

FCC/ISED Test Report

Report No.: RWAZ202300051B

Applicant: Shenzhen Qianyan Technology LTD

Address: No.3301, Block C, Section 1, Chuangzhi Yuncheng Building,
Liuxian Avenue, Xili Community, Xili Street, Nanshan District,
Shenzhen, China

Product Name: Smart Countertop Ice Maker

Product Model: H717D

Multiple Models: N/A

Trade Mark: GoveeLife

FCC ID: 2A7VD-H717D

IC: 28789-H717D

Standards: FCC CFR Title 47 Part 15C (§15.247)
RSS-247 Issue 3, August 2023

Test Date: 2024-03-04 to 2024-04-15

Test Result: Complied

Report Date: 2024-04-23

Reviewed by:

Frank Yin

Approved by:

Jacob Kong

Frank Yin

Project Engineer

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Prepared by:

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Revision History

| Version No. | Issued Date | Description |
|-------------|-------------|-------------|
| 00 | 2024-04-23 | Original |

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1 General Information

1.1 Client Information

| | |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Applicant: | Shenzhen Qianyan Technology LTD |
| Address: | No.3301, Block C, Section 1, Chuangzhi Yuncheng Building, Liuxian Avenue, Xili Community, Xili Street, Nanshan District, Shenzhen, China |
| Manufacturer: | Shenzhen Qianyan Technology LTD |
| Address: | No.3301, Block C, Section 1, Chuangzhi Yuncheng Building, Liuxian Avenue, Xili Community, Xili Street, Nanshan District, Shenzhen, China |

1.2 Product Description of EUT

The EUT is Smart Countertop Ice Maker that contains 2.4G WLAN and BLE radios, this report covers the full testing of the BLE radio.

| | |
|-------------------------------------|------------------------------------------------------------------------|
| HVIN | H717D |
| Sample Serial Number | T-4 for CE Test, T-5 for RE test & RF conducted test(assigned by WATC) |
| Sample Received Date | 2023-12-08 |
| Sample Status | Good Condition |
| Frequency Range | 2402-2480MHz(BLE(1M)) |
| Maximum Conducted Peak Output Power | 1.45dBm |
| Modulation Technology | GFSK |
| Antenna Gain [#] | 2.28dBi |
| Spatial Streams [#] | SISO (1TX, 1RX) |
| Power Supply | AC 120V/60Hz |
| Operating temperature [#] | +5 deg.C to +40 deg.C |
| Adapter Information | N/A |
| Modification | Sample No Modification by the test lab |

1.3 Antenna information

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

RSS-GEN Clause 6.8 requirement:

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest

gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer. The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

Device Antenna information:

The BLE antenna is an internal antenna which cannot replace by end-user. Please see product internal photos for details.

| Antenna type | Antenna gain | Frequency Range | Input impedance |
|--------------|--------------|-----------------|-----------------|
| FPC | 2.28dBi | 2.4-2.5GHz | 50Ω |

1.4 Related Submittal(s)/Grant(s)

No Related Submittal(s)/Grant(s)

1.5 Measurement Uncertainty

| Parameter | Expanded Uncertainty (Confidence of 95%(U = 2Uc(y))) | |
|------------------------------------|---------------------------------------------------------|---------|
| AC Power Lines Conducted Emissions | ±3.14dB | |
| Emissions, Radiated | Below 30MHz | ±2.78dB |
| | Below 1GHz | ±4.84dB |
| | Above 1GHz | ±5.44dB |
| Emissions, Conducted | 1.75dB | |
| Conducted Power | 0.74dB | |
| Frequency Error | 150Hz | |
| Bandwidth | 0.34% | |
| Power Spectral Density | 0.74dB | |

Note 1: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Note 2: The Decision Rule is based on simple acceptance with ISO Guide 98-4:2012 Clause 8.2 (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

1.6 Laboratory Location

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

Tel: +86-755-29691511, Email: qa@watc.com.cn

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 463912, the FCC Designation No. : CN5040.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0160.

1.7 Test Methodology

FCC CFR 47 Part 2

FCC CFR 47 Part 15

KDB 558074 D01 DTS Meas Guidance v05r02

ANSI C63.10-2013

RSS-247 Issue 3, August 2023

RSS-Gen, Issue 5, Amendment 2 (February 2021)

2 Description of Measurement

2.1 Test Configuration

| Operating channels: | | | | | |
|---------------------|-----------------|-------------|-----------------|-------------|-----------------|
| Channel No. | Frequency (MHz) | Channel No. | Frequency (MHz) | Channel No. | Frequency (MHz) |
| 0 | 2402 | 19 | 2440 | 38 | 2478 |
| 1 | 2404 | 20 | 2442 | 39 | 2480 |
| ... | ... | ... | ... | / | / |
| 18 | 2438 | ... | ... | / | / |

According to RSS-Gen chapter 6.9 Table 1 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:

| Lowest channel | | Middle channel | | Highest channel | |
|----------------|-----------------|----------------|-----------------|-----------------|-----------------|
| Channel No. | Frequency (MHz) | Channel No. | Frequency (MHz) | Channel No. | Frequency (MHz) |
| 0 | 2402 | 19 | 2440 | 39 | 2480 |

| Test Mode: | | | | |
|----------------------------------|---------------------------------------------------------|----------------------------------|----------------|--------------|
| Transmitting mode: | Keep the EUT in continuous transmitting with modulation | | | |
| Exercise software [#] : | EspRFTestTool_v2.8 | | | |
| Mode | Data rate | Power Level Setting [#] | | |
| | | Low Channel | Middle Channel | High Channel |
| BLE 1M | 1Mbps | 8 | 8 | 8 |

The exercise software and the maximum power setting that provided by manufacturer.

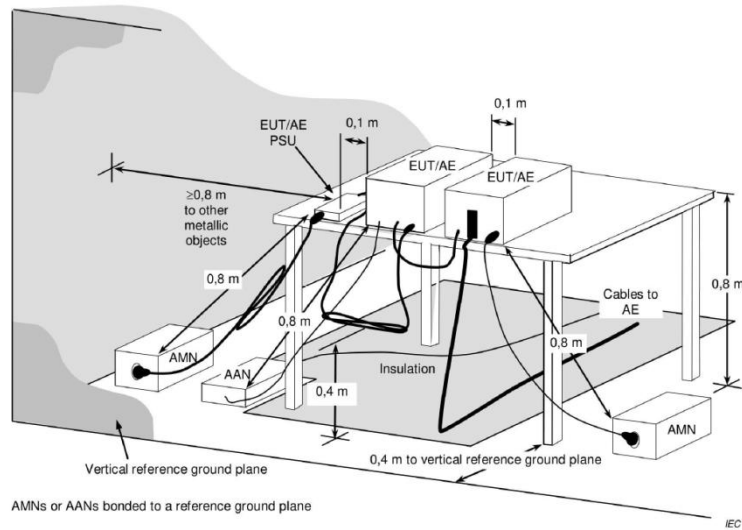
| Worst-Case Configuration: |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| For AC power line conducted emission and radiated emission 9kHz-1GHz and above 18GHz were performed with the EUT transmits at the channel with highest output power as worst-case scenario. |

