Measurement

5.3.1.Test Limit

The maximum out power shall be less 1 Watt (30dBm) and the E.I.R.P shall not exceed 4 Watt (36dBm).

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.

5.3.2.Test Procedure Used

ANSI C63.10-2013 - Section 11.9.1.3 PKPM1 Peak-reading power meter method

ANSI C63.10-2013 - Section 11.9.2.3.2 Method AVGPM-G

5.3.3.Test Setting

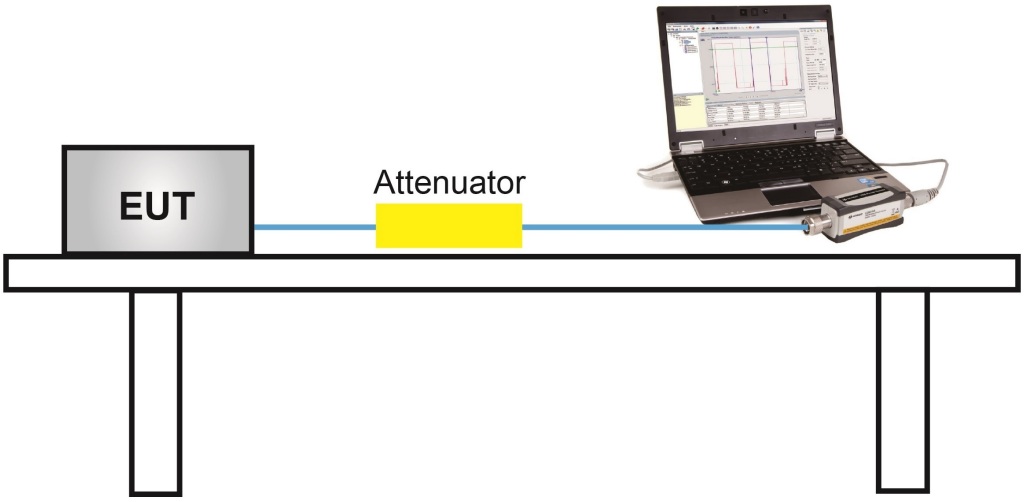
Method PKPM1 (Peak power measurement)

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

Method AVGPM-G (Measurement using a gated RF average-reading power meter)

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since this measurement is made only during the ON time of the transmitter, no duty cycle correction is required.

5.3.4.Test Setup



5.3.5.Test Result

Test Site	NS-TR2	Test Engineer	Summer Tang
Test Date	2021/11/24		

Test Result of Peak Output Power

Test Mode	Channel No.	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Max EIRP (dBm)	EIRP Limit (dBm)	Result
BLE	00	2402	-2.83	≤ 30.00	-0.93	≤ 36.00	Pass
BLE	19	2440	-2.50	≤ 30.00	-0.60	≤ 36.00	Pass
BLE	39	2480	-0.52	≤ 30.00	1.38	≤ 36.00	Pass

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

Test Result of Average Output Power (Reporting Only)

Test Mode	Channel No.	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Max EIRP (dBm)	EIRP Limit (dBm)	Result
BLE	00	2402	-3.51	≤ 30.00	-1.61	≤ 36.00	Pass
BLE	19	2440	-3.12	≤ 30.00	-1.22	≤ 36.00	Pass
BLE	39	2480	-0.88	≤ 30.00	1.02	≤ 36.00	Pass

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

5.4. Power Spectral Density Measurement

5.4.1.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.

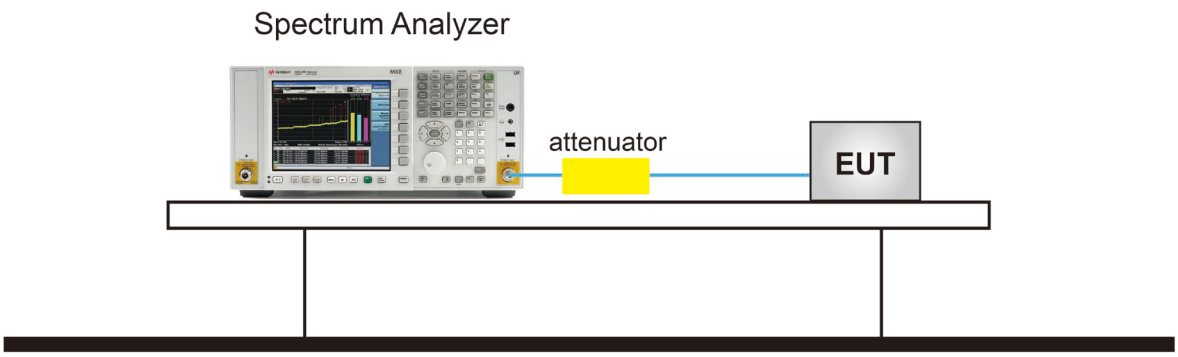
5.4.2.Test Procedure Used

ANSI C63.10-2013 - Section 11.10.2.

5.4.3.Test Setting

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

5.4.4.Test Setup



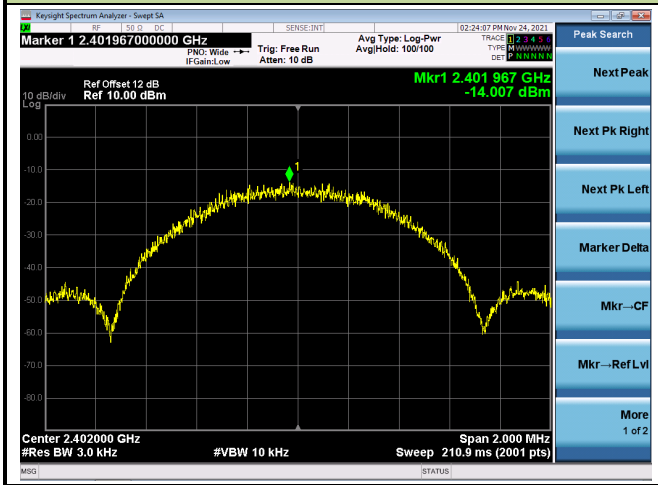
5.4.5.Test Result

Test Site	NS-TR2	Test Engineer	Summer Tang
Test Date	2021/11/24		

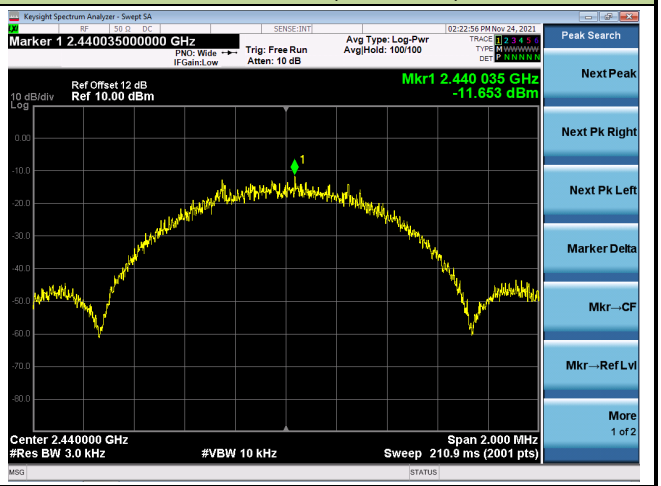
Test Mode	Channel No.	Frequency (MHz)	PSD Result (dBm / 3kHz)	Limit (dBm / 3kHz)	Result
BLE	00	2402	-14.01	≤ 8.00	Pass
BLE	19	2440	-11.65	≤ 8.00	Pass
BLE	39	2480	-9.77	≤ 8.00	Pass

PSD

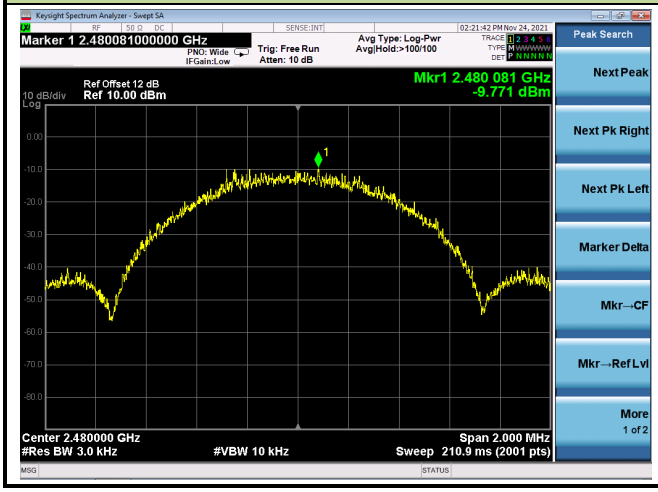
Channel 00 (2402MHz)



Channel 19 (2440MHz)



Channel 39 (2480MHz)



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

5.5.1.Test Limit

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

5.5.2.Test Procedure Used

ANSI C63.10-2013 - Section 11.11.2 & 11.11.3.

