



RF MEASUREMENT REPORT

FCC ID: BRWBLH08701
Applicant: Horizon Hobby, LLC
Product: Inductrix RTF
Model No.: BLH08701
Brand Name: Blade
FCC Classification: Digital Transmission System (DTS)
FCC Rule Part(s): Part 15 Subpart C (Section 15.247)
Result: Complies
Received Date: 2023-02-10
Test Date: 2023-02-10 ~ 2023-02-14

Reviewed By:

Vincent Yu

Approved By:

Robin Wu



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 (Suzhou) Co., Ltd.

Revision History

| Report No. | Version | Description | Issue Date | Note |
|---------------|---------|----------------|------------|-------|
| 2302RSU001-U1 | V01 | Initial Report | 2023-03-30 | Valid |
| | | | | |

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1.4. Product Information

| | |
|---|--|
| Product Name | Inductrix RTF |
| Model No. | BLH08701 |
| Sample No. | 20230214Sample#07 for Radiated; 20230214Sample#08 for Conducted |
| Power Type | Li-Polymer Battery (3.7Vdc) |
| 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. Radio Specification under Test

| | |
|--------------------|------------------|
| Frequency Range | 2405 ~ 2475 MHz |
| Channel Number | 15 |
| Type of Modulation | GFSK |
| Data Rate | 500kbps |
| Antenna Type | Monopole Antenna |
| Antenna Gain | 2.11 dBi |

1.6. Working Frequencies

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|
| 11 | 2405 MHz | 12 | 2410 MHz | 13 | 2415 MHz |
| 14 | 2420 MHz | 15 | 2425 MHz | 16 | 2430 MHz |
| 17 | 2435 MHz | 18 | 2440 MHz | 19 | 2445 MHz |
| 20 | 2450 MHz | 21 | 2455 MHz | 22 | 2460 MHz |
| 23 | 2465 MHz | 24 | 2470 MHz | 25 | 2475 MHz |

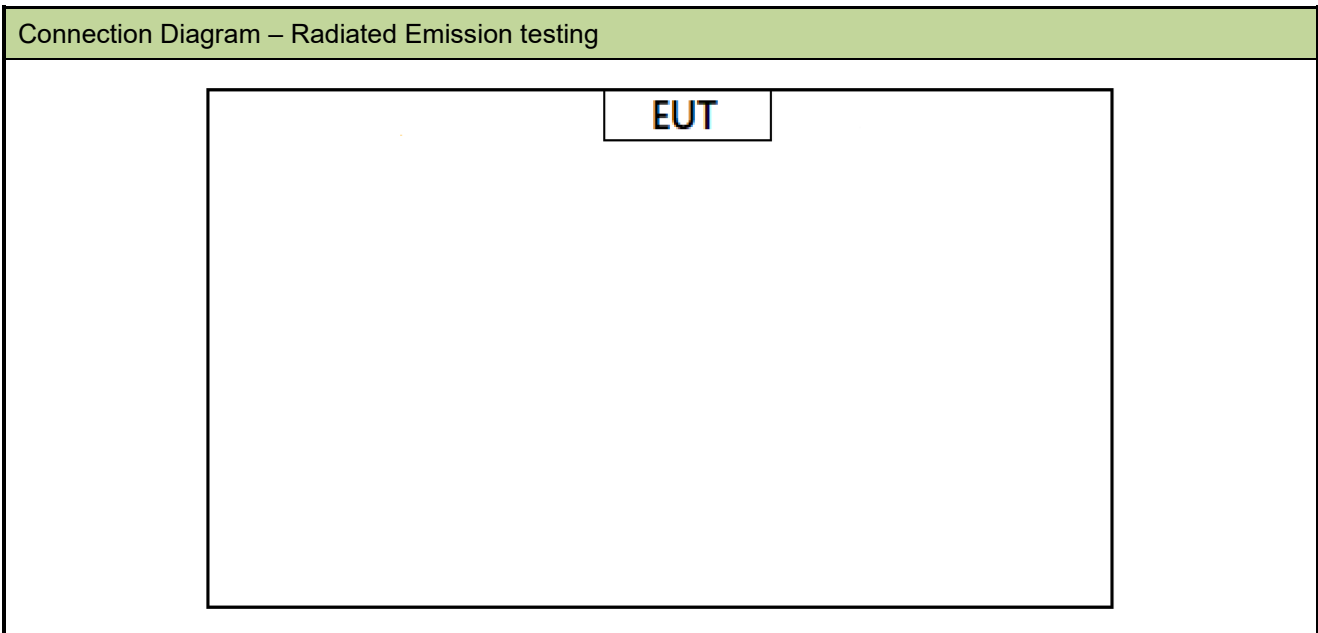
2. Test Configuration

2.1. Test Mode

| |
|-----------------------------|
| Mode 1: Transmit at 2405MHz |
| Mode 2: Transmit at 2440MHz |
| Mode 3: Transmit at 2475MHz |

2.2. Test System Connection Diagram

The device was tested per the guidance ANSI C63.10: 2013 was used to reference the appropriate EUT setup for radiated emissions testing.



2.3. Test Software

The test utility software used during testing was “Firmware Programmer”, and the version was 0.0.13.

2.4. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15.247
- KDB 558074 D01v05r02
- ANSI C63.10-2013

2.5. Test Environment Condition

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

3. 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.

4. Measuring Instrument

| Instrument | Manufacturer | Model No. | Asset No. | Cali. Interval | Cali. Due Date | Test Site |
|-------------------|--------------|-------------|-------------|----------------|----------------|-----------|
| Loop Antenna | Schwarzbeck | FMZB 1519 | MRTSUE06025 | 1 year | 2023-09-29 | WZ-AC2 |
| TRILOG Antenna | Schwarzbeck | VULB 9162 | MRTSUE06022 | 1 year | 2023-05-20 | WZ-AC2 |
| Horn Antenna | Schwarzbeck | BBHA 9120D | MRTSUE06171 | 1 year | 2023-10-13 | WZ-AC2 |
| Horn Antenna | Schwarzbeck | BBHA 9170 | MRTSUE06597 | 1 year | 2023-11-05 | WZ-AC2 |
| Preamplifier | Schwarzbeck | BBV 9718 | MRTSUE06176 | 1 year | 2023-05-08 | WZ-AC2 |
| Preamplifier | EMCI | EMC184045SE | MRTSUE06640 | 1 year | 2024-01-12 | WZ-AC2 |
| EMI Test Receiver | Agilent | N9038A | MRTSUE06125 | 1 year | 2023-06-04 | WZ-AC2 |
| Thermohygrometer | testo | 608-H1 | MRTSUE11038 | 1 year | 2023-11-01 | WZ-AC2 |
| Thermohygrometer | Mingle | ETH529 | MRTSUE06170 | 1 year | 2023-11-27 | WZ-AC2 |
| Anechoic Chamber | RIKEN | WZ-AC2 | MRTSUE06213 | 1 year | 2023-04-21 | WZ-AC2 |
| USB Power Sensor | Keysight | U2021XA | MRTSUE06446 | 1 year | 2023-06-04 | WZ-SR4 |
| Signal Analyzer | Keysight | N9010B | MRTSUE07027 | 1 year | 2023-11-25 | WZ-SR4 |
| Attenuator | MVE | MVE2213 | MRTSUE11087 | 1 year | 2023-06-09 | WZ-SR4 |
| Shielding Room | HUAMING | WZ-SR4 | MRTSUE06441 | N/A | N/A | WZ-SR4 |

| Software | Version | Function |
|----------------------|---------|------------------------|
| EMI Software | V3.0.0 | EMI Test Software |
| Controller_MF 7802 | 1.02 | RE Antenna & Turntable |
| BenchVue Power Meter | 2018.1 | Power |

5. Decision Rules and Measurement Uncertainty

5.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.2. 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 Disturbance |
| Measurement Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 30MHz~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% |

6. Test Result

6.1. Summary

| FCC Section(s) | Test Description | Test Condition | Verdict |
|------------------|---|----------------|---------|
| 15.247(a)(2) | 6dB Bandwidth | Conducted | Pass |
| 15.247(b)(3) | Output Power | | Pass |
| 15.247(e) | Power Spectral Density | | Pass |
| 15.247(d) | Band Edge / Out-of-Band Emissions | | Pass |
| 15.205 15.209 | General Field Strength (Restricted Bands and Radiated Emission) | Radiated | Pass |
| 15.207 | AC Conducted Emissions 150kHz - 30MHz | Line Conducted | N/A |

Notes:

- 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.
- For radiated emission tests, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.
- "N/A" means this item is not applicable, and the details refer to relevant section.

6.2. 6dB Bandwidth Measurement

6.2.1. Test Limit

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

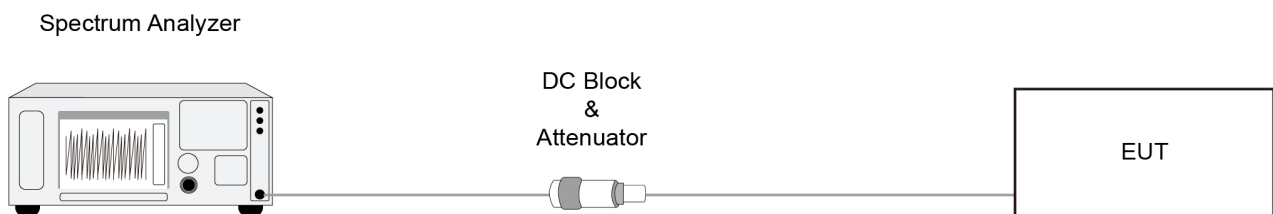
6.2.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.8

6.2.3. 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 to stabilize

6.2.4. Test Setup



6.2.5. Test Result

Refer to Appendix A.2.

6.3. Output Power Measurement

6.3.1. 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.