2.2 Test Auxiliary Equipment

| Manufacturer | Description | Model | Serial Number |
|--------------|-------------|-------|---------------|
| / | / | / | / |

2.3 Test Setup

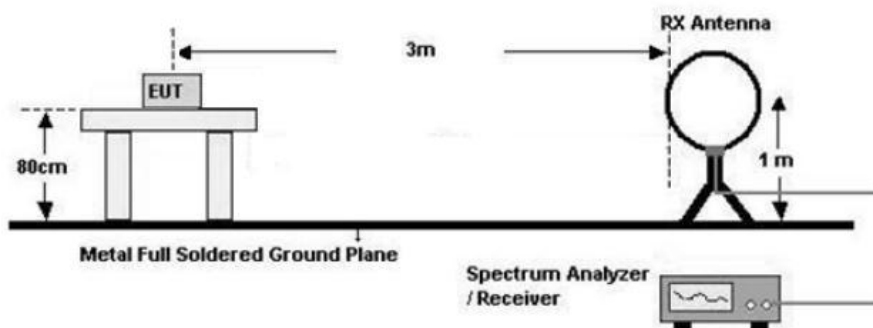
1) Conducted emission measurement:



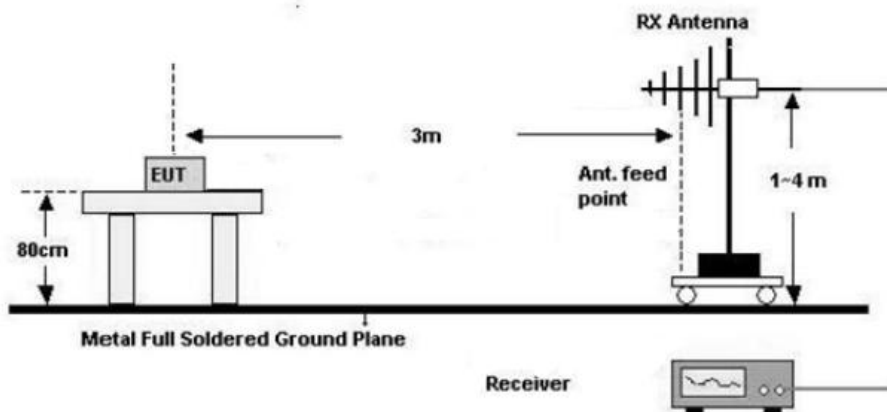
Note: The 0.8 m distance specified between EUT/AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be >0.8 m.

2) Radiated emission measurement:

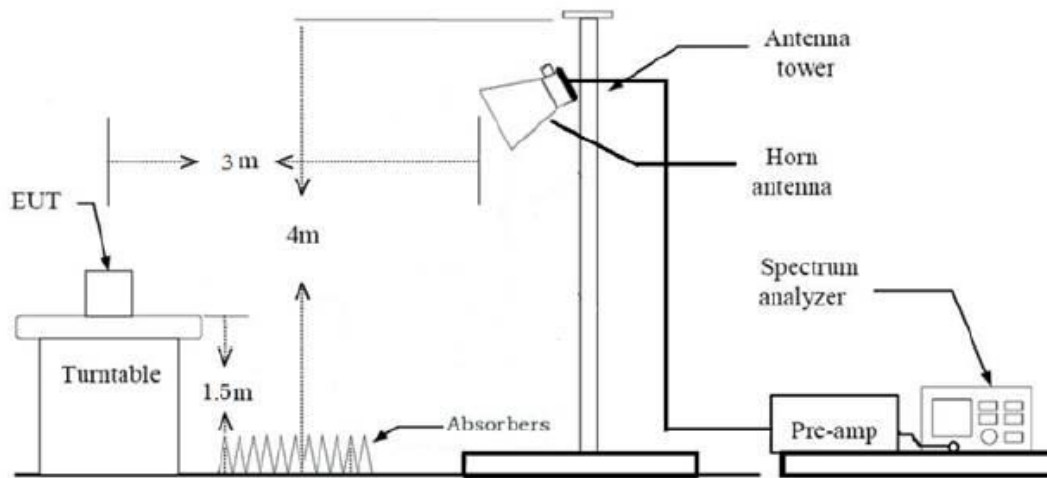
Below 30MHz (3m SAC)



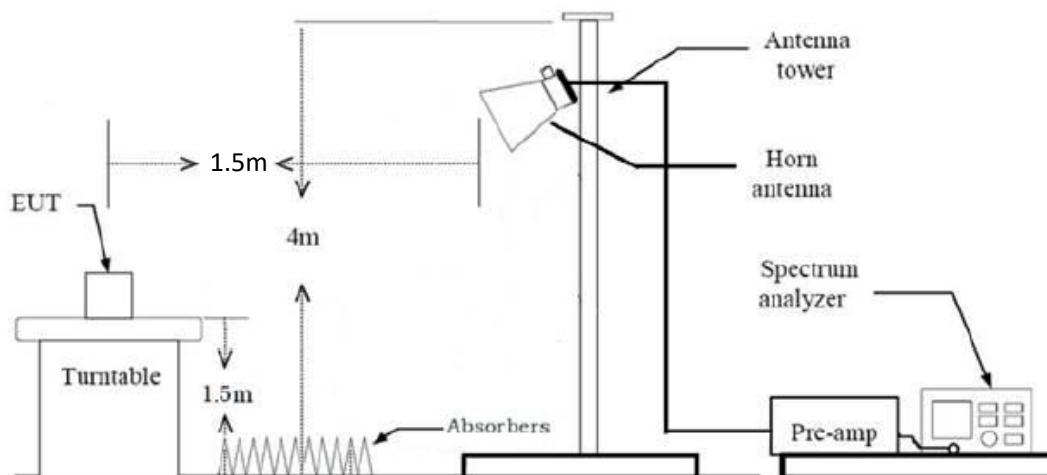
30MHz-1GHz (3m SAC)



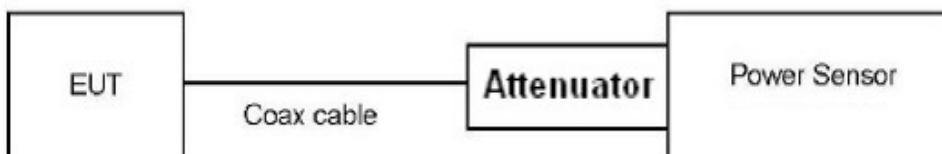
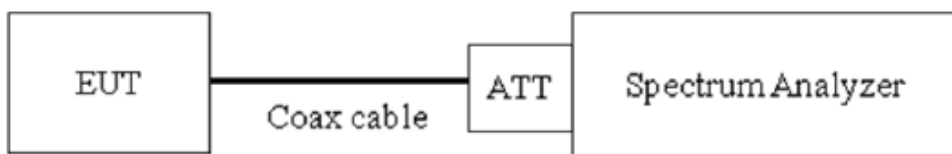
1GHz-18GHz(3m FAC)