5.5.3.Test Setting

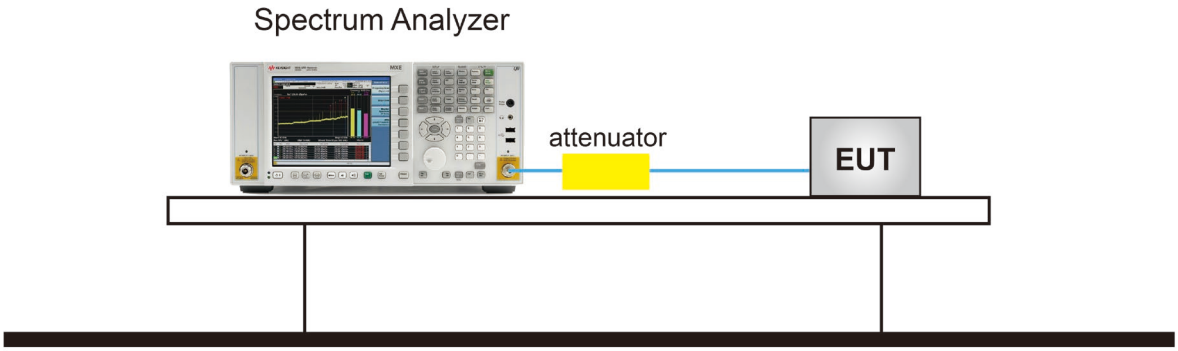
Reference level measurement

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 ≥ 3 x 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 = 100KHz
3. VBW = 300KHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

5.5.4.Test Setup

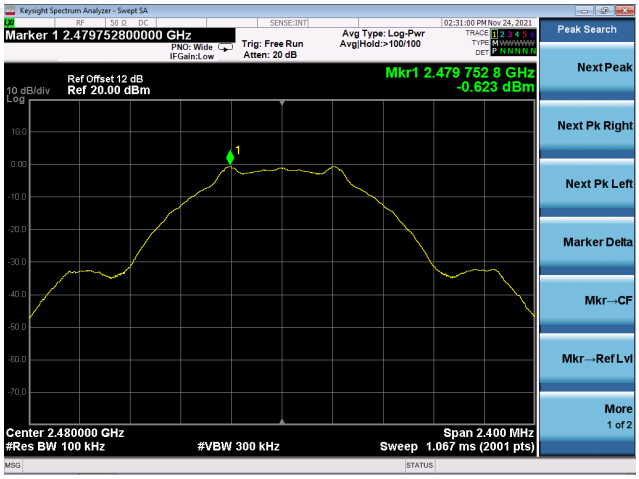


5.5.5.Test Result

Test Site	NS-TR2	Test Engineer	Summer Tang
Test Date	2021/11/24		

Test Mode	Channel No.	Frequency (MHz)	Limit (dBc)	Result
BLE	00	2402	20	Pass
BLE	19	2440	20	Pass
BLE	39	2480	20	Pass

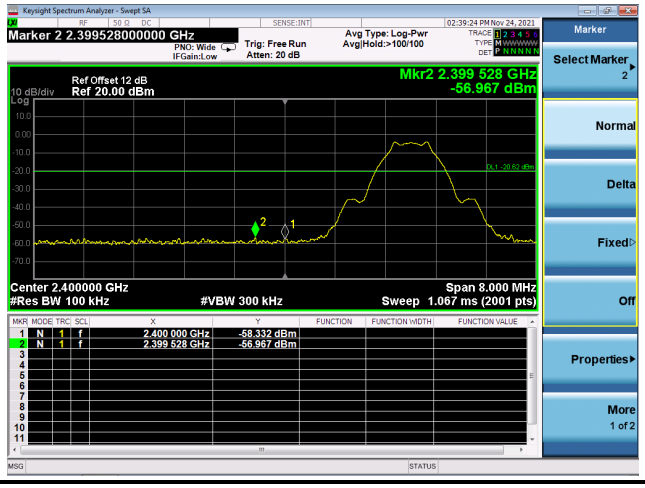
Reference Level



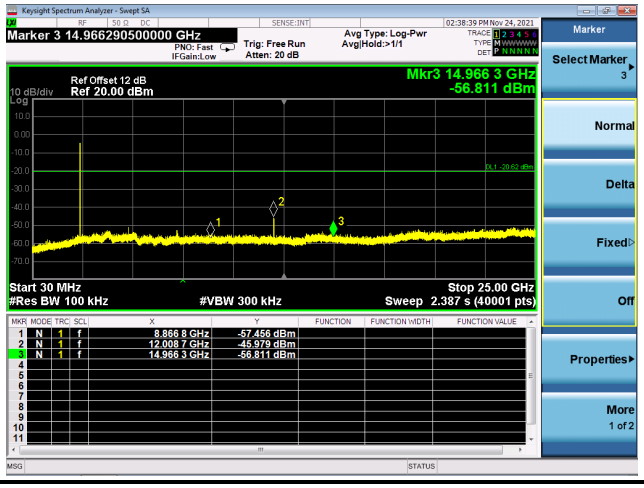
Out-of-Band Emissions

Channel 00 (2402MHz)

Low Band Edge

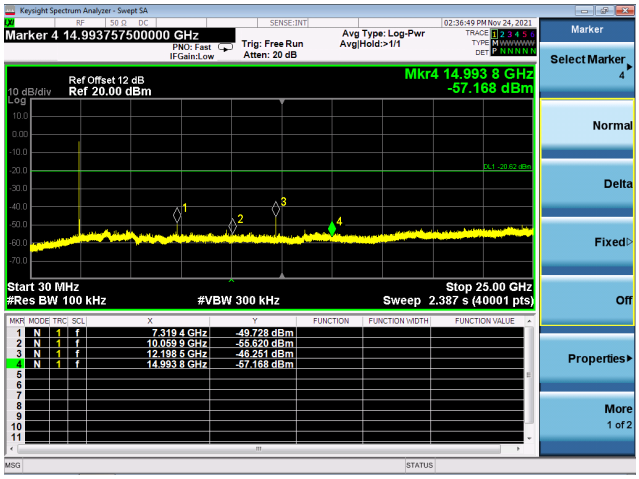


Spurious Emission



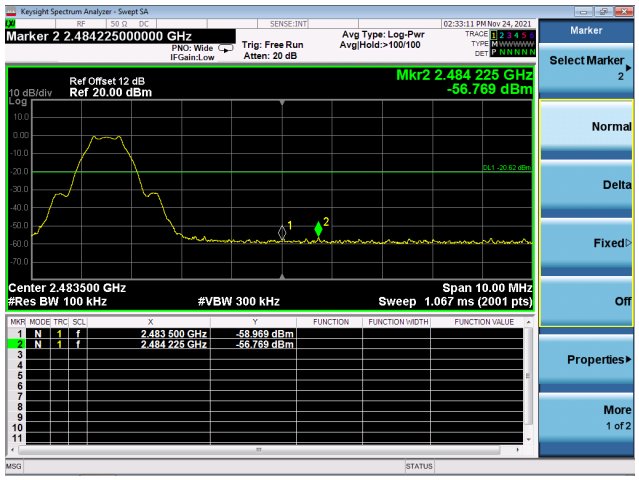
Channel 19 (2440MHz)