6.3.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.9.1.3

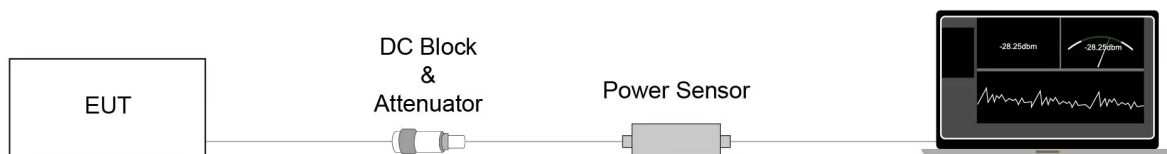
6.3.3. Test Setting

Peak Power Measurement

The maximum peak conducted output power may be measured using a broadband peak RF power meter.

The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

6.3.4. Test Setup



6.3.5. Test Result

Refer to Appendix A.3.

6.4. Power Spectral Density Measurement

6.4.1. 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.

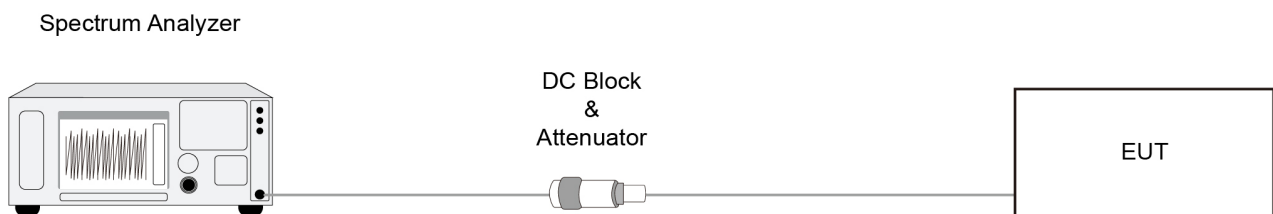
6.4.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.10.2

6.4.3. Test Setting

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. RBW = 3 kHz.
4. VBW = 10 kHz.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.

6.4.4. Test Setup



6.4.5. Test Result

Refer to Appendix A.4.

6.5. Conducted Band Edge and Out-of-Band Emissions Measurement

6.5.1. 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.

6.5.2. Test Procedure

ANSI C63.10-2013 - Section 11.11

6.5.3. Test Setting

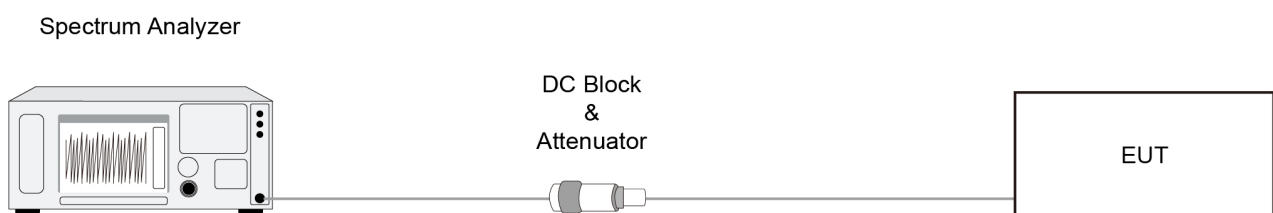
Reference level measurement

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

6.5.4. Test Setup



6.5.5. Test Result

Refer to Appendix A.5.

6.6. Radiated Spurious Emission Measurement

6.6.1. 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 |

6.6.2. Test Procedure

ANSI C63.10 - 2013 - Section 11.11 & 11.12

ANSI C63.10 - 2013 - Section 7.5

ANSI C63.10 - 2013 - Section 6.3 (General Requirements)

ANSI C63.10 - 2013 - Section 6.4 (Standard test method below 30MHz)

ANSI C63.10 - 2013 - Section 6.5 (Standard test method above 30MHz to 1GHz)

ANSI C63.10 - 2013 - Section 6.6 (Standard test method above 1GHz)

6.6.3. 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 |
| > 1000MHz | 1MHz |

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

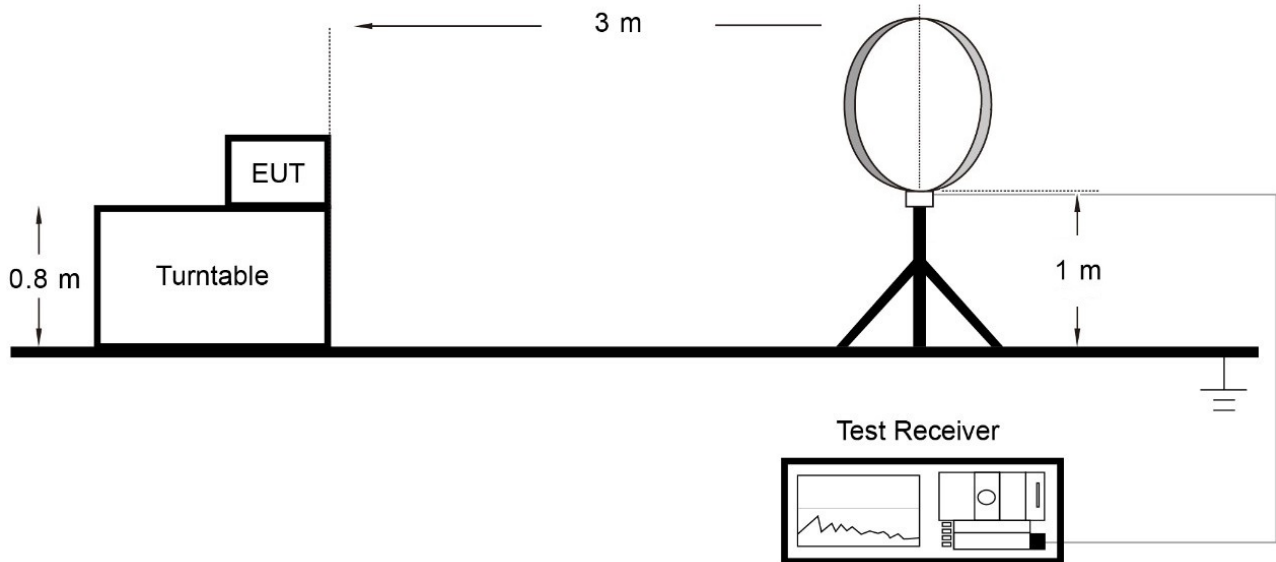
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurement of pulsed emissions

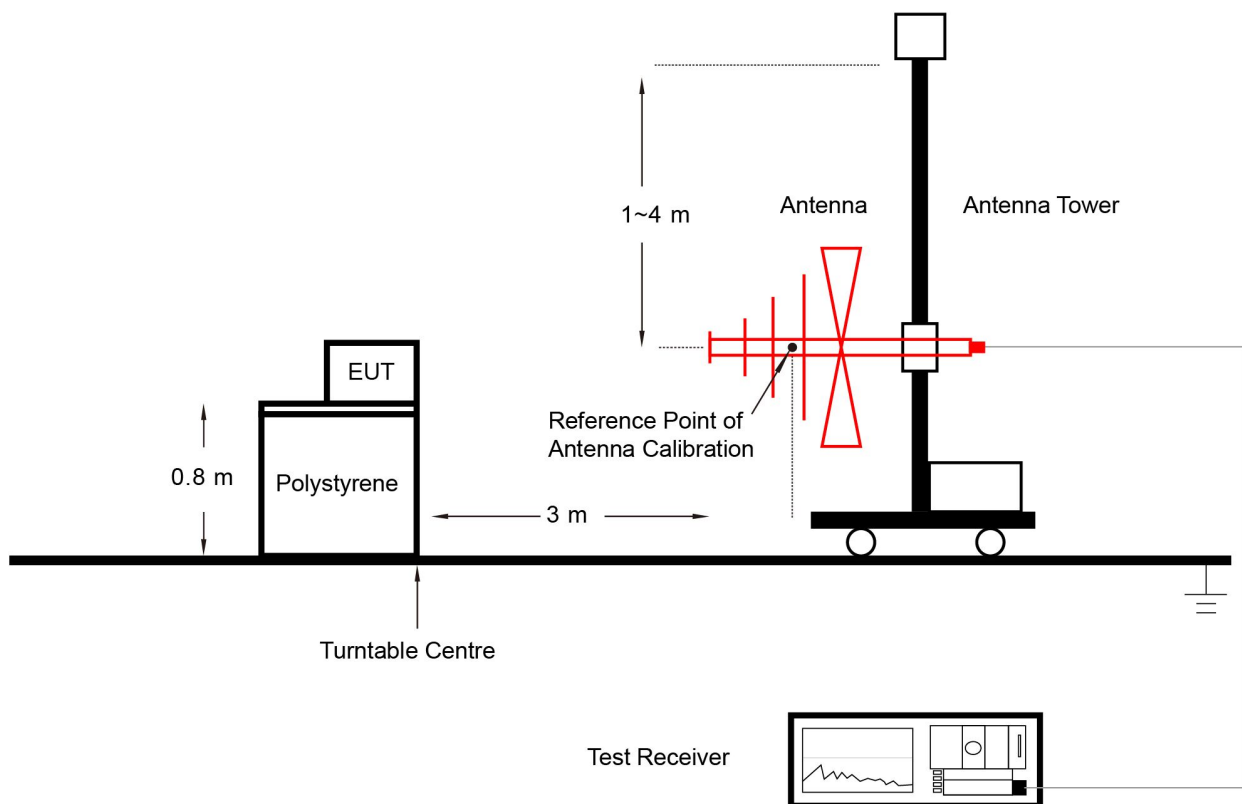
1. Make EUT is transmitting to obtain the “worst-case” pulse ON time.
2. Couple the final radio frequency output signal to the input of a spectrum analyzer.
3. Adjust the center frequency of the spectrum analyzer to the center of the RF signal.
4. Set the spectrum analyzer for ZERO SPAN.
5. Sweep time = 100ms
6. Set the TRIGGER on the spectrum analyzer to capture at least one period of the pulse train, including any blanking intervals.
7. Determine the total maximum pulse “ON time” (t_{ON}) over one period of the pulse train.
8. The duty cycle is then determined by dividing the total maximum “ON time” by the period of the pulse train ($t_{ON}/100ms$).
9. Determine the duty cycle correction factor. Duty Cycle Factor = $20 * \text{Log}(\text{Duty Cycle})$
10. This correction factor may then be subtracted from the peak pulse amplitude (in dB) to find the average emission.