Above 18GHz (3m FAC)



1) RF Conducted Test



or

2.4 Test Procedure

Conducted emission:

1. The E.U.T is placed on a non-conducting table 40cm from the vertical ground plane and 80cm above the horizontal ground plane (Please refer to the block diagram of the test setup and photographs).
2. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
3. Line conducted data is recorded for both Line and Neutral

Radiated Emission Procedure:

a) For below 30MHz

1. All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz- 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were $40 \cdot \log(\text{test distance} / \text{specification distance})$.
2. Loop antenna use, investigation was done on the three antenna orientations (parallel, perpendicular, ground-parallel)

b) For 30MHz-1GHz:

1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.
2. EUT works in each mode of operation that needs to be tested. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

c) For above 1GHz:

1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m (1-18GHz) and 1.5 m (above 18GHz).
2. EUT works in each mode of operation that needs to be tested, and having the EUT continuously working. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
4. Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

RF Conducted Test:

1. The antenna port of EUT was connected to the RF port of the test equipment (Power Meter or Spectrum analyzer) through Attenuator and RF cable.
2. The cable assembly insertion loss of 6.5dB (including 6.0 dB Attenuator and 0.5dB cable) was entered as an offset in the power meter. Note: Actual cable loss was unavailable at the time of testing, therefore a loss of 0.5dB was assumed as worst case. This was later verified to be true by laboratory. (if the RF cable provided by client, the cable loss declared by client)
3. The EUT is keeping in continuous transmission mode and tested in all modulation modes.

2.5 Measurement Method

| Description of Test | Measurement Method |
|-----------------------------------------|--------------------------------------|
| AC Line Conducted Emissions | ANSI C63.10-2013 Section 6.2 |
| Maximum Conducted Output Power | ANSI C63.10-2013 Section 11.9.1.1 |
| Power Spectral Density | ANSI C63.10-2013 Section 11.10.2 |
| 6 dB Emission Bandwidth | ANSI C63.10-2013 Section 11.8.1 |
| 99% Occupied Bandwidth | ANSI C63.10-2013 Section 6.9.3 |
| 100kHz Bandwidth of Frequency Band Edge | ANSI C63.10-2013 Section 6.10 |
| Radiated emission | ANSI C63.10-2013 Section 11.11&11.12 |
| Duty Cycle | ANSI C63.10-2013 Section 11.6 |

2.6 Measurement Equipment

| Manufacturer | Description | Model | Management No. | Calibration Date | Calibration Due Date |
|---------------------------------|---------------------------------|--------------------------|----------------|------------------|----------------------|
| AC Line Conducted Emission Test | | | | | |
| ROHDE& SCHWARZ | EMI TEST RECEIVER | ESR | 101817 | 2023/7/3 | 2024/7/2 |
| R&S | LISN | ENV216 | 101748 | 2023/8/1 | 2024/7/31 |
| N/A | Coaxial Cable | NO.12 | N/A | 2023/7/3 | 2024/7/2 |
| Farad | Test Software | EZ-EMC | Ver. EMEC-3A1 | / | / |
| Radiated Emission Test | | | | | |
| R&S | EMI test receiver | ESR3 | 102758 | 2023/7/3 | 2024/7/2 |
| ROHDE& SCHWARZ | SPECTRUM ANALYZER | FSV40-N | 101608 | 2023/7/3 | 2024/7/2 |
| SONOMA INSTRUMENT | Low frequency amplifier | 310 | 186014 | 2023/7/12 | 2024/7/11 |
| COM-POWER | preamplifier | PAM-118A | 18040152 | 2023/8/21 | 2024/8/20 |
| COM-POWER | Amplifier | PAM-840A | 461306 | 2023/8/8 | 2024/8/7 |
| ETS | Passive Loop Antenna | 6512 | 29604 | 2023/7/7 | 2024/7/6 |
| SCHWARZBECK | Log - periodic wideband antenna | VULB 9163 | 9163-872 | 2023/7/7 | 2024/7/6 |
| Astro Antenna Ltd | Horn antenna | AHA-118S | 3015 | 2023/7/6 | 2024/7/5 |
| Ducommun technologies | Horn Antenna | ARH-4223-02 | 1007726-03 | 2023/7/10 | 2024/7/9 |
| Oulitong | Band Reject Filter | OBSF-2400-248 3.5-50N | OE02103119 | 2023/9/15 | 2024/9/14 |
| N/A | Coaxial Cable | N/A | NO.9 | 2023/8/8 | 2024/8/7 |
| N/A | Coaxial Cable | N/A | NO.10 | 2023/8/8 | 2024/8/7 |
| N/A | Coaxial Cable | N/A | NO.11 | 2023/8/8 | 2024/8/7 |
| Audix | Test Software | E3 | 191218 V9 | / | / |
| RF Conducted Test | | | | | |
| ROHDE& SCHWARZ | SPECTRUM ANALYZER | FSU-26 | 200680/026 | 2023/7/12 | 2024/7/11 |
| narda | 6dB attenuator | 603-06-1 | N/A | 2023/7/26 | 2024/7/25 |

Note: All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or International standards.