Spurious Emission

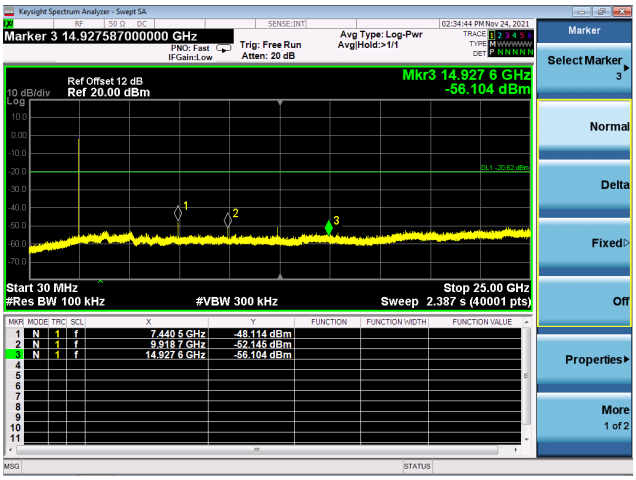


Channel 39 (2480MHz)

High Band Edge



Spurious Emission



5.6. Radiated Spurious Emission Measurement

5.6.1.Test Limit

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 & RSS-Gen Section 8.9		
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

5.6.2.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)

5.6.3.Test Setting

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

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

5. Sweep time = auto couple

6. Trace was allowed to stabilize

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 ≥ 98%, set VBW = 10 Hz.

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

4. Detector = Peak

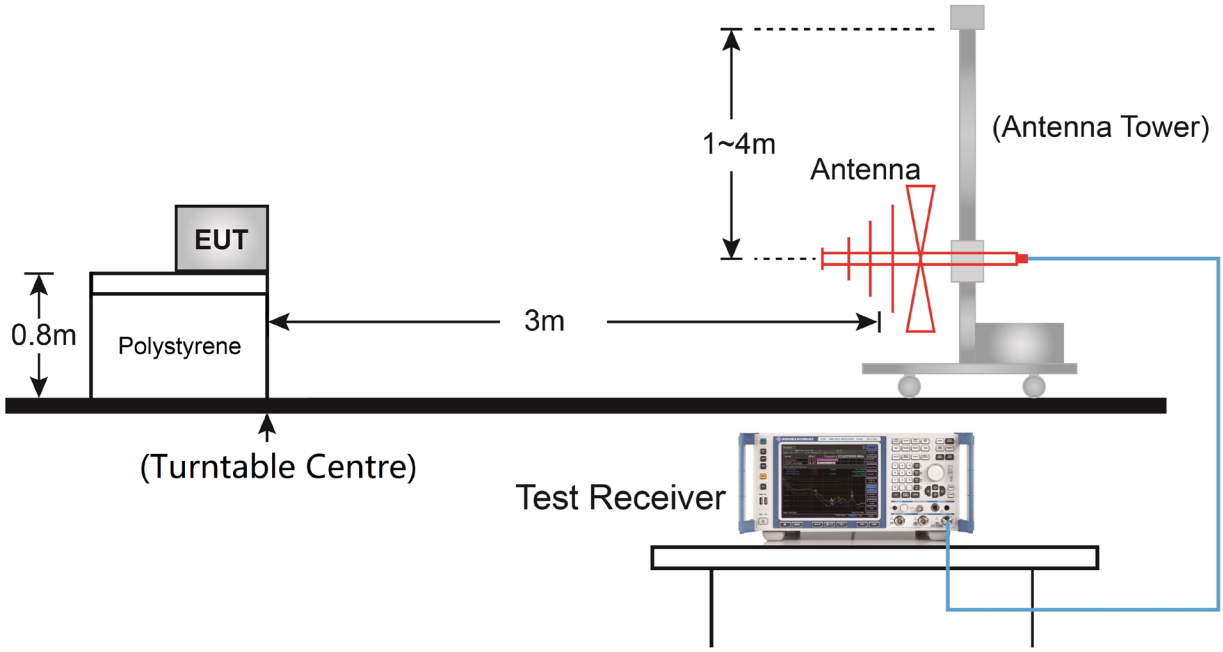
5. Sweep time = auto

6. Trace mode = max hold

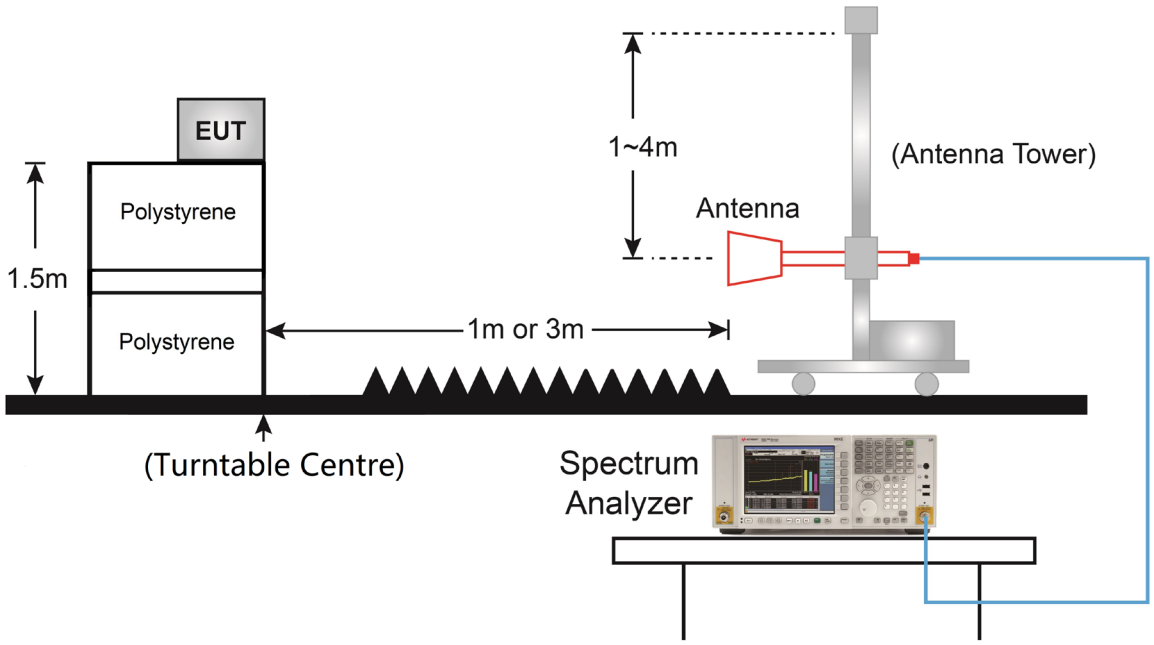
7. Trace was allowed to stabilize

5.6.4.Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.6.5.Test Result

Test Site	NS-AC1	Test Engineer	Dillion Diao
Test Date	2021/11/19	Test Channel	00
Test Mode	BLE		
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.		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
4808.0	43.5	1.4	44.9	74.0	-29.1	Peak	Horizontal
7206.0	45.5	8.5	54.0	74.0	-20.0	Peak	Horizontal
7206.0	45.0	8.5	53.5	54.0	-0.5	Average	Horizontal
8735.0	33.3	12.3	45.6	74.0	-28.4	Peak	Horizontal
7205.0	40.7	8.5	49.2	74.0	-24.8	Peak	Vertical
8828.5	34.5	11.9	46.4	74.0	-27.6	Peak	Vertical
10817.5	33.3	14.9	48.2	74.0	-25.8	Peak	Vertical

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

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

Test Site	NS-AC1	Test Engineer	Dillion Diao
Test Date	2021/11/17	Test Channel	19
Test Mode	BLE		
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.		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
4876.0	42.4	1.5	43.9	74.0	-30.1	Peak	Horizontal
7324.0	41.2	9.1	50.3	74.0	-23.7	Peak	Horizontal
12203.0	35.8	14.8	50.6	74.0	-23.4	Peak	Horizontal
4876.0	42.5	1.5	44.0	74.0	-30.0	Peak	Vertical
7324.0	37.6	9.1	46.7	74.0	-27.3	Peak	Vertical
12200.0	34.9	14.8	49.7	54.0	-4.3	Average	Vertical
12203.0	36.8	14.8	51.6	74.0	-22.4	Peak	Vertical

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

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

Test Site	NS-AC1	Test Engineer	Dillion Diao
Test Date	2021/11/17	Test Channel	39
Test Mode	BLE		
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.		