6.6.4. Test Setup

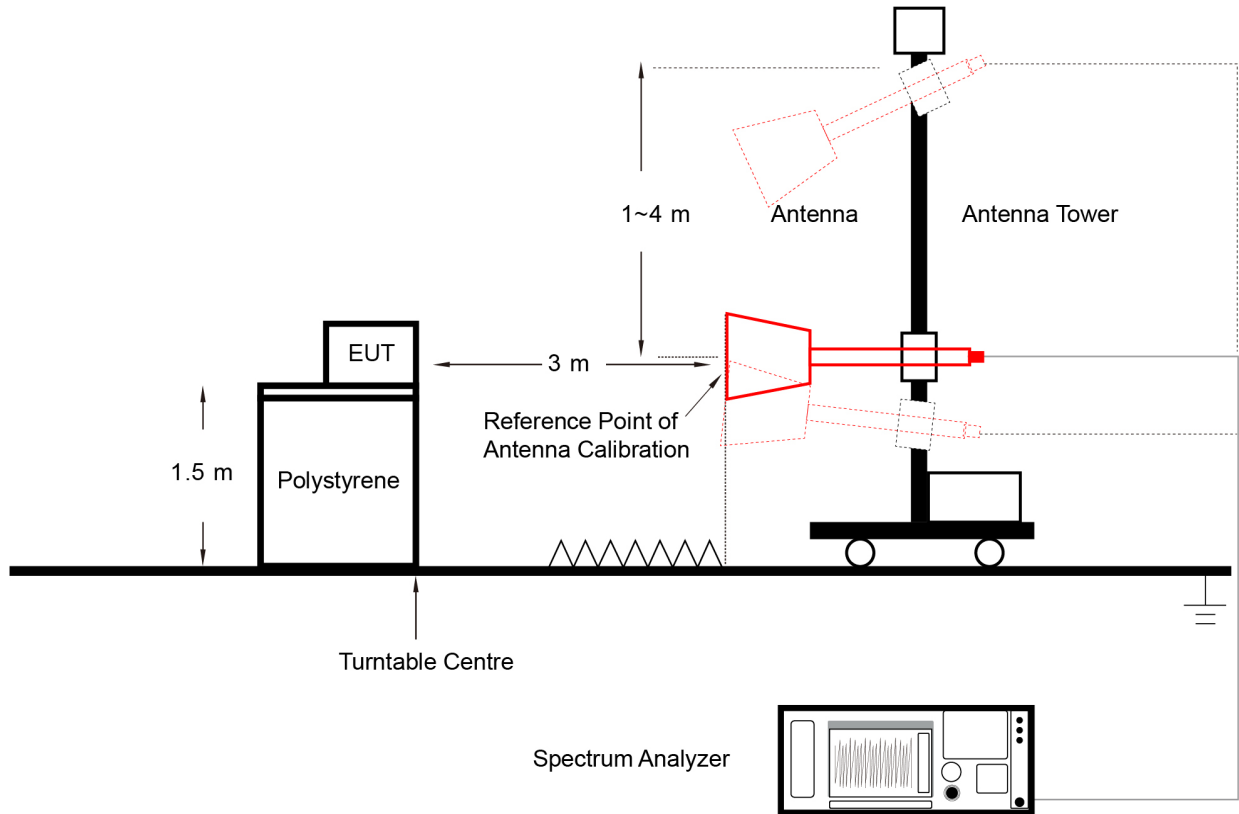
Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.6.5. Test Result

Refer to Appendix A.6.

6.7. Radiated Restricted Band Edge Measurement

6.7.1. 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 | | |
|--|-----------------------|----------------------------|
| 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 |

6.7.2. Test Procedure

ANSI C63.10-2013 Section 6.3 & 6.6 & 7.5 & 11.13

6.7.3. Test Setting

Peak Field Strength Measurements

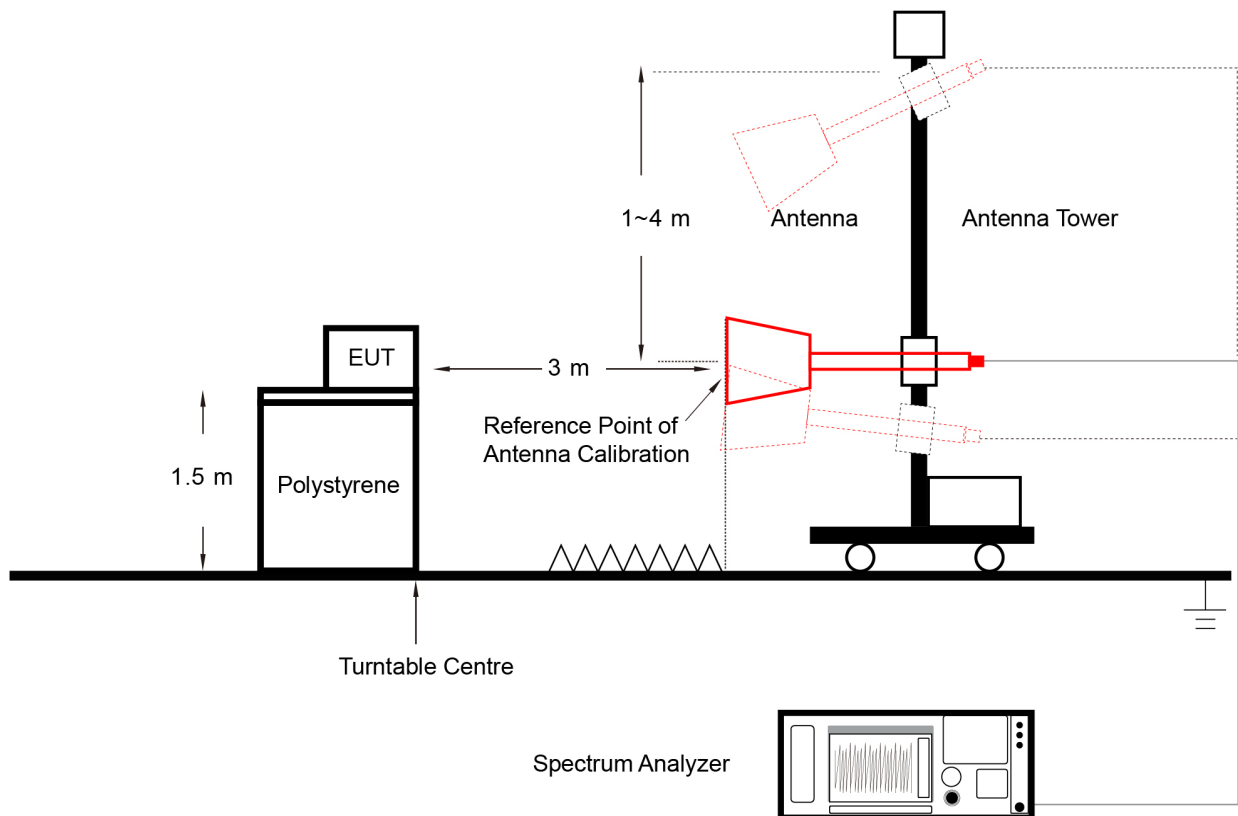
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurement of pulsed emissions

1. Make EUT is transmitting to obtain the "worst-case" pulse ON time.
2. Couple the final radio frequency output signal to the input of a spectrum analyzer.
3. Adjust the center frequency of the spectrum analyzer to the center of the RF signal.
4. Set the spectrum analyzer for ZERO SPAN.
5. Sweep time = 100ms
6. Set the TRIGGER on the spectrum analyzer to capture at least one period of the pulse train, including any blanking intervals.
7. Determine the total maximum pulse "ON time" (t_{ON}) over one period of the pulse train.

8. The duty cycle is then determined by dividing the total maximum “ON time” by the period of the pulse train ($t_{ON}/100ms$).
9. Determine the duty cycle correction factor. Duty Cycle Factor = $20 \cdot \text{Log}(\text{Duty Cycle})$
10. This correction factor may then be subtracted from the peak pulse amplitude (in dB) to find the average emission.

6.7.4. Test Setup



6.7.5. Test Result

Refer to Appendix A.7.

6.8. AC Conducted Emissions Measurement

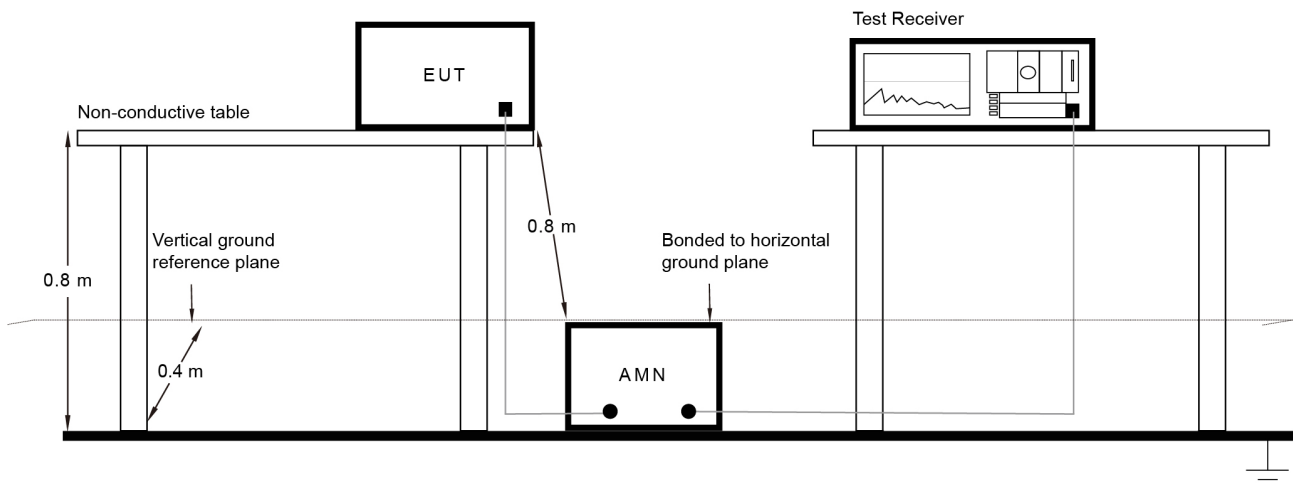
6.8.1. Test Limit

| 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.