3 Test Results

3.1 Test Summary

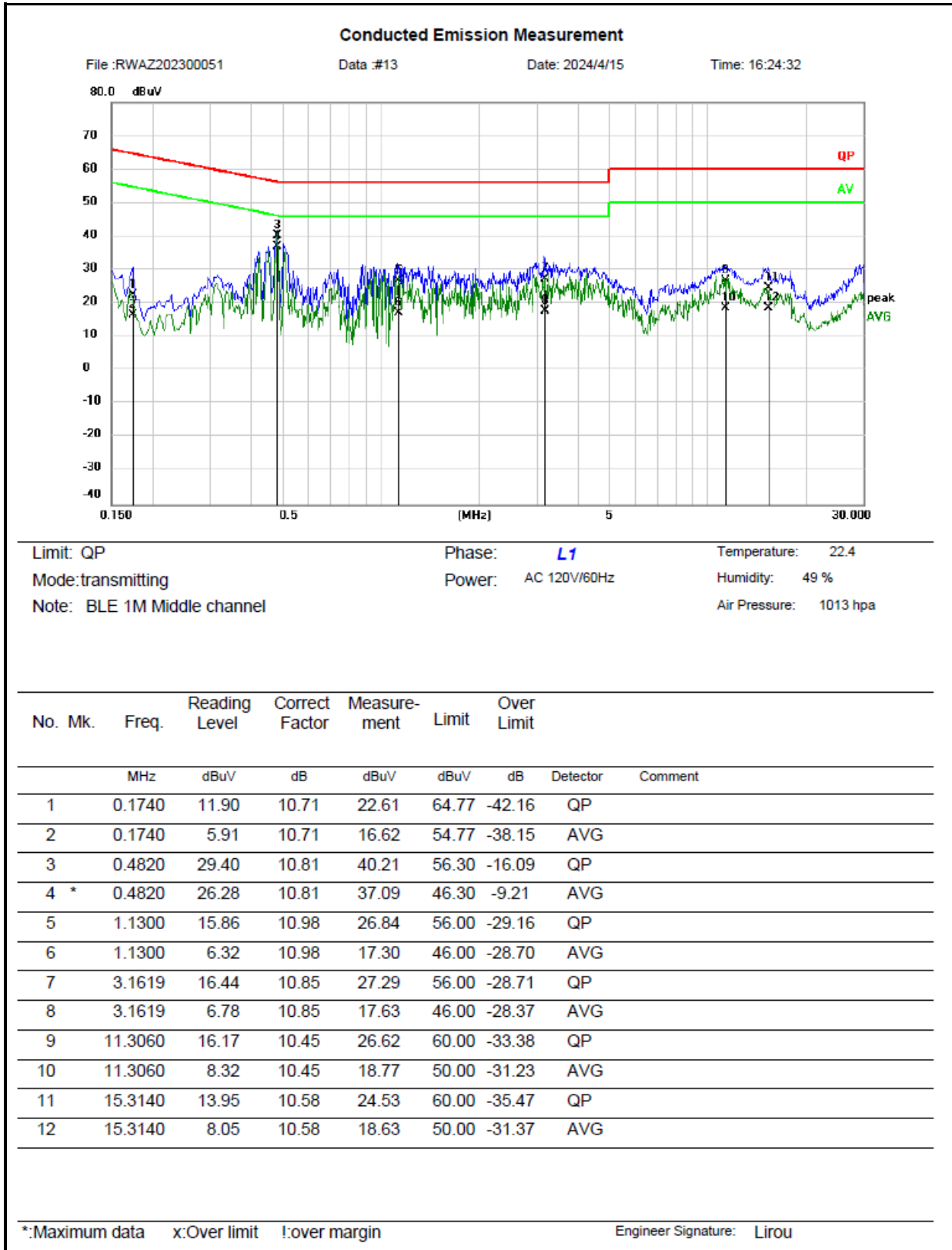
| FCC/ISED Rules | Description of Test | Result |
|--------------------------------------------------------------------|-----------------------------------------|-------------|
| §15.203 RSS-GEN §6.8 | Antenna Requirement | Compliance |
| §15.207 (a) RSS-GEN §8.8 | AC Line Conducted Emissions | Compliance |
| §15.247(b)(3) RSS-247 §5.4 d) | Maximum Conducted Output Power | Compliance |
| §15.247(e) RSS-247 §5.2 b) | Power Spectral Density | Compliance |
| §15.247 (a)(2) RSS-247 §5.2 a) | 6 dB Emission Bandwidth | Compliance |
| RSS-GEN §6.7 | 99% Occupied Bandwidth | Report only |
| §15.247(d) RSS-247 §5.5 | 100kHz Bandwidth of Frequency Band Edge | Compliance |
| §15.205, §15.209, §15.247(d) RSS-247 §5.5 RSS-GEN §8.9&§8.10 | Radiated emission | Compliance |
| - | Duty Cycle | Report only |

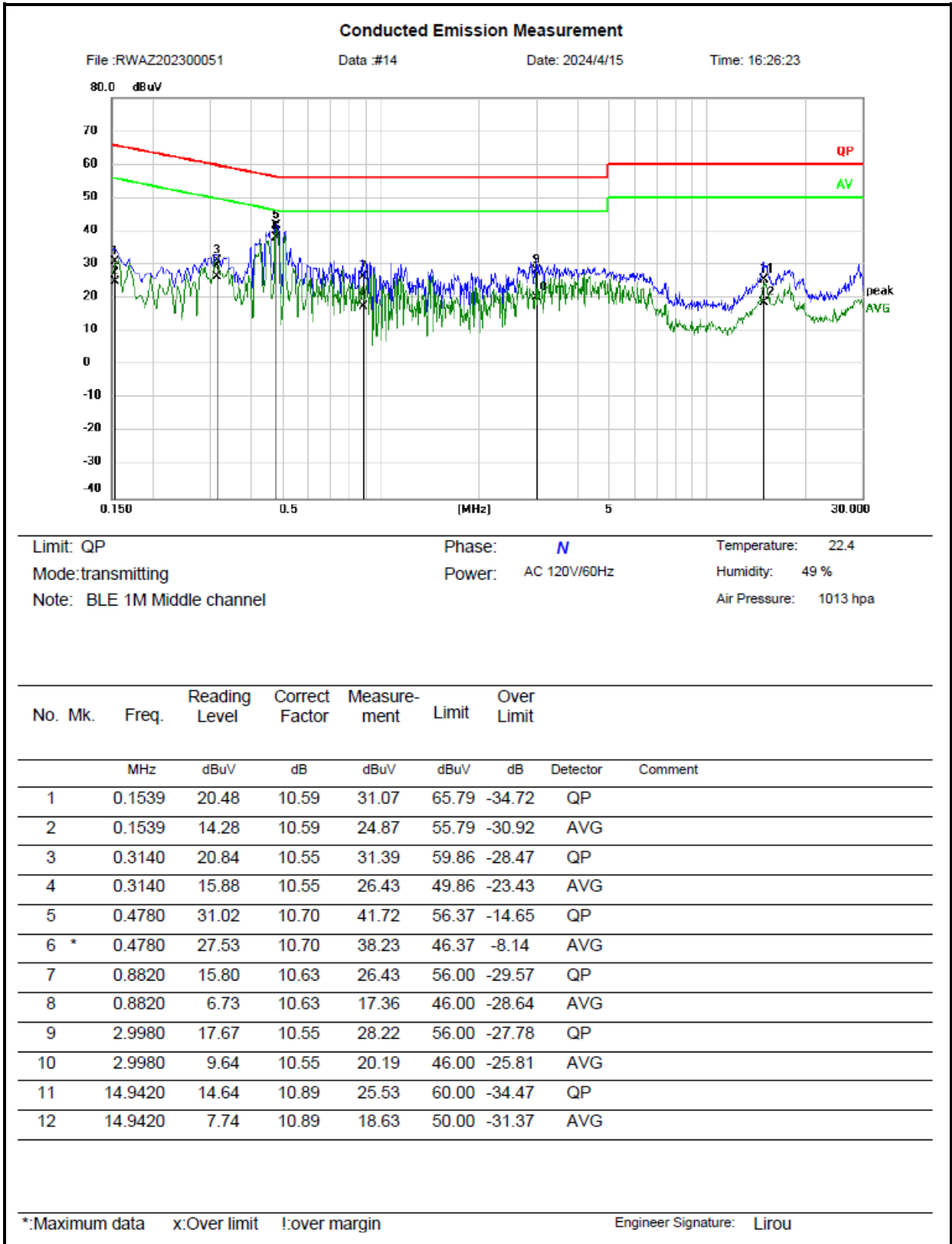
3.2Limit

| Test items | Limit |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC Line Conducted Emissions | See details §15.207 (a)/ RSS-GEN §8.8 |
| Conducted Output Power | For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e). |
| 6dB Emission Bandwidth | The minimum 6 dB bandwidth shall be at least 500 kHz. |
| Power Spectral Density | For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. |
| Spurious Emissions, 100kHz Bandwidth of Frequency Band Edge | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a)/RSS-GEN §8.9 is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a) /RSS-GEN §8.10, must also comply with the radiated emission limits specified in §15.209(a) /RSS-GEN §8.9 (see §15.205(c)). |