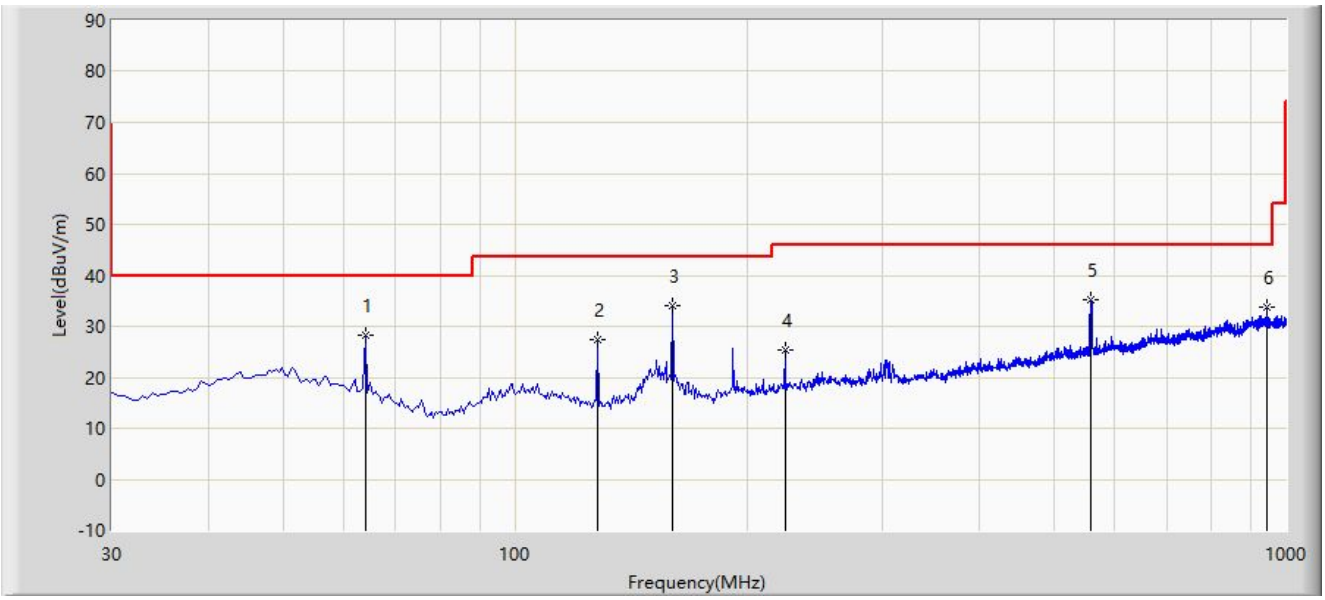
Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
4961.0	44.0	1.7	45.7	74.0	-28.3	Peak	Horizontal
7443.0	39.1	9.4	48.5	74.0	-25.5	Peak	Horizontal
8837.0	35.6	12.0	47.6	74.0	-26.4	Peak	Horizontal
4961.0	42.6	1.7	44.3	74.0	-29.7	Peak	Vertical
7443.0	37.4	9.4	46.8	74.0	-27.2	Peak	Vertical
9372.5	36.6	11.6	48.2	74.0	-25.8	Peak	Vertical

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

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

The Worst Case of Radiated Emission below 1GHz:

Site: NS-AC1	Test Date: 2021/11/26
Limit: FCC_Part 15.209_RE(3m)	Engineer: Dillon Diao
Probe: NS-AC1_VULB9162	Polarity: Horizontal
EUT: Remote Control	Power: 2*AAA Battery
Test Mode: Transmit by BLE-1Mbps at channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			63.950	28.150	13.148	-11.850	40.000	15.002	PK
2			127.970	27.314	14.944	-16.186	43.500	12.370	PK
3		*	159.980	33.914	21.736	-9.586	43.500	12.178	PK
4			224.000	25.392	10.044	-20.608	46.000	15.348	PK
5			558.165	35.133	12.770	-10.867	46.000	22.363	PK
6			945.195	33.910	6.124	-12.090	46.000	27.786	PK

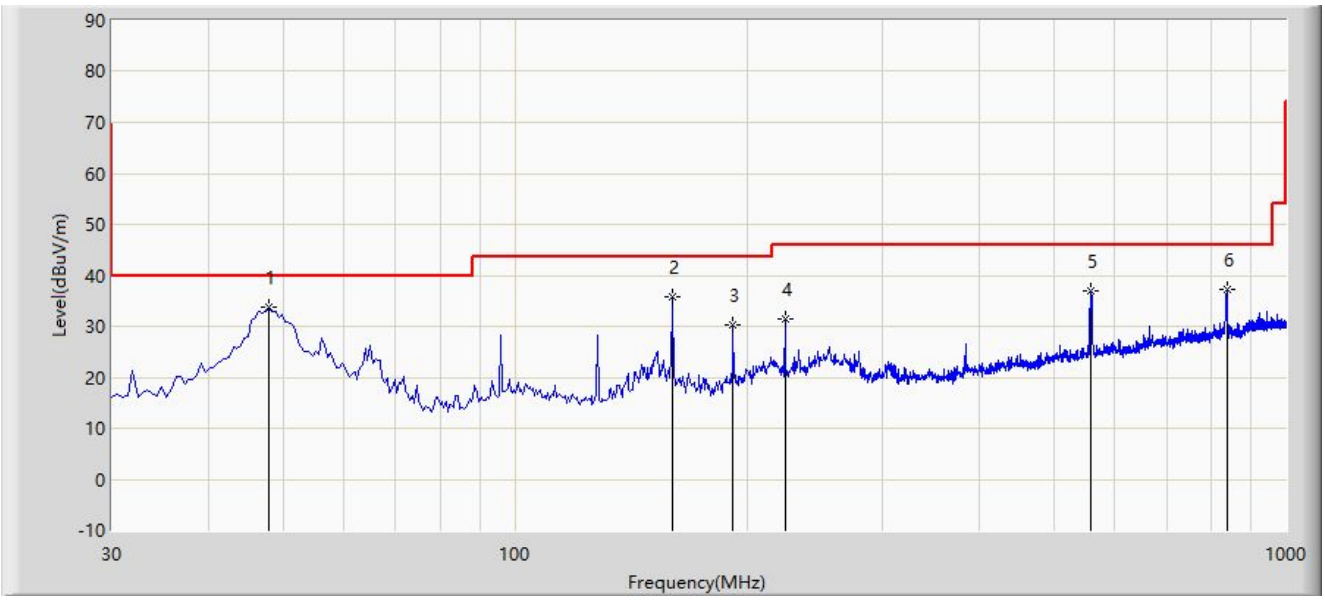
Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

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

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Note 3: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

Site: NS-AC1	Test Date: 2021/11/26
Limit: FCC_Part 15.209_RE(3m)	Engineer: Dillon Diao
Probe: NS-AC1_VULB9162	Polarity: Vertical
EUT: Remote Control	Power: 2*AAA Battery
Test Mode: Transmit by BLE-1Mbps at channel 2402MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		*	47.945	33.896	16.354	-6.104	40.000	17.542	PK
2			159.980	35.683	23.505	-7.817	43.500	12.178	PK
3			191.990	30.401	15.699	-13.099	43.500	14.702	PK
4			224.000	31.387	16.039	-14.613	46.000	15.348	PK
5			558.650	37.081	14.697	-8.919	46.000	22.384	PK
6			838.495	37.338	10.608	-8.662	46.000	26.730	PK

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

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

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Note 3: The amplitude of radiated emissions (frequency range from 9kHz to 30MHz and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

5.7. Radiated Restricted Band Edge Measurement

5.7.1.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

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 (GHz)
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.525225	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 - 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	--
8.37625 - 8.38675	1718.8 -1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 -2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 -13.41	3260 - 3267	
16.42 - 16.423	3332 -3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 - 8500	
108 - 138	--	

All out of band emissions appearing in a restricted band as specified in Section 8.10 of the RSS-Gen must not exceed the limits shown in Table per Section 8.9.