6.8.2. Test Setup



6.8.3. Test Result

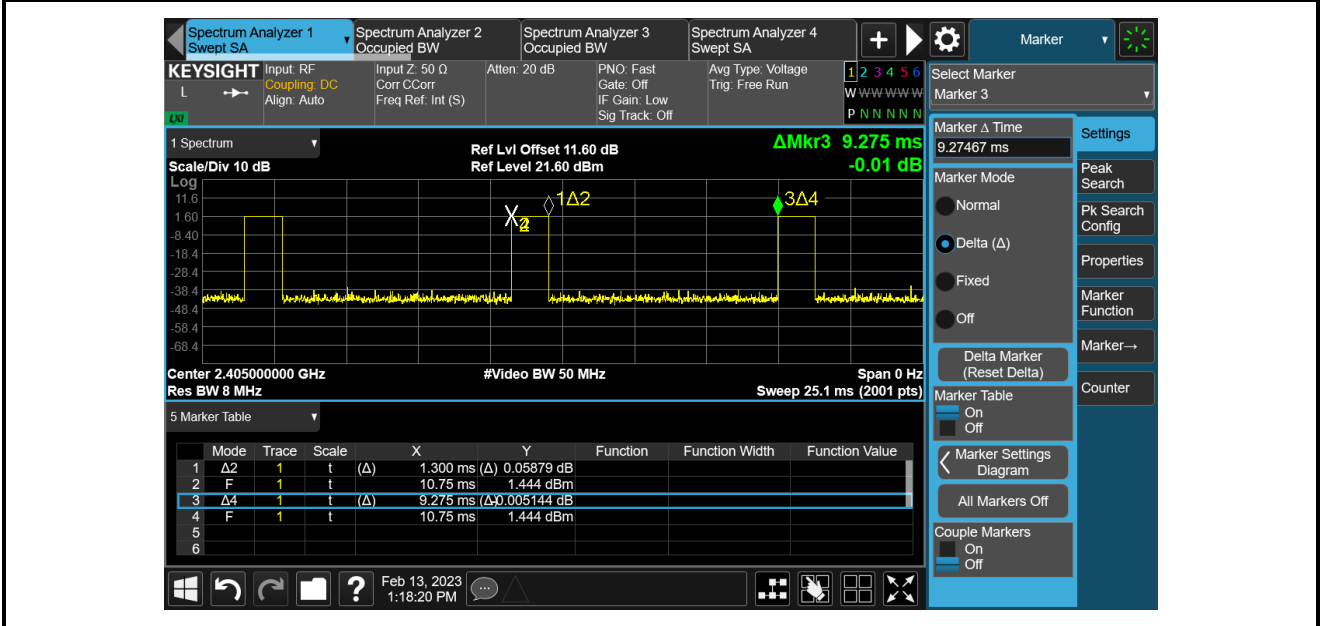
Refer to Appendix A.8.

Appendix A – Test Result

A.1 Duty Cycle & Duty Cycle Correction Factor Test Result

| | | | |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR4 | Test Engineer | Lynn Yang |
| Test Date | 2023-02-13 | | |

| Modulation | T (Transmission Duration) | Duty Cycle | Duty Cycle Correction Factor |
|------------|------------------------------|------------|------------------------------|
| GFSK | 1.300ms | 14.02% | -17.1 dB |

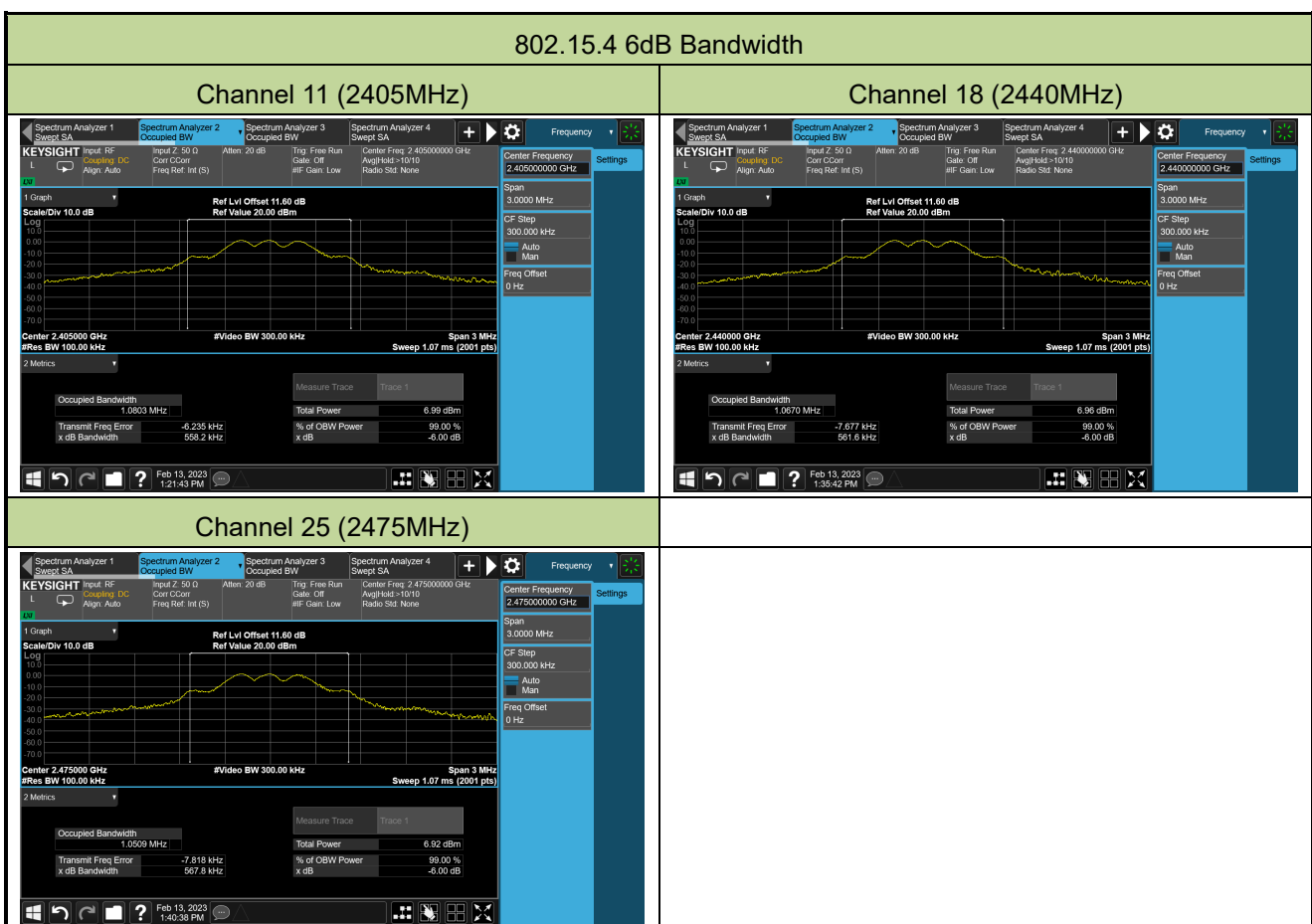


Note: Duty Cycle Correction Factor = $20 * \text{Log}(\text{Duty Cycle}) = 20 * \text{Log}(0.1402) = -17.1 \text{ dB}$

A.2 6dB Bandwidth Test Result

| | | | |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR4 | Test Engineer | Lynn Yang |
| Test Date | 2023-02-13 | | |

| Modulation | Channel No. | Frequency (MHz) | 6dB Bandwidth (MHz) | Limit (MHz) | Result |
|------------|-------------|-----------------|---------------------|-------------|--------|
| GFSK | 11 | 2405 | 0.5582 | ≥ 0.5 | Pass |
| GFSK | 18 | 2440 | 0.5616 | ≥ 0.5 | Pass |
| GFSK | 25 | 2475 | 0.5678 | ≥ 0.5 | Pass |



A.3 Output Power Test Result

| | | | |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR4 | Test Engineer | Lynn Yang |
| Test Date | 2023-02-14 | | |