3.3AC Line Conducted Emissions Test Data

| | | | |
|-------------------------------|--------------------------------------------------------------------|-----------------|----------|
| Test Date: | 2024-04-15 | Test By: | Lirou Li |
| Environment condition: | Temperature: 22.4°C; Relative Humidity:49%; ATM Pressure: 101.3kPa | | |





Remark:

Measurement (dBuV)= Reading Level (dBuV) + Correct Factor(dB)

Correct Factor (dB)= LISN Voltage Division Factor (dB)+ Cable loss(dB)

Over Limit= Measurement – Limit

3.4 Radiated emission Test Data

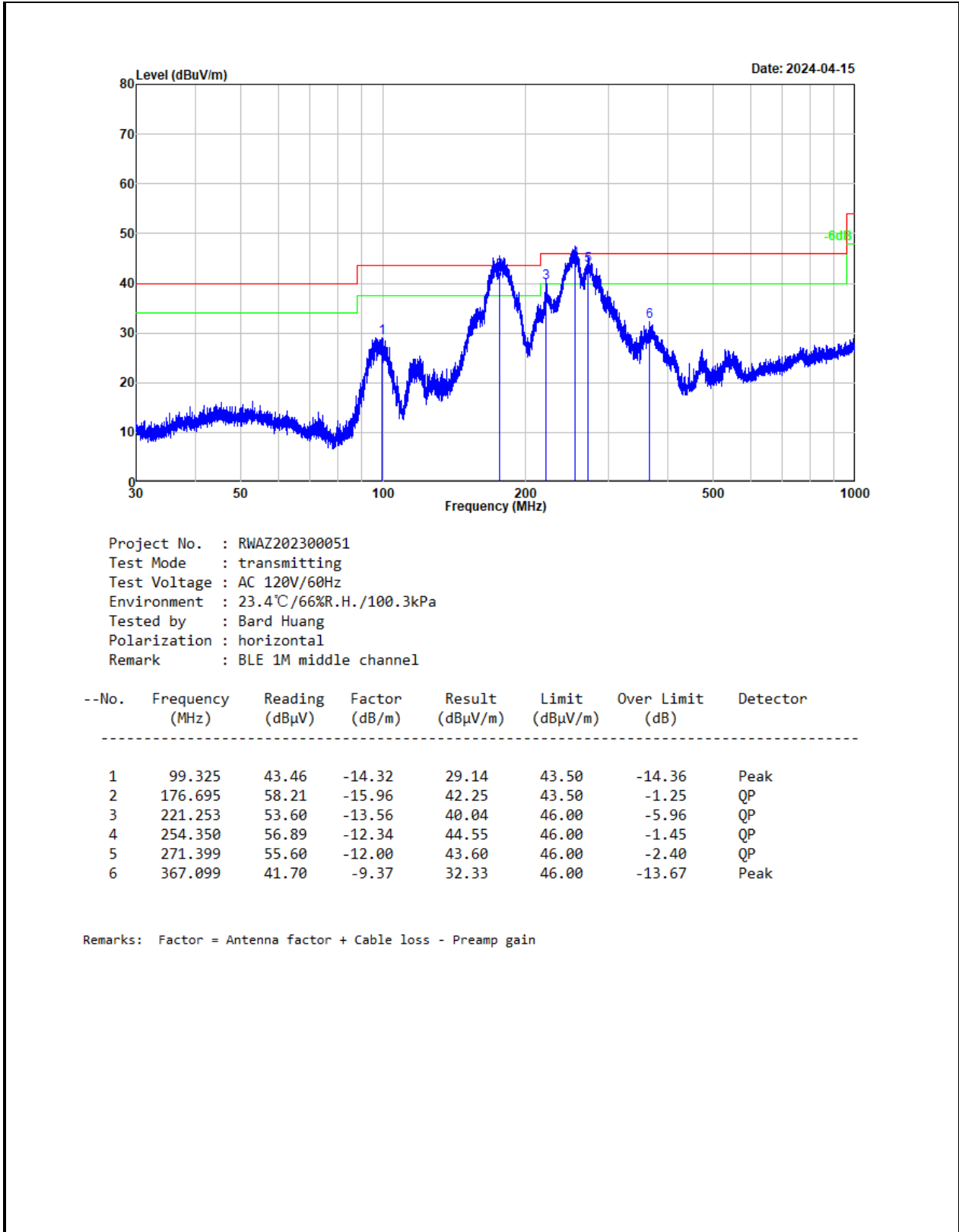
9 kHz-30MHz:

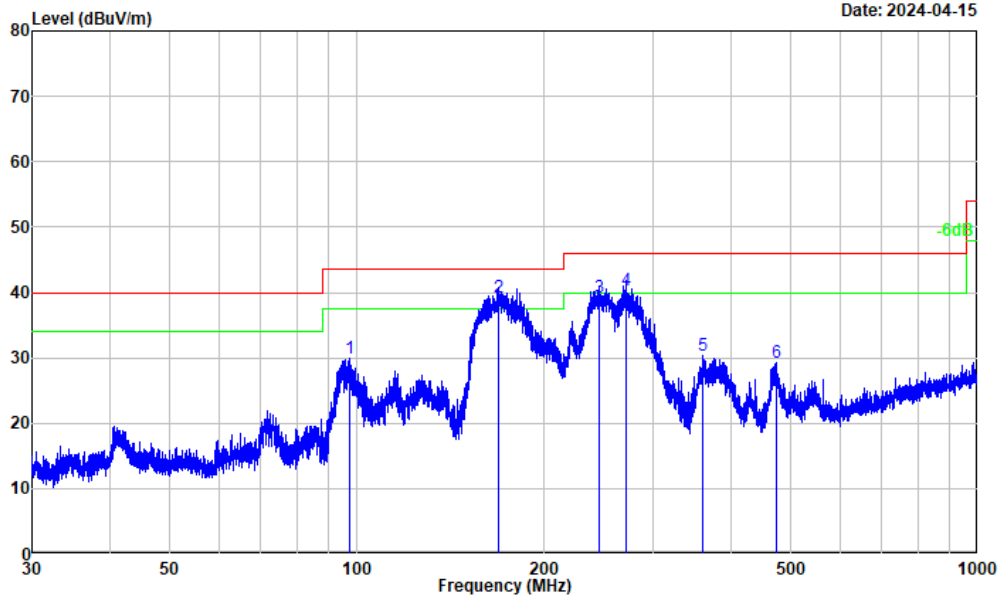
| | | | |
|-------------------------------|--------------------------------------------------------------------|-----------------|------------|
| Test Date: | 2024-04-15 | Test By: | Bard Huang |
| Environment condition: | Temperature: 23.4°C; Relative Humidity:66%; ATM Pressure: 100.3kPa | | |

For radiated emissions below 30MHz, there were no emissions found within 20dB of limit.