RSS-Gen Section 8.9			
Frequency [MHz]	Magnetic field strength (H-Field) [uA/m]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 - 0.490	6.37/F(F in kHz)	--	300
0.490 - 1.705	63.7/F(F in kHz)	--	30
1.705 - 30	0.08	--	30
30 - 88	--	100	3
88 - 216	--	150	3
216 - 960	--	200	3
Above 960	--	500	3

5.7.2.Test Procedure Used

ANSI C63.10 Section 6.3 (General Requirements)

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

5.7.3.Test Setting

Peak Field Strength Measurements

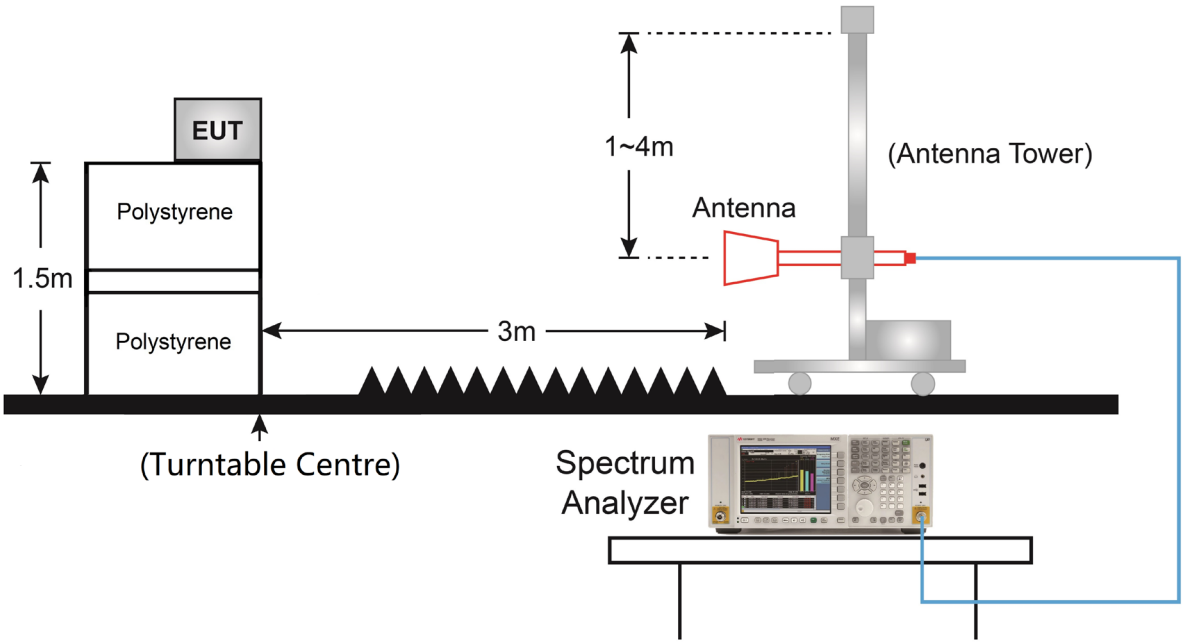
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

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 ≥ 98%, set VBW = 10 Hz.

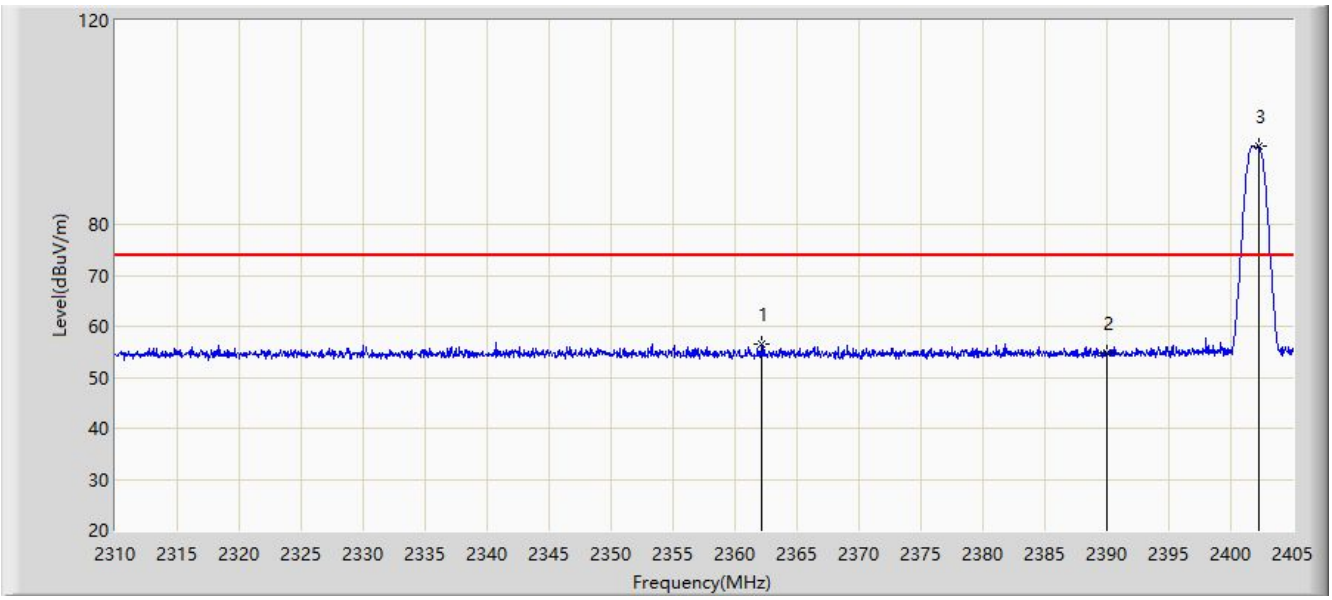
   If the EUT duty cycle is < 98%, set VBW ≥ 1/T. T is the minimum transmission duration.
4. Detector = Peak
5. Sweep time = auto
6. Trace mode = max hold
7. Trace was allowed to stabilize

5.7.4.Test Setup



5.7.5.Test Result

Site: NS-AC1	Time: 2021/11/25
Limit: FCC_Part 15.209_RE(3m)	Engineer: Dillon Diao
Probe: NS-AC1_BBHA9120D	Polarity: Horizontal
EUT: Remote Control	Power: 2*AAA Battery
Test Mode: Transmit by BLE-1Mbps at channel 2402MHz	