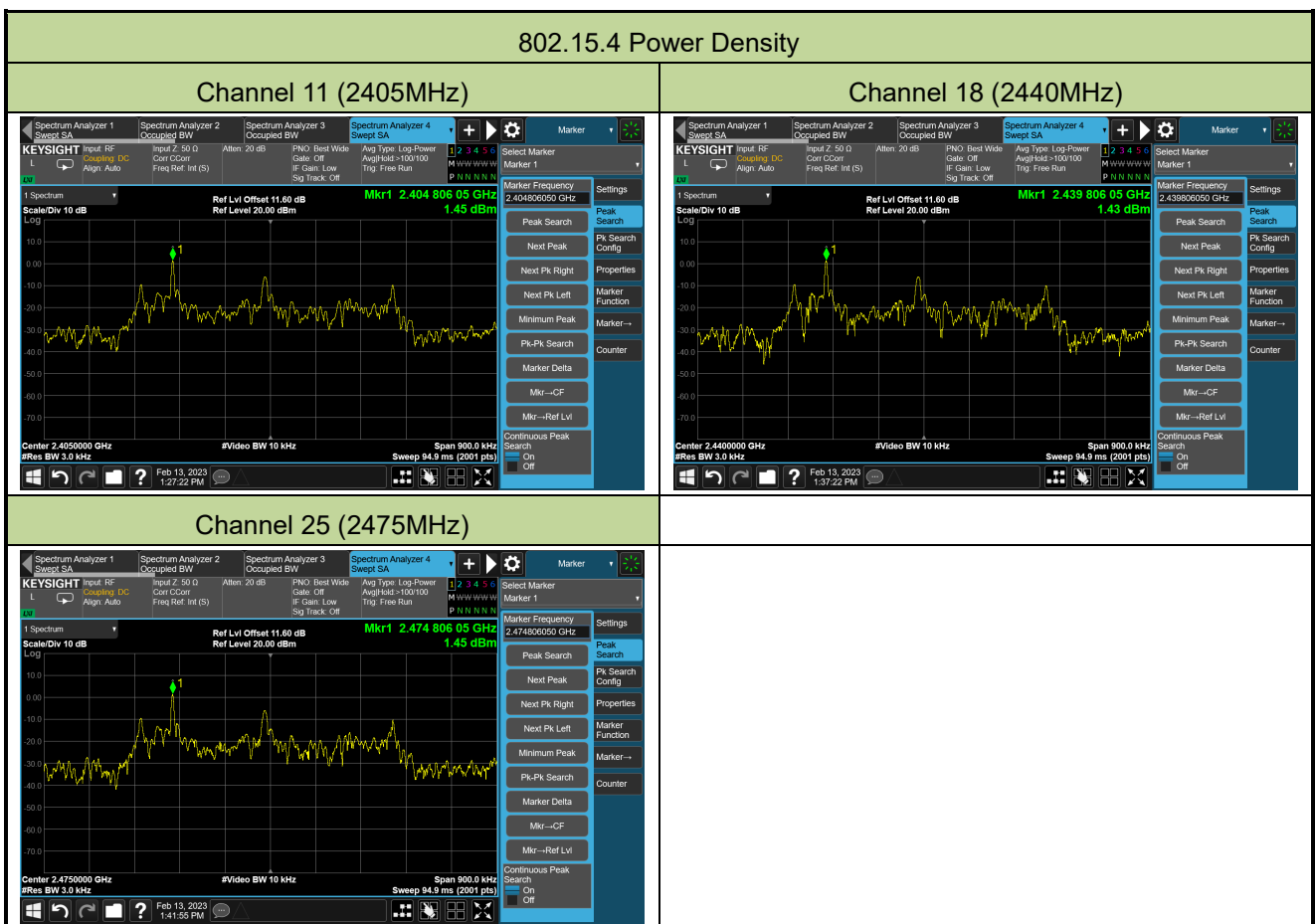
Test Result of Peak Output Power

| Modulation | Channel No. | Freq. (MHz) | Peak Power (dBm) | Limit (dBm) | Result |
|------------|-------------|----------------|------------------|----------------|--------|
| GFSK | 11 | 2405 | 1.83 | ≤ 30.00 | Pass |
| GFSK | 18 | 2440 | 1.85 | ≤ 30.00 | Pass |
| GFSK | 25 | 2475 | 1.84 | ≤ 30.00 | Pass |

A.4 Power Spectral Density Test Result

| | | | |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR4 | Test Engineer | Lynn Yang |
| Test Date | 2023-02-13 | | |

| Modulation | Channel No. | Frequency (MHz) | PK PSD (dBm / 3kHz) | Limit (dBm / 3kHz) | Result |
|------------|-------------|-----------------|---------------------|--------------------|--------|
| GFSK | 11 | 2405 | 1.45 | ≤ 8.00 | Pass |
| GFSK | 18 | 2440 | 1.43 | ≤ 8.00 | Pass |
| GFSK | 25 | 2475 | 1.45 | ≤ 8.00 | Pass |



A.5 Conducted Band Edge and Out-of-Band Emissions Test Result

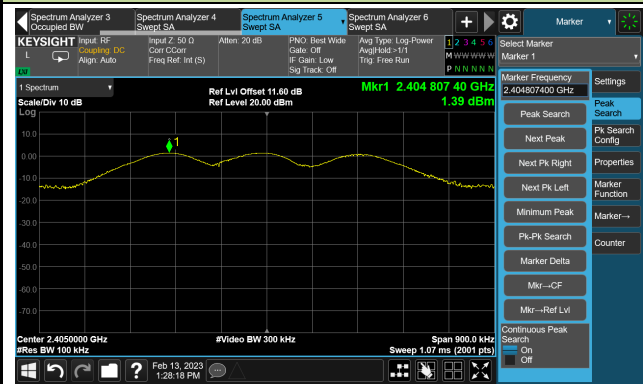
| | | | |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR4 | Test Engineer | Lynn Yang |
| Test Date | 2023-02-13 | | |

| Modulation | Channel No. | Frequency (MHz) | Limit (dBc) | Result |
|------------|-------------|-----------------|-------------|--------|
| GFSK | 11 | 2405 | > 20 | Pass |
| GFSK | 18 | 2440 | > 20 | Pass |
| GFSK | 25 | 2475 | > 20 | Pass |

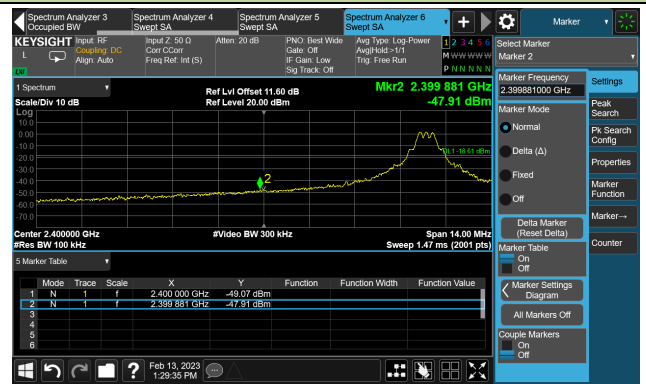
802.15.4 Out-of-Band Emissions

Channel 11 (2405MHz)

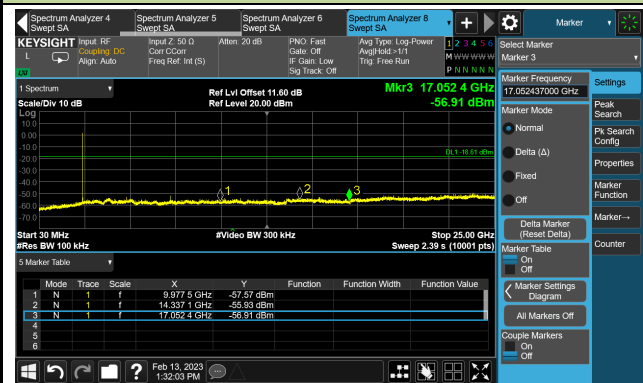
100kHz PSD Reference Level



Low Band Edge

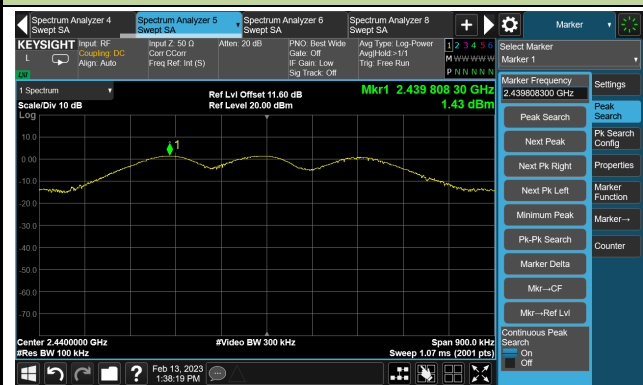


Spurious Emission

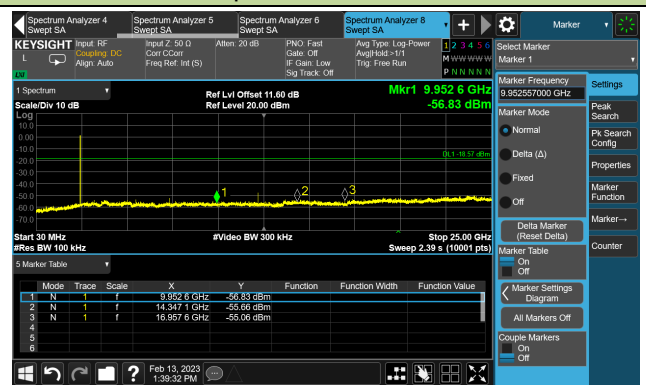


Channel 18 (2440MHz)

100kHz PSD Reference Level

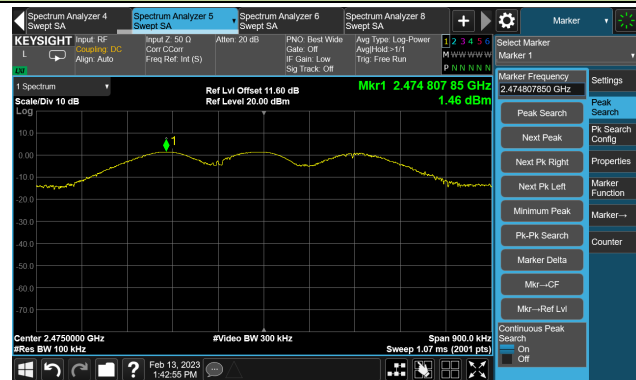


Spurious Emission

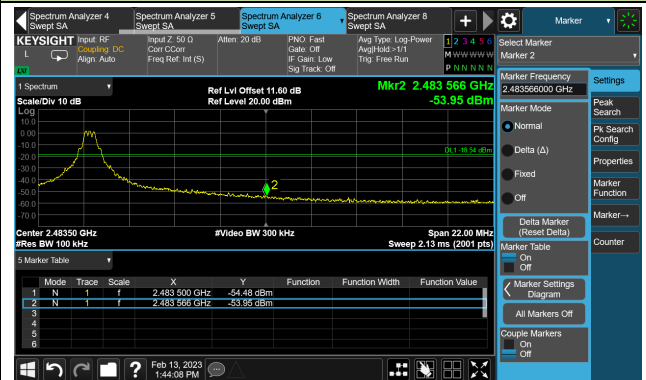


Channel 25 (2475MHz)