30MHz-1GHz:

| | | | |
|-------------------------------|--------------------------------------------------------------------|-----------------|------------|
| Test Date: | 2024-04-15 | Test By: | Bard Huang |
| Environment condition: | Temperature: 23.4°C; Relative Humidity:66%; ATM Pressure: 100.3kPa | | |





Project No. : RWAZ202300051
 Test Mode : transmitting
 Test Voltage : AC 120V/60Hz
 Environment : 23.4°C/66%R.H./100.3kPa
 Tested by : Bard Huang
 Polarization : vertical
 Remark : BLE 1M middle channel

| --No. | Frequency (MHz) | Reading (dBμV) | Factor (dB/m) | Result (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Detector |
|-------|-----------------|----------------|---------------|-----------------|----------------|-----------------|----------|
| 1 | 97.599 | 44.38 | -14.53 | 29.85 | 43.50 | -13.65 | Peak |
| 2 | 169.116 | 55.69 | -16.35 | 39.34 | 43.50 | -4.16 | QP |
| 3 | 246.016 | 51.69 | -12.49 | 39.20 | 46.00 | -6.80 | QP |
| 4 | 271.518 | 52.40 | -12.00 | 40.40 | 46.00 | -5.60 | QP |
| 5 | 360.086 | 39.87 | -9.57 | 30.30 | 46.00 | -15.70 | Peak |
| 6 | 472.960 | 37.23 | -7.95 | 29.28 | 46.00 | -16.72 | Peak |

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

Remark:

Result = Reading + Factor

Factor = Antenna factor + Cable loss – Amplifier gain

Over Limit = Result – Limit

Above 1GHz:

| | | | |
|-------------------------------|--------------------------------------------------------------------|-----------------|------------|
| Test Date: | 2024-03-04 | Test By: | Bard Huang |
| Environment condition: | Temperature: 22.5°C; Relative Humidity:59%; ATM Pressure: 100.7kPa | | |

| Frequency (MHz) | Reading level (dBμV) | Polar | Corrected Factor (dB/m) | Corrected Amplitude (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Remark |
|-----------------|----------------------|------------|-------------------------|------------------------------|----------------|-------------|---------|
| Low Channel | | | | | | | |
| 2390.000 | 36.51 | horizontal | 8.25 | 44.76 | 54.00 | -9.24 | Average |
| 2390.000 | 49.14 | horizontal | 8.25 | 57.39 | 74.00 | -16.61 | Peak |
| 2390.000 | 36.72 | vertical | 8.25 | 44.97 | 54.00 | -9.03 | Average |
| 2390.000 | 50.25 | vertical | 8.25 | 58.50 | 74.00 | -15.50 | Peak |
| 4804.000 | 49.94 | horizontal | 0.21 | 50.15 | 74.00 | -23.85 | Peak |
| 4804.000 | 49.09 | vertical | 0.21 | 49.30 | 74.00 | -24.70 | Peak |
| Middle Channel | | | | | | | |
| 4880.000 | 48.37 | horizontal | 0.44 | 48.81 | 74.00 | -25.19 | Peak |
| 4880.000 | 48.36 | vertical | 0.44 | 48.80 | 74.00 | -25.20 | Peak |
| High Channel | | | | | | | |
| 2483.517 | 37.65 | horizontal | 8.25 | 45.90 | 54.00 | -8.10 | Average |
| 2483.517 | 49.88 | horizontal | 8.25 | 58.13 | 74.00 | -15.87 | Peak |
| 2483.517 | 37.68 | vertical | 8.25 | 45.93 | 54.00 | -8.07 | Average |
| 2483.517 | 50.04 | vertical | 8.25 | 58.29 | 74.00 | -15.71 | Peak |
| 4960.000 | 48.12 | horizontal | 0.93 | 49.05 | 74.00 | -24.95 | Peak |
| 4960.000 | 48.43 | vertical | 0.93 | 49.36 | 74.00 | -24.64 | Peak |

Remark:

Corrected Amplitude= Reading level + corrected Factor

Corrected Factor = Antenna factor + Cable loss – Amplifier gain

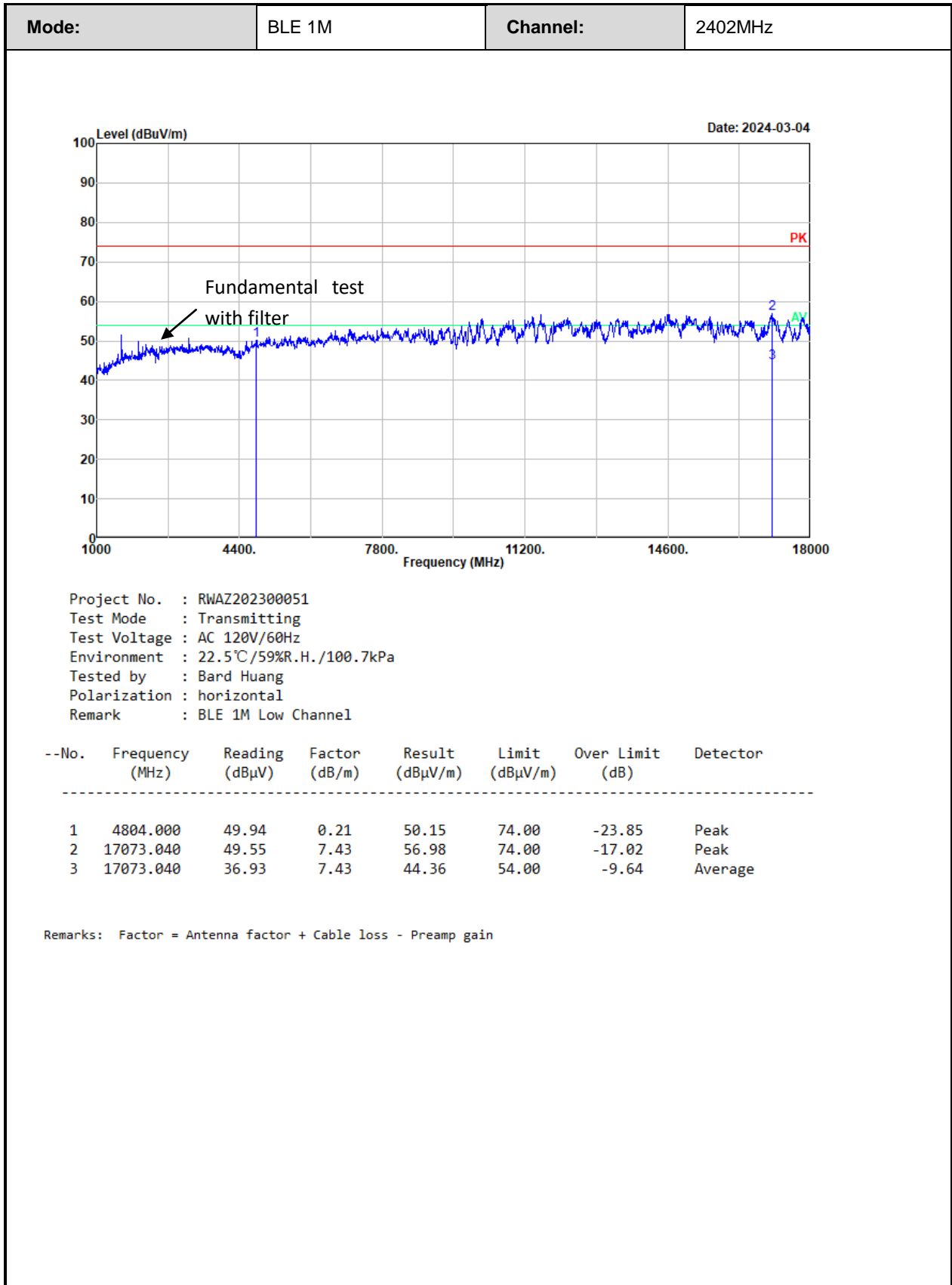
Margin = Corrected Amplitude – Limit

For the test result of Peak below the Peak limit more than 20dB, which can compliance with the average limit, just the Peak level was recorded.

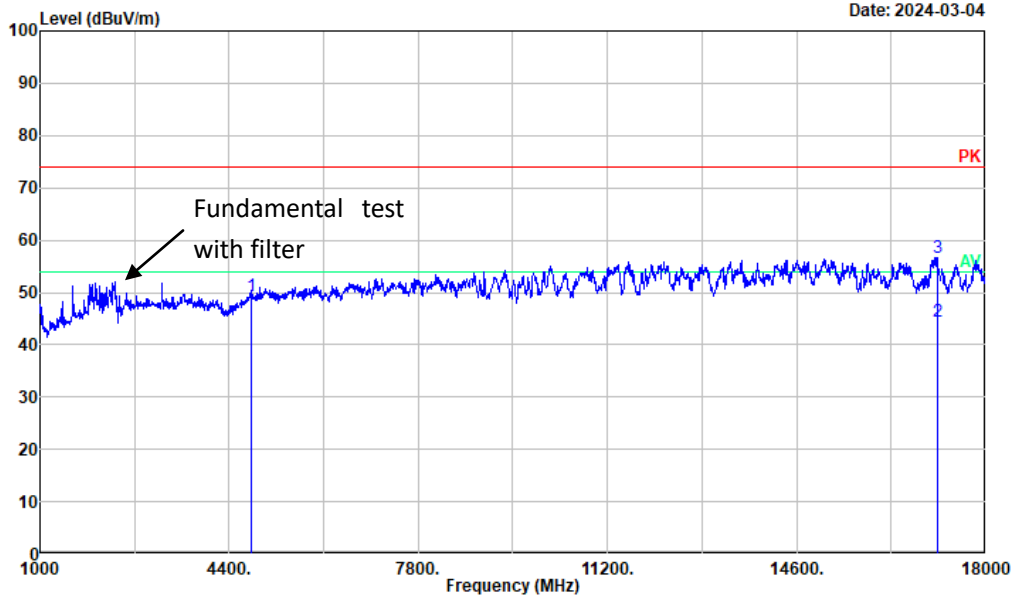
The emission levels of other frequencies that were lower than the limit 20dB not show in test report.

For emissions in 18GHz-25GHz range, all emissions were investigated and in the noise floor level.

Test plot for example as below:



| | | | |
|--------------|--------|-----------------|---------|
| Mode: | BLE 1M | Channel: | 2402MHz |
|--------------|--------|-----------------|---------|



Project No. : RWAZ202300051
 Test Mode : Transmitting
 Test Voltage : AC 120V/60Hz
 Environment : 22.5°C/59%R.H./100.7kPa
 Tested by : Bard Huang
 Polarization : vertical
 Remark : BLE 1M Low Channel

| --No. | Frequency (MHz) | Reading (dBμV) | Factor (dB/m) | Result (dBμV/m) | Limit (dBμV/m) | Over Limit (dB) | Detector |
|-------|-----------------|----------------|---------------|-----------------|----------------|-----------------|----------|
| 1 | 4804.000 | 49.09 | 0.21 | 49.30 | 74.00 | -24.70 | Peak |
| 2 | 17124.060 | 37.13 | 7.43 | 44.56 | 54.00 | -9.44 | Average |
| 3 | 17124.060 | 49.30 | 7.43 | 56.73 | 74.00 | -17.27 | Peak |

Remarks: Factor = Antenna factor + Cable loss - Preamp gain

3.5RF Conducted Test Data

| | | | |
|-------------------------------|---------------------------------------------------------------------|-----------------|-----------|
| Test Date: | 2024-03-05 | Test By: | Baylor Li |
| Environment condition: | Temperature: 25.8°C; Relative Humidity: 73%; ATM Pressure: 100.7kPa | | |

3.5.1 6 dB Emission Bandwidth and 99% Occupied Bandwidth

| Test Mode | Channel | 6dB BW [MHz] | 99% OBW[MHz] | 6dB BW Limit[MHz] | Verdict |
|-----------|---------|--------------|--------------|-------------------|---------|
| BLE 1M | 2402 | 0.608 | 1.032 | 0.5 | pass |
| | 2440 | 0.612 | 1.036 | 0.5 | pass |
| | 2480 | 0.604 | 1.036 | 0.5 | pass |

3.5.2 Maximum Conducted Peak Output Power

| Test Mode | Channel [MHz] | Result [dBm] | Limit [dBm] | EIRP [dBm] | EIRP Limit [dBm] | Verdict |
|-----------|---------------|--------------|-------------|------------|------------------|---------|
| BLE 1M | 2402 | 1.21 | 30 | 3.49 | 36 | Pass |
| | 2440 | 1.45 | 30 | 3.73 | 36 | Pass |
| | 2480 | 1.28 | 30 | 3.56 | 36 | Pass |

3.5.3 Power Spectral Density

| Test Mode | Channel [MHz] | Result [dBm/3kHz] | Limit [dBm/3kHz] | Verdict |
|-----------|---------------|-------------------|------------------|---------|
| BLE 1M | 2402 | 0.42 | 8 | Pass |
| | 2440 | 0.58 | 8 | Pass |
| | 2480 | 0.33 | 8 | Pass |

3.5.4 100 kHz Bandwidth of Frequency Band Edge

| Test Mode | Channel | Result | Limit | Verdict |
|-----------|---------|-----------------|-----------------|---------|
| BLE 1M | 2402 | Refer test plot | Refer test plot | Pass |
| | 2480 | Refer test plot | Refer test plot | Pass |

3.5.5 Duty Cycle

| Test Mode | Channel | Ton (ms) | Ton+off (ms) | Duty Cycle [%] | 1/T [kHz] | VBW setting* [Hz] |
|-----------|---------|----------|--------------|----------------|-----------|-------------------|
| BLE 1M | 2440 | 2.143 | 2.504 | 85.58 | 0.467 | 500 |

Note*: Radiated emission test with average value, the Spectrum analyzer VBW setting information.