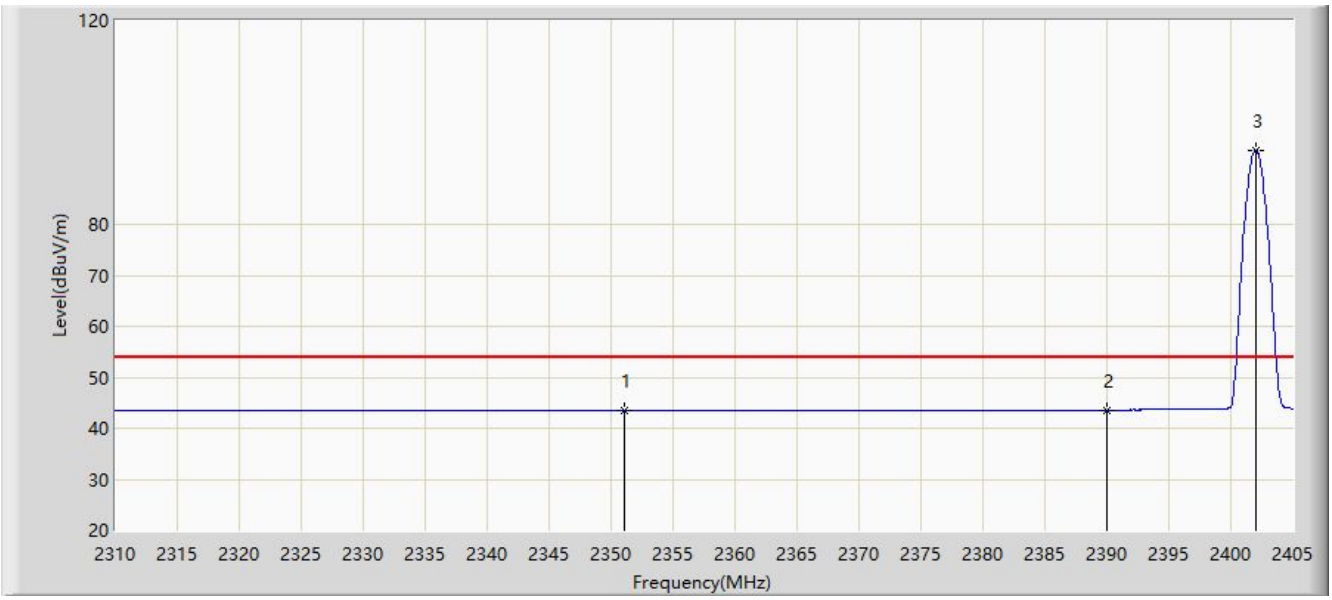


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2362.155	56.570	25.591	-17.430	74.000	30.979	PK
2			2390.000	54.683	23.780	-19.317	74.000	30.903	PK
3		*	2402.245	95.329	64.392	N/A	N/A	30.937	PK

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

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

Site: NS-AC1	Time: 2021/11/25
Limit: FCC_Part 15.209_RE(3m)	Engineer: Dillon Diao
Probe: NS-AC1_BBHA9120D	Polarity: Horizontal
EUT: Remote Control	Power: 2*AAA Battery
Test Mode: Transmit by BLE-1Mbps at channel 2402MHz	

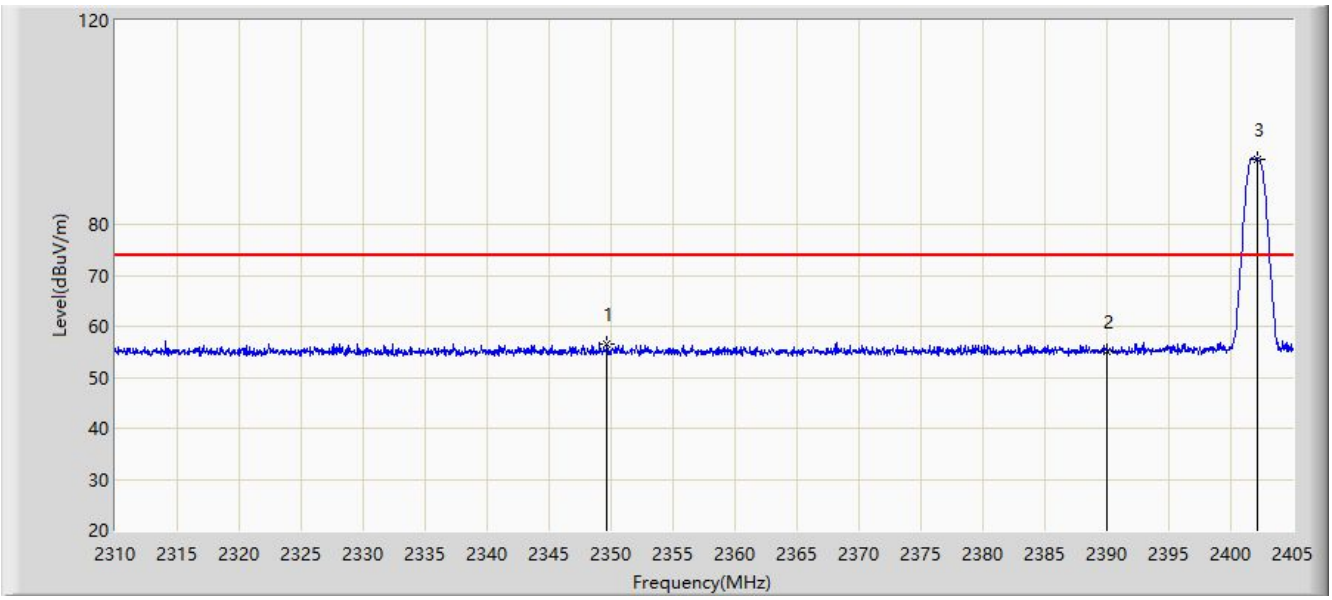


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2351.040	43.478	12.384	-10.522	54.000	31.094	AV
2			2390.000	43.575	12.672	-10.425	54.000	30.903	AV
3		*	2402.008	94.552	63.617	N/A	N/A	30.935	AV

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

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

Site: NS-AC1	Time: 2021/11/25
Limit: FCC_Part 15.209_RE(3m)	Engineer: Dillon Diao
Probe: NS-AC1_BBHA9120D	Polarity: Vertical
EUT: Remote Control	Power: 2*AAA Battery
Test Mode: Transmit by BLE-1Mbps at channel 2402MHz	

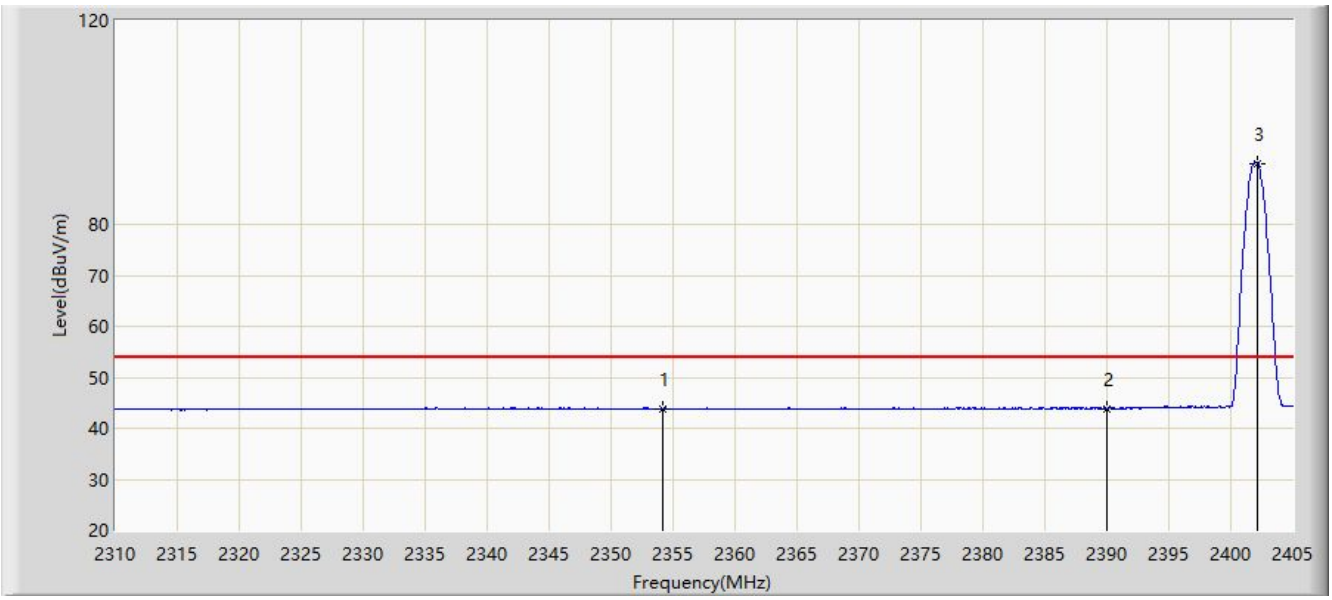


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2349.663	56.570	25.460	-17.430	74.000	31.110	PK
2			2390.000	55.150	24.247	-18.850	74.000	30.903	PK
3		*	2402.150	92.891	61.955	N/A	N/A	30.936	PK

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

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

Site: NS-AC1	Time: 2021/11/25
Limit: FCC_Part 15.209_RE(3m)	Engineer: Dillon Diao
Probe: NS-AC1_BBHA9120D	Polarity: Vertical
EUT: Remote Control	Power: 2*AAA Battery
Test Mode: Transmit by BLE-1Mbps at channel 2402MHz	