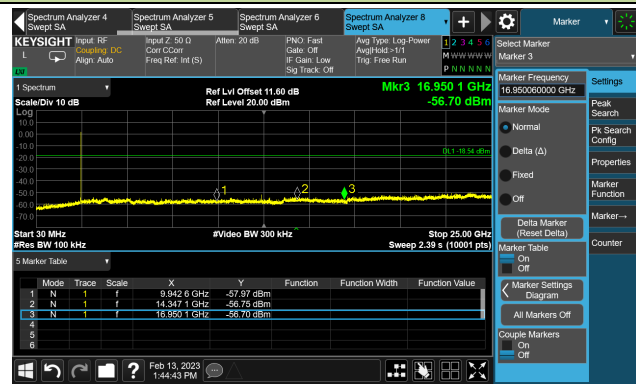
100kHz PSD Reference Level



High Band Edge



Spurious Emission



A.6 Radiated Spurious Emission Test Result

| | | | |
|-----------|---|---------------|-----------|
| Test Site | WZ-AC2 | Test Engineer | Dick Shen |
| Test Date | 2023-02-10 | | |
| Remark: | 1. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report. 2. The average value is calculated by peak value and Duty Cycle Correction Factor. | | |

| Test Channel | Frequency (MHz) | Reading Level (dBμV) | Factor (dB/m) | Duty Cycle Correction Factor (dB) | Measure Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Detector | Polarization |
|--------------|-----------------|----------------------|---------------|-----------------------------------|------------------------|----------------|-------------|----------|--------------|
| 11 | 4808.0 | 43.7 | 3.7 | N/A | 47.4 | 74.0 | -26.6 | PK | Horizontal |
| | 4808.0 | 43.7 | 3.7 | -17.1 | 30.3 | 54.0 | -23.7 | AV | Horizontal |
| | 12024.5 | 42.8 | 17.1 | N/A | 59.9 | 74.0 | -14.1 | PK | Horizontal |
| | 12024.5 | 42.8 | 17.1 | -17.1 | 42.8 | 54.0 | -11.2 | AV | Horizontal |
| | 15441.5 | 31.1 | 19.0 | N/A | 50.1 | 74.0 | -23.9 | PK | Horizontal |
| | 15441.5 | 31.1 | 19.0 | -17.1 | 33.0 | 54.0 | -21.0 | AV | Horizontal |
| | 4808.0 | 50.7 | 3.7 | N/A | 54.4 | 74.0 | -19.6 | PK | Vertical |
| | 4808.0 | 50.7 | 3.7 | -17.1 | 37.3 | 54.0 | -16.7 | AV | Vertical |
| | 12024.5 | 46.8 | 17.1 | N/A | 63.9 | 74.0 | -10.1 | PK | Vertical |
| | 12024.5 | 46.8 | 17.1 | -17.1 | 46.8 | 54.0 | -7.2 | AV | Vertical |
| | 15807.0 | 32.1 | 18.1 | N/A | 50.2 | 74.0 | -23.8 | PK | Vertical |
| | 15807.0 | 32.1 | 18.1 | -17.1 | 33.1 | 54.0 | -20.9 | AV | Vertical |
| 18 | 4876.0 | 42.9 | 3.7 | N/A | 46.6 | 74.0 | -27.4 | PK | Horizontal |
| | 4876.0 | 42.9 | 3.7 | -17.1 | 29.5 | 54.0 | -24.5 | AV | Horizontal |
| | 7315.5 | 57.9 | 11.2 | N/A | 69.1 | 74.0 | -4.9 | PK | Horizontal |
| | 7315.5 | 57.9 | 11.2 | -17.1 | 52.0 | 54.0 | -2.0 | AV | Horizontal |
| | 12203.0 | 42.4 | 17.6 | N/A | 60.0 | 74.0 | -14.0 | PK | Horizontal |
| | 12203.0 | 42.4 | 17.6 | -17.1 | 42.9 | 54.0 | -11.1 | AV | Horizontal |
| | 4876.0 | 49.5 | 3.7 | N/A | 53.2 | 74.0 | -20.8 | PK | Vertical |
| | 4876.0 | 49.5 | 3.7 | -17.1 | 36.1 | 54.0 | -17.9 | AV | Vertical |
| | 7315.5 | 45.7 | 11.2 | N/A | 56.9 | 74.0 | -17.1 | PK | Vertical |
| | 7315.5 | 45.7 | 11.2 | -17.1 | 39.8 | 54.0 | -14.2 | AV | Vertical |
| | 12203.0 | 50.1 | 17.6 | N/A | 67.7 | 74.0 | -6.3 | PK | Vertical |
| | 12203.0 | 50.1 | 17.6 | -17.1 | 50.6 | 54.0 | -3.4 | AV | Vertical |
| 25 | 4952.5 | 47.0 | 3.7 | N/A | 50.7 | 74.0 | -23.3 | PK | Horizontal |
| | 4952.5 | 47.0 | 3.7 | -17.1 | 33.6 | 54.0 | -20.4 | AV | Horizontal |
| | 7426.0 | 55.8 | 11.9 | N/A | 67.7 | 74.0 | -6.3 | PK | Horizontal |

| | | | | | | | | |
|---------|------|------|-------|------|------|-------|----|------------|
| 7426.0 | 55.8 | 11.9 | -17.1 | 50.6 | 54.0 | -3.4 | AV | Horizontal |
| 12373.0 | 42.1 | 16.7 | N/A | 58.8 | 74.0 | -15.2 | PK | Horizontal |
| 12373.0 | 42.1 | 16.7 | -17.1 | 41.7 | 54.0 | -12.3 | AV | Horizontal |
| 4952.5 | 50.2 | 3.7 | N/A | 53.9 | 74.0 | -20.1 | PK | Vertical |
| 4952.5 | 50.2 | 3.7 | -17.1 | 36.8 | 54.0 | -17.2 | AV | Vertical |
| 7426.0 | 46.0 | 11.9 | N/A | 57.9 | 74.0 | -16.1 | PK | Vertical |
| 7426.0 | 46.0 | 11.9 | -17.1 | 40.8 | 54.0 | -13.2 | AV | Vertical |
| 12373.0 | 50.0 | 16.7 | N/A | 66.7 | 74.0 | -7.3 | PK | Vertical |
| 12373.0 | 50.0 | 16.7 | -17.1 | 49.6 | 54.0 | -4.4 | AV | Vertical |

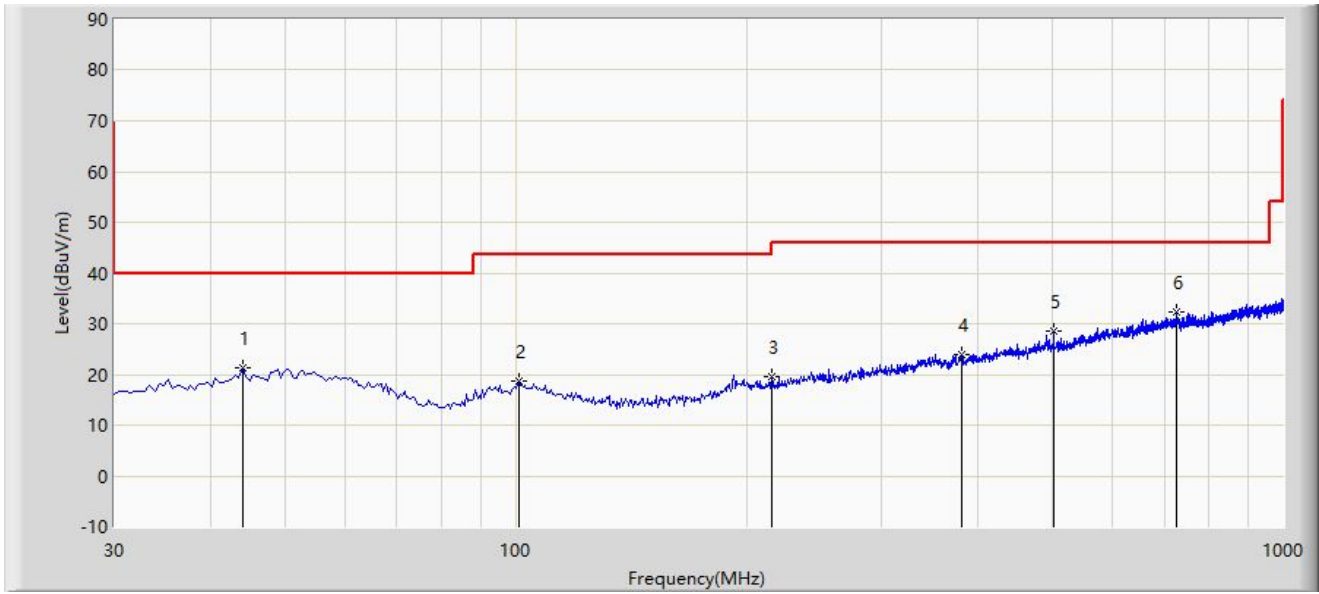
Note: PK Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB/m)

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

AV Level (dB μ V/m) = PK Level (dB μ V/m) + Duty Cycle Correction Factor (dB)

The Result of Radiated Emission below 1GHz:

| | |
|--------------------------------|-----------------------|
| Site: WZ-AC2 | Test Date: 2023-02-12 |
| Limit: FCC_Part15.209_RSE(3m) | Engineer: Dick Shen |
| Probe: VULB9162_30-7000MHz | Polarity: Horizontal |
| EUT: Inductrix RTF | Power: By Battery |
| Test Mode: Transmit at 2440MHz | |



| No | Mark | Frequency (MHz) | Measure Level (dB μ V/m) | Reading Level (dB μ V) | Margin (dB) | Limit (dB μ V/m) | Factor (dB/m) | Type |
|----|------|-----------------|------------------------------|----------------------------|-------------|----------------------|---------------|------|
| 1 | | 44.065 | 21.249 | 1.454 | -18.751 | 40.000 | 19.796 | PK |
| 2 | | 100.810 | 18.579 | 0.028 | -24.921 | 43.500 | 18.551 | PK |
| 3 | | 215.270 | 19.563 | 1.353 | -23.937 | 43.500 | 18.210 | PK |
| 4 | | 381.625 | 24.015 | 1.140 | -21.985 | 46.000 | 22.875 | PK |
| 5 | | 501.905 | 28.639 | 3.663 | -17.361 | 46.000 | 24.976 | PK |
| 6 | * | 727.430 | 32.261 | 3.379 | -13.739 | 46.000 | 28.882 | PK |

Note 1: " * ", means this data is the worst emission level.