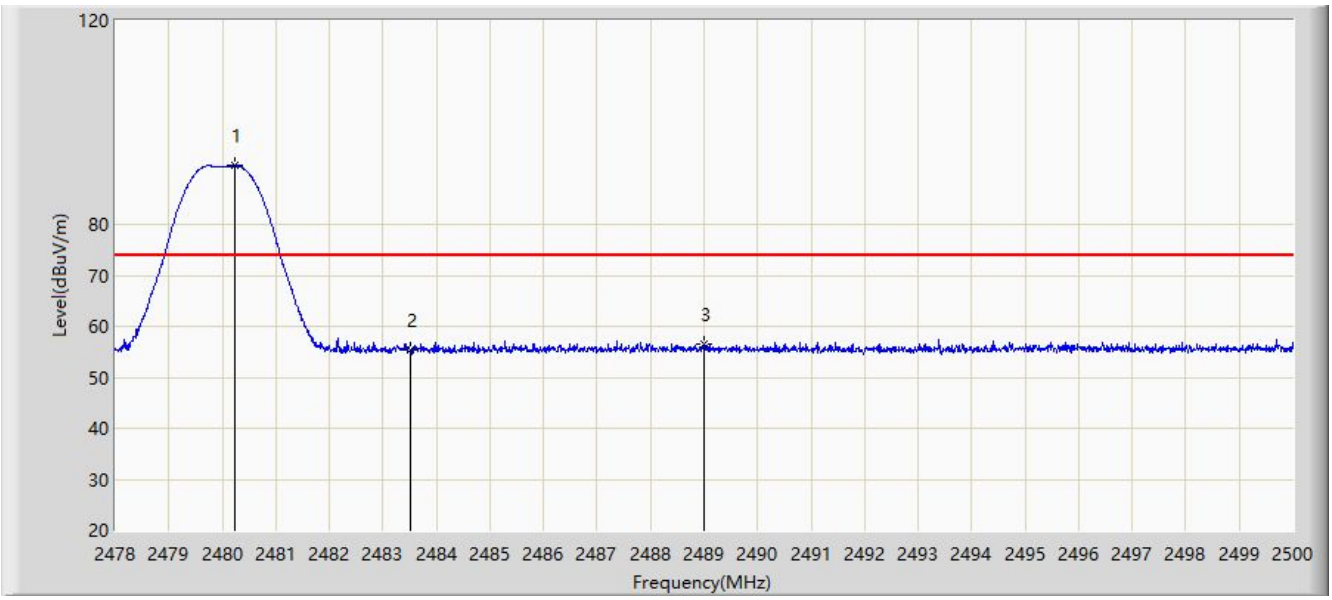


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1			2354.127	43.813	12.755	-10.187	54.000	31.058	AV
2			2390.000	43.867	12.964	-10.133	54.000	30.903	AV
3		*	2402.150	91.973	61.037	N/A	N/A	30.936	AV

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

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

Site: NS-AC1	Time: 2021/11/25
Limit: FCC_Part 15.209_RE(3m)	Engineer: Dillon Diao
Probe: NS-AC1_BBHA9120D	Polarity: Horizontal
EUT: Remote Control	Power: 2*AAA Battery
Test Mode: Transmit by BLE-1Mbps at channel 2480MHz	

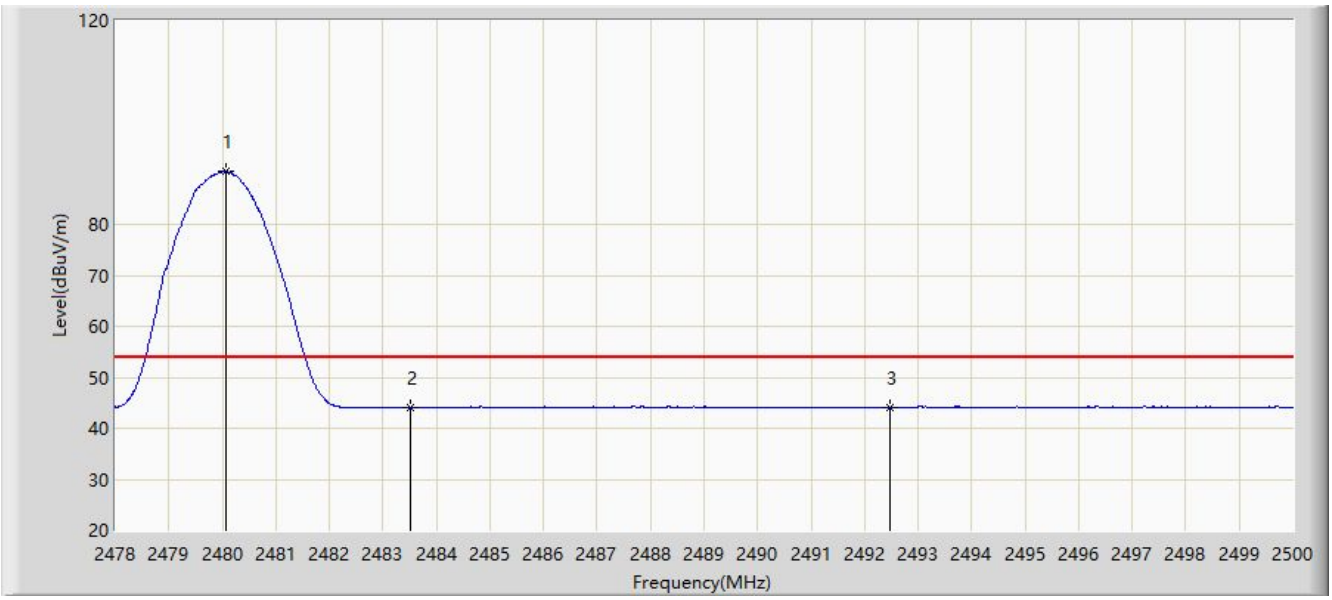


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		*	2480.222	91.551	60.679	N/A	N/A	30.872	PK
2			2483.500	55.433	24.544	-18.567	74.000	30.889	PK
3			2489.000	56.534	25.618	-17.466	74.000	30.916	PK

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

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

Site: NS-AC1	Time: 2021/11/25
Limit: FCC_Part 15.209_RE(3m)	Engineer: Dillon Diao
Probe: NS-AC1_BBHA9120D	Polarity: Horizontal
EUT: Remote Control	Power: 2*AAA Battery
Test Mode: Transmit by BLE-1Mbps at channel 2480MHz	

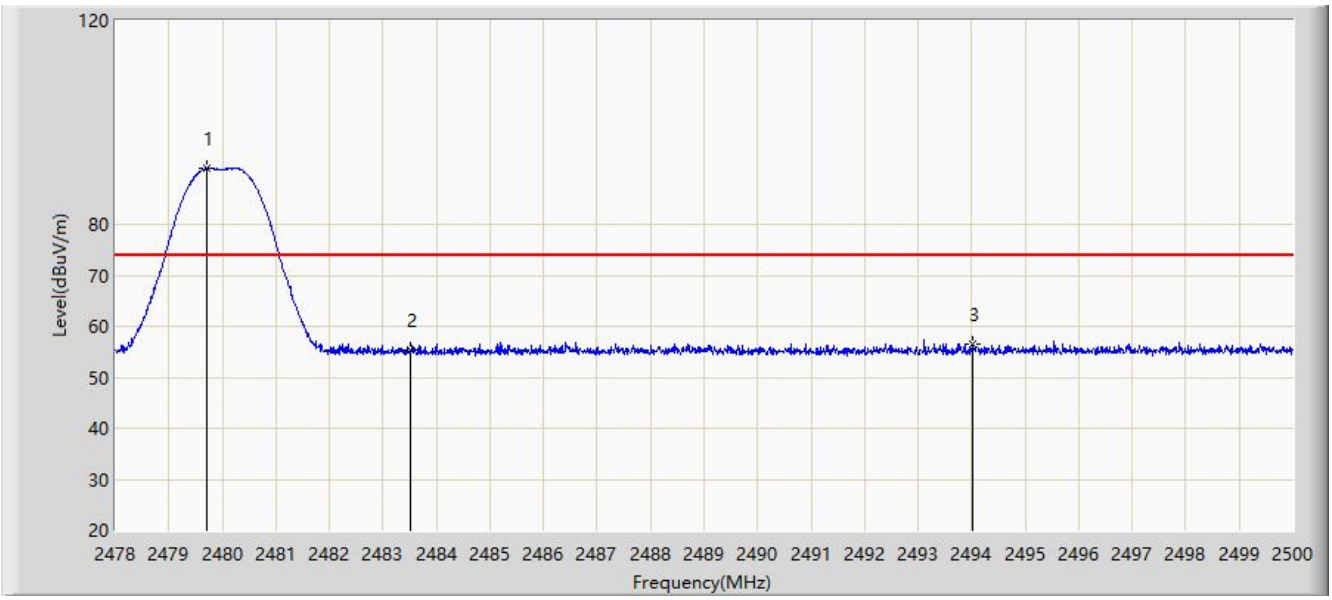


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		*	2480.079	90.362	59.490	N/A	N/A	30.872	AV
2			2483.500	44.022	13.133	-9.978	54.000	30.889	AV
3			2492.487	44.092	13.158	-9.908	54.000	30.934	AV