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

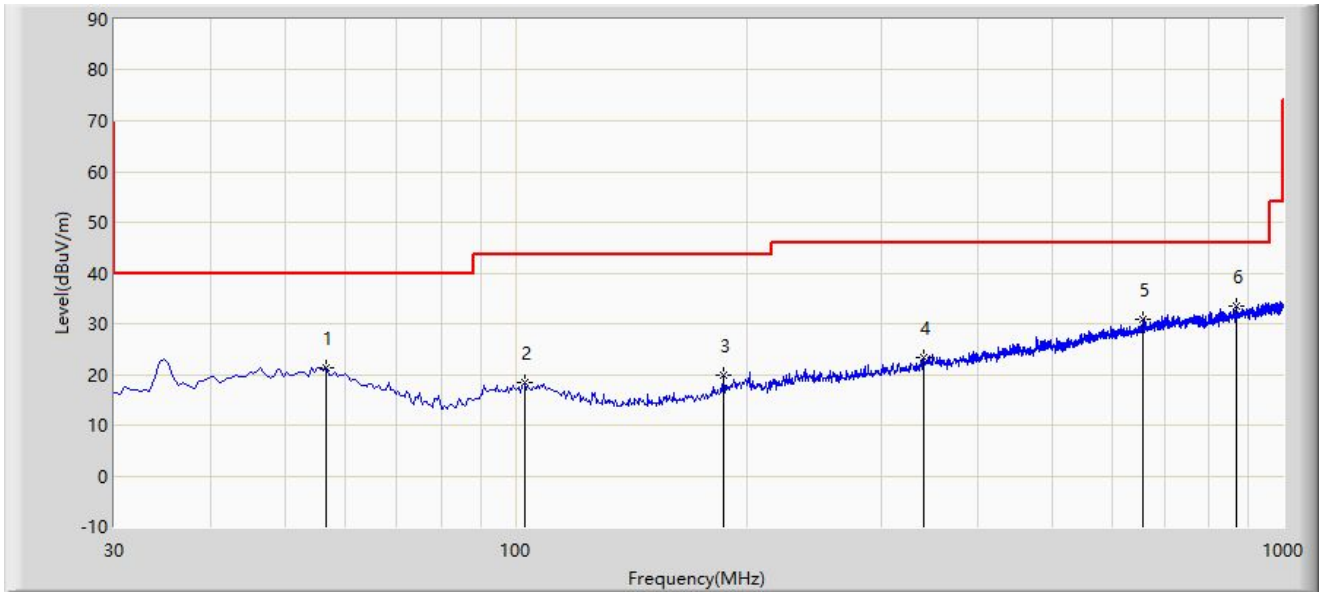
Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: Quasi-Peak measurement was not performed when peak measure level was lower than the quasi-peak limit.

Note 5: The amplitude of Radiated emissions (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 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: WZ-AC2 | Test Date: 2023-02-12 |
| Limit: FCC_Part15.209_RSE(3m) | Engineer: Dick Shen |
| Probe: VULB9162_30-7000MHz | Polarity: Vertical |
| EUT: Inductrix RTF | Power: By Battery |
| Test Mode: Transmit at 2440MHz | |



| No | Mark | Frequency (MHz) | Measure Level (dB μ V/m) | Reading Level (dB μ V) | Margin (dB) | Limit (dB μ V/m) | Factor (dB/m) | Type |
|----|------|-----------------|------------------------------|----------------------------|-------------|----------------------|---------------|------|
| 1 | | 56.675 | 21.395 | 1.309 | -18.605 | 40.000 | 20.085 | PK |
| 2 | | 102.750 | 18.468 | -0.122 | -25.032 | 43.500 | 18.590 | PK |
| 3 | | 186.655 | 19.874 | 2.421 | -23.626 | 43.500 | 17.453 | PK |
| 4 | | 339.915 | 23.455 | 1.261 | -22.545 | 46.000 | 22.194 | PK |
| 5 | | 656.620 | 30.908 | 3.128 | -15.092 | 46.000 | 27.780 | PK |
| 6 | * | 870.990 | 33.510 | 2.731 | -12.490 | 46.000 | 30.779 | PK |

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

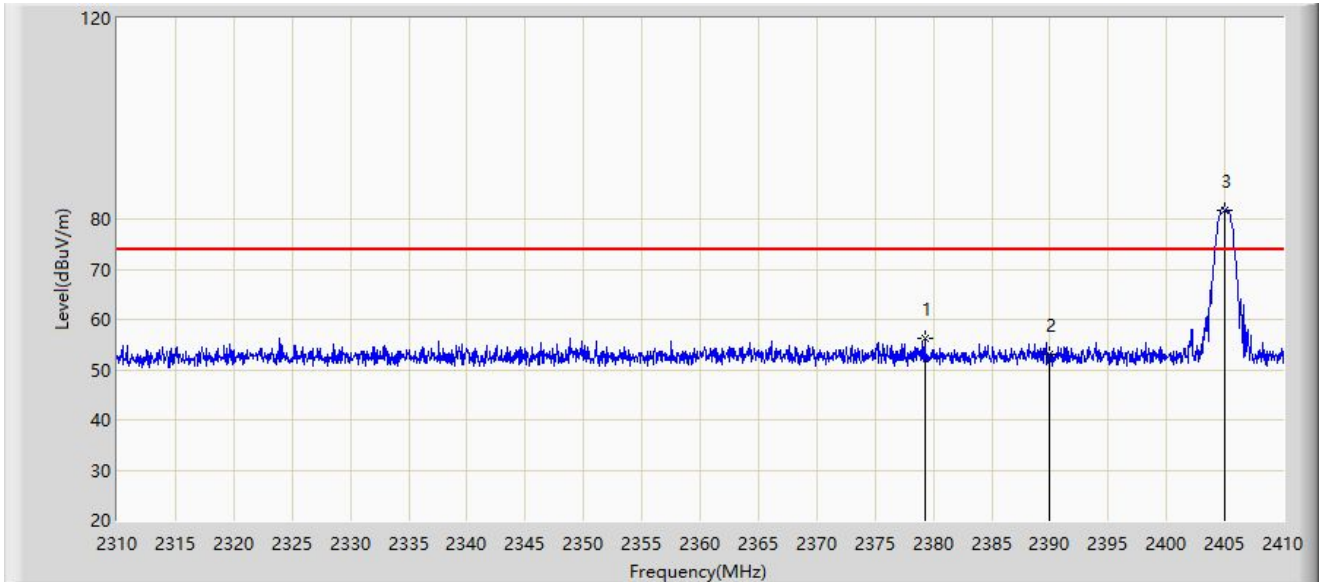
Note 4: Quasi-Peak measurement was not performed when peak measure level was lower than the quasi-peak limit.

Note 5: The amplitude of Radiated emissions (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 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.

A.7 Radiated Restricted Band Edge Test Result

| | |
|--------------------------------|-----------------------|
| Site: WZ-AC2 | Test Date: 2023-02-10 |
| Limit: FCC_2.4G_RE(3m) | Engineer: Dick Shen |
| Probe: BBHA9120D_1457_1-18GHz | Polarity: Horizontal |
| EUT: Inductrix RTF | Power: By Battery |
| Test Mode: Transmit at 2405MHz | |



| No | Mark | Frequency (MHz) | Measure Level (dB μ V/m) | Reading Level (dB μ V) | Margin (dB) | Limit (dB μ V/m) | Factor (dB/m) | Duty Cycle Correction Factor (dB) | Type |
|----|------|-----------------|------------------------------|----------------------------|-------------|----------------------|---------------|-----------------------------------|------|
| 1 | | 2379.250 | 56.347 | 24.621 | -17.653 | 74.000 | 31.726 | N/A | PK |
| | * | 2379.250 | 39.247 | 24.621 | -14.753 | 54.000 | 31.726 | -17.100 | AV |
| 2 | | 2390.000 | 53.112 | 21.424 | -20.888 | 74.000 | 31.688 | N/A | PK |
| | | 2390.000 | 36.012 | 21.424 | -17.988 | 54.000 | 31.688 | -17.100 | AV |
| 3 | | 2404.950 | 81.713 | 50.073 | N/A | N/A | 31.640 | N/A | PK |

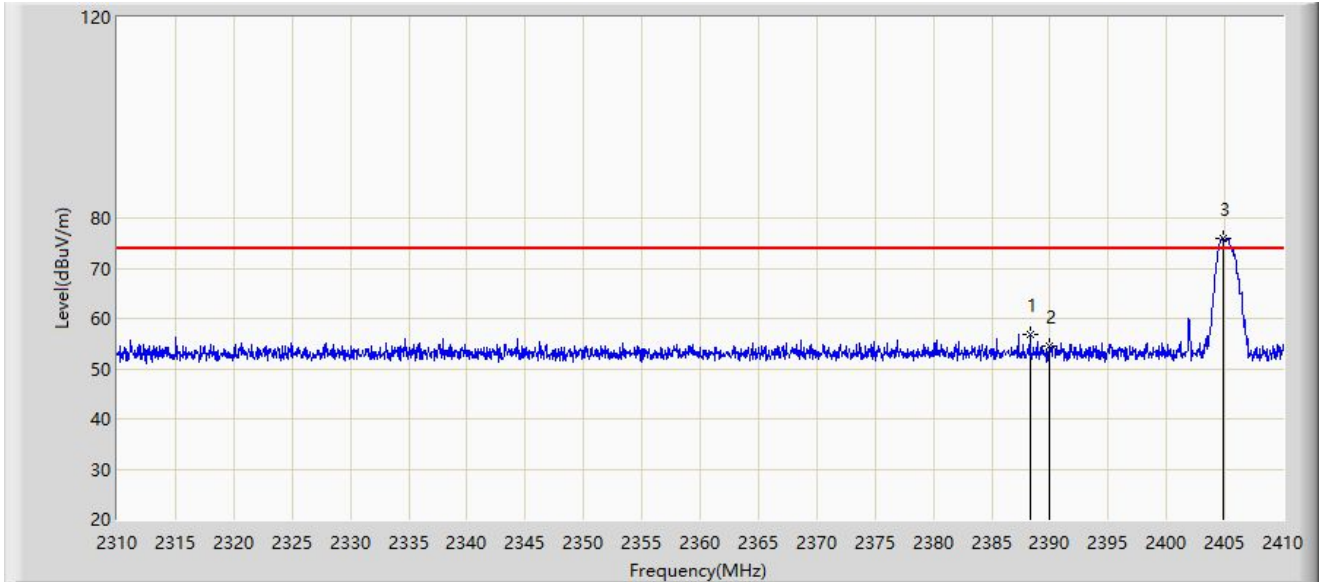
Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: AV Level (dBuV/m) = PK Level (dBuV/m) + Duty Cycle Correction Factor (dB)