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

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

Site: NS-AC1	Time: 2021/11/25
Limit: FCC_Part 15.209_RE(3m)	Engineer: Dillon Diao
Probe: NS-AC1_BBHA9120D	Polarity: Vertical
EUT: Remote Control	Power: 2*AAA Battery
Test Mode: Transmit by BLE-1Mbps at channel 2480MHz	

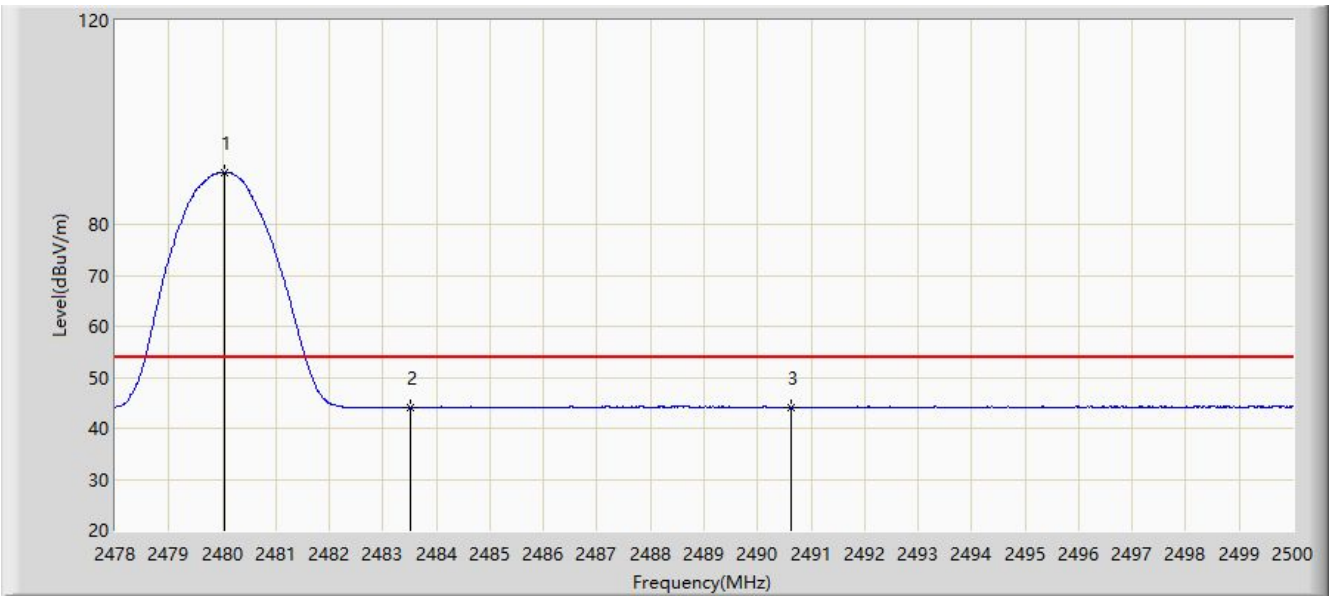


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		*	2479.705	90.970	60.100	N/A	N/A	30.870	PK
2			2483.500	55.335	24.446	-18.665	74.000	30.889	PK
3			2494.027	56.508	25.567	-17.492	74.000	30.941	PK

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

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

Site: NS-AC1	Time: 2021/11/25
Limit: FCC_Part 15.209_RE(3m)	Engineer: Dillon Diao
Probe: NS-AC1_BBHA9120D	Polarity: Vertical
EUT: Remote Control	Power: 2*AAA Battery
Test Mode: Transmit by BLE-1Mbps at channel 2480MHz	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB/m)	Type
1		*	2480.046	90.248	59.376	N/A	N/A	30.872	AV
2			2483.500	44.030	13.141	-9.970	54.000	30.889	AV
3			2490.628	44.079	13.155	-9.921	54.000	30.924	AV

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

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

5.8. AC Conducted Emissions Measurement

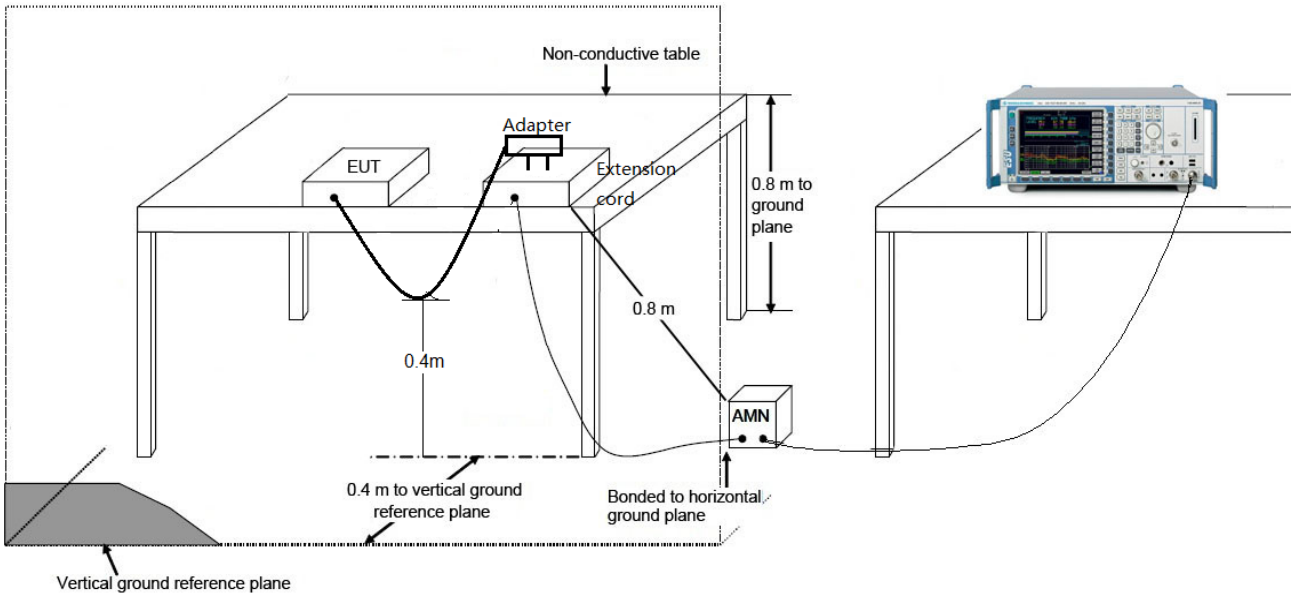
5.8.1.Test Limit

FCC Part 15 Subpart C Paragraph 15.207 Limits/ / RSS-Gen Issue 5 Section 8.8 Limits		
Frequency (MHz)	QP (dBμV)	AV (dBμV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

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

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

5.8.2.Test Setup



5.8.3.Test Result

The EUT is powered by 2*AAA battery, so this test item is not applicable.

6. CONCLUSION

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

The End

Appendix A - Test Setup Photograph

Refer to “2108RSZ015-UT” file.

Appendix B - EUT Photograph

Refer to “ 2108RSZ015-UE” file.