| | |
|--------------------------------|-----------------------|
| Site: WZ-AC2 | Test Date: 2023-02-10 |
| Limit: FCC_2.4G_RE(3m) | Engineer: Dick Shen |
| Probe: BBHA9120D_1457_1-18GHz | Polarity: Vertical |
| EUT: Inductrix RTF | Power: By Battery |
| Test Mode: Transmit at 2405MHz | |



| No | Mark | Frequency (MHz) | Measure Level (dB μ V/m) | Reading Level (dB μ V) | Margin (dB) | Limit (dB μ V/m) | Factor (dB/m) | Duty Cycle Correction Factor (dB) | Type |
|----|------|-----------------|------------------------------|----------------------------|-------------|----------------------|---------------|-----------------------------------|------|
| 1 | | 2388.300 | 56.885 | 25.189 | -17.115 | 74.000 | 31.696 | N/A | PK |
| | * | 2388.300 | 39.785 | 25.189 | -14.215 | 54.000 | 31.696 | -17.100 | AV |
| 2 | | 2390.000 | 54.537 | 22.849 | -19.463 | 74.000 | 31.688 | N/A | PK |
| | | 2390.000 | 37.437 | 22.849 | -16.563 | 54.000 | 31.688 | -17.100 | AV |
| 3 | | 2404.800 | 75.977 | 44.337 | N/A | N/A | 31.640 | N/A | PK |

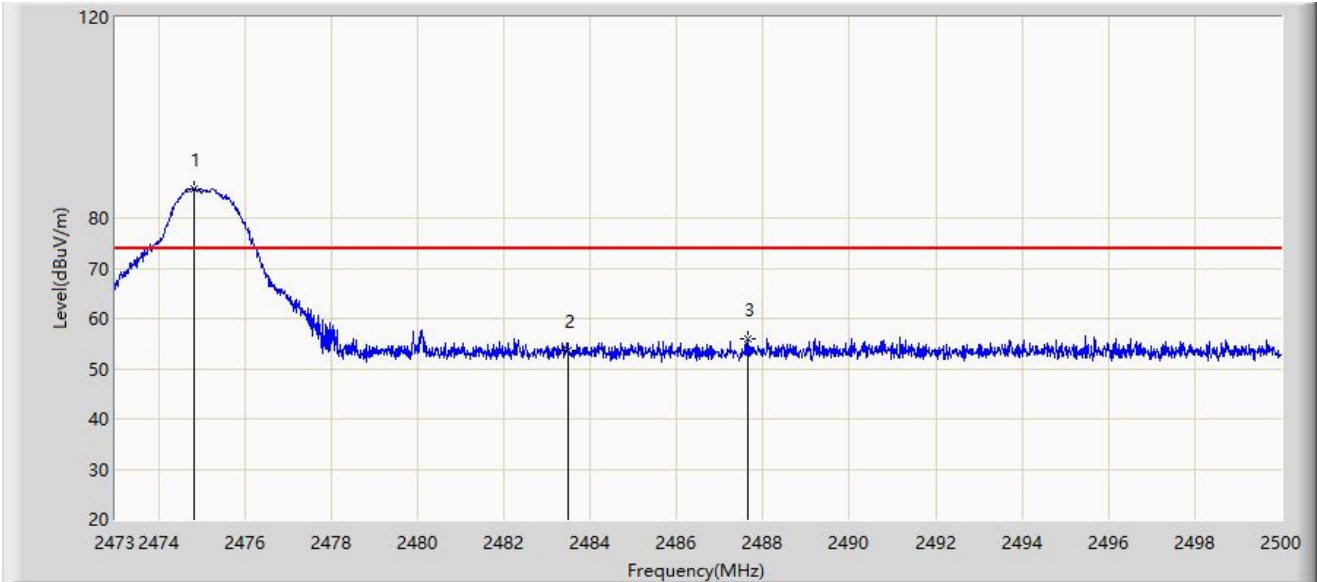
Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: AV Level (dBuV/m) = PK Level (dBuV/m) + Duty Cycle Correction Factor (dB)

| | |
|--------------------------------|-----------------------|
| Site: WZ-AC2 | Test Date: 2023-02-10 |
| Limit: FCC_2.4G_RE(3m) | Engineer: Dick Shen |
| Probe: BBHA9120D_1457_1-18GHz | Polarity: Horizontal |
| EUT: Inductrix RTF | Power: By Battery |
| Test Mode: Transmit at 2475MHz | |



| No | Mark | Frequency (MHz) | Measure Level (dB μ V/m) | Reading Level (dB μ V) | Margin (dB) | Limit (dB μ V/m) | Factor (dB/m) | Duty Cycle Correction Factor (dB) | Type |
|----|------|-----------------|------------------------------|----------------------------|-------------|----------------------|---------------|-----------------------------------|------|
| 1 | | 2474.836 | 85.749 | 54.190 | N/A | N/A | 31.559 | N/A | PK |
| 2 | | 2483.500 | 53.619 | 22.050 | -20.381 | 74.000 | 31.569 | N/A | PK |
| | | 2483.500 | 36.519 | 22.050 | -17.481 | 54.000 | 31.569 | -17.100 | AV |
| 3 | | 2487.661 | 55.908 | 24.332 | -18.092 | 74.000 | 31.576 | N/A | PK |
| | * | 2487.661 | 38.808 | 24.332 | -15.192 | 54.000 | 31.576 | -17.100 | AV |

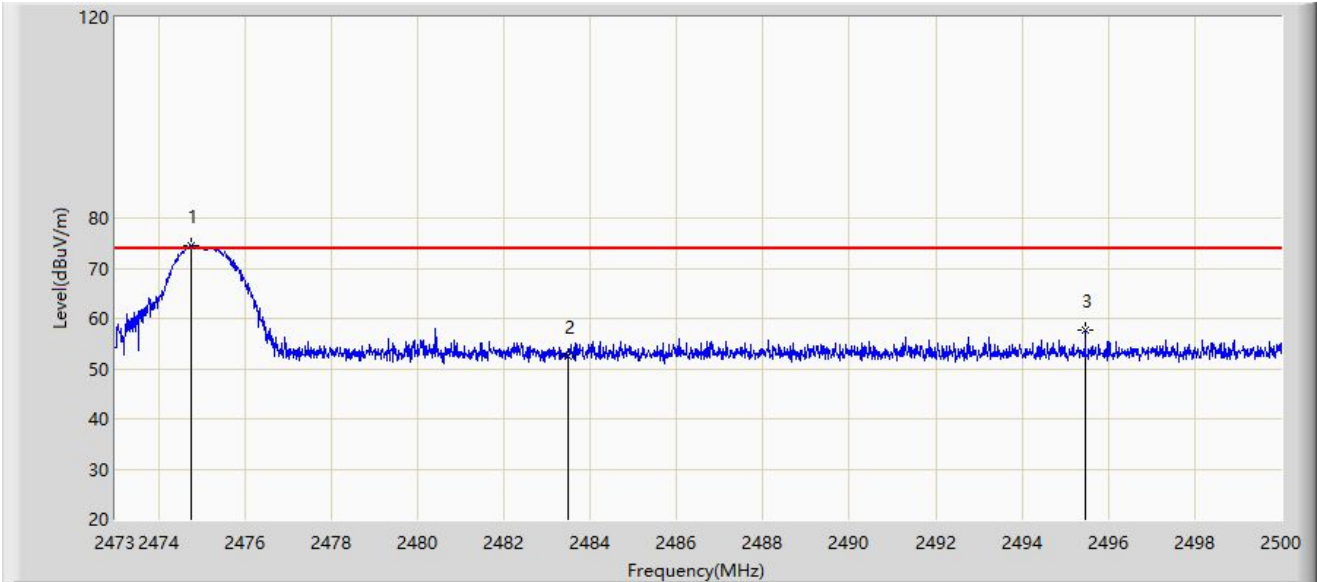
Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: AV Level (dBuV/m) = PK Level (dBuV/m) + Duty Cycle Correction Factor (dB)

| | |
|--------------------------------|-----------------------|
| Site: WZ-AC2 | Test Date: 2023-02-10 |
| Limit: FCC_2.4G_RE(3m) | Engineer: Dick Shen |
| Probe: BBHA9120D_1457_1-18GHz | Polarity: Vertical |
| EUT: Inductrix RTF | Power: By Battery |
| Test Mode: Transmit at 2475MHz | |



| No | Mark | Frequency (MHz) | Measure Level (dBμV/m) | Reading Level (dBμV) | Margin (dB) | Limit (dBμV/m) | Factor (dB/m) | Duty Cycle Correction Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-------------|----------------|---------------|-----------------------------------|------|
| 1 | | 2474.755 | 74.542 | 42.983 | N/A | N/A | 31.559 | N/A | PK |
| 2 | | 2483.500 | 52.582 | 21.013 | -21.418 | 74.000 | 31.569 | N/A | PK |
| | | 2483.500 | 35.482 | 21.013 | -18.518 | 54.000 | 31.569 | -17.100 | AV |
| 3 | | 2495.464 | 57.577 | 25.982 | -16.423 | 74.000 | 31.595 | N/A | PK |
| | * | 2495.464 | 40.477 | 25.982 | -13.523 | 54.000 | 31.595 | -17.100 | AV |

Note 1: " * ", means this data is the worst emission level.

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

Note 3: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Note 4: AV Level (dBuV/m) = PK Level (dBuV/m) + Duty Cycle Correction Factor (dB)

A.8 AC Conducted Emissions Test Result

The device is powered by battery, so this requirement is not applicable.

Appendix B – Test Setup Photograph

Refer to “2302RSU002-UT” file.

Appendix C – EUT Photograph

Refer to “2302RSU002-UE” file.

_____ The End _____