Test Plots:

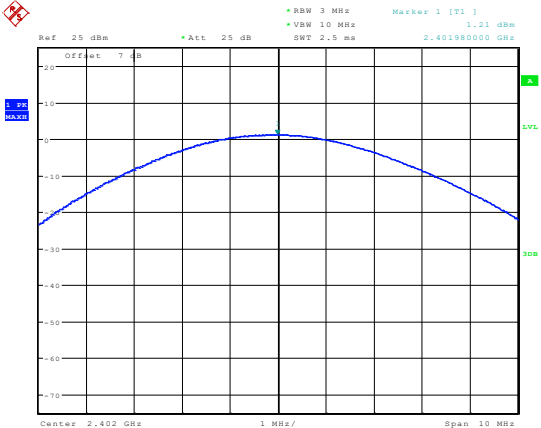
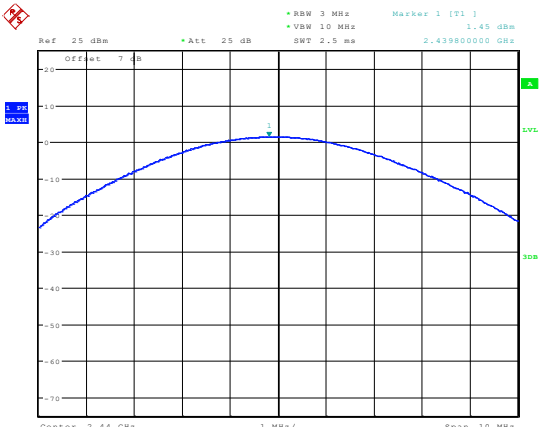
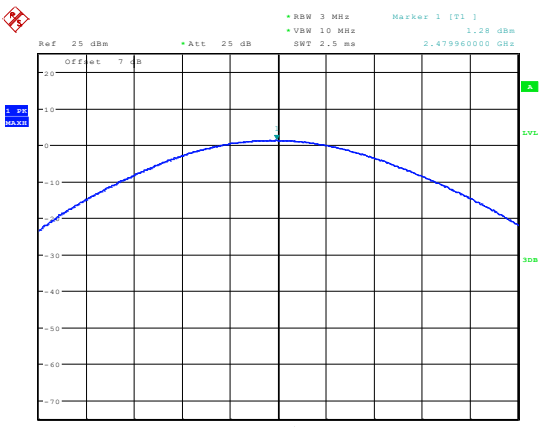
6 dB Emission Bandwidth:

| BLE 1M | / |
|----------------------------------|---|
| Lowest channel | / |
| <p>Date: 5.MAR.2024 14:02:41</p> | / |
| Middle channel | / |
| <p>Date: 5.MAR.2024 14:04:43</p> | / |
| High channel | / |
| <p>Date: 5.MAR.2024 14:06:45</p> | / |

99% Occupied Bandwidth:

| BLE 1M | / |
|----------------------------------|---|
| Lowest channel | / |
| <p>Date: 5.MAR.2024 14:02:52</p> | / |
| Middle channel | / |
| <p>Date: 5.MAR.2024 14:04:54</p> | / |
| High channel | / |
| <p>Date: 5.MAR.2024 14:06:56</p> | / |

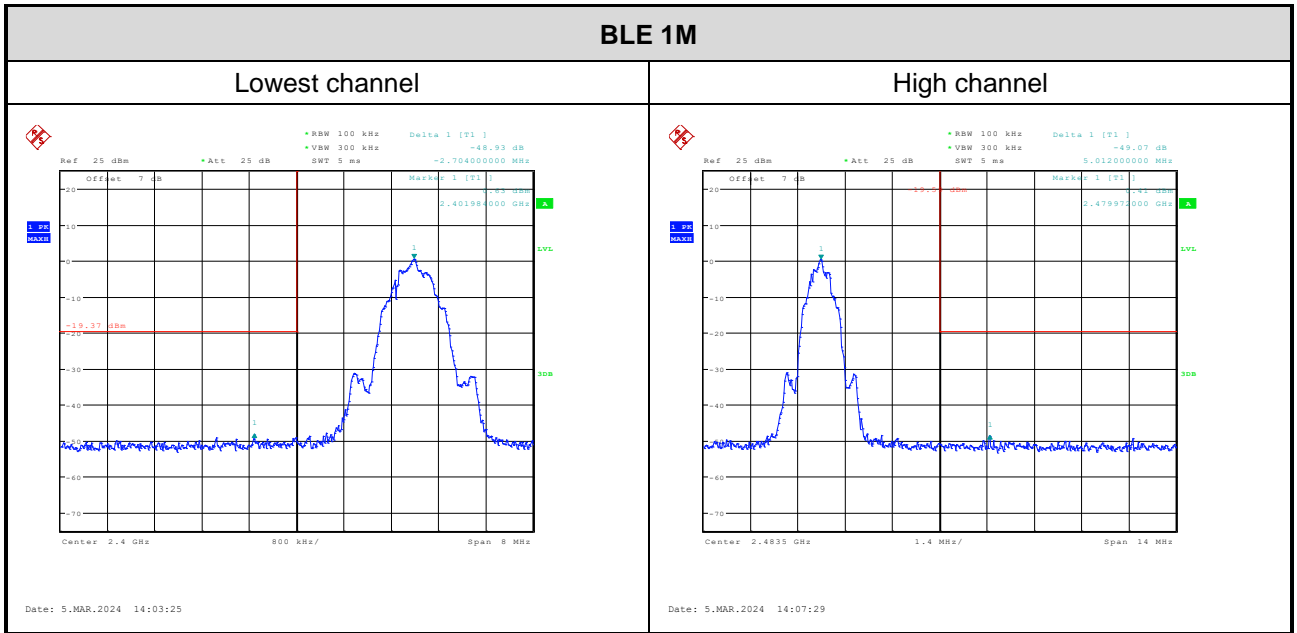
Maximum Conducted Peak Output Power:

| BLE 1M | / |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| Lowest channel | / |
|  <p>Ref: 25 dBm Att: 25 dB RBW: 3 MHz VSW: 10 MHz SWT: 2.5 ms Marker 1 [T1] 1.21 dBm 2.40198000 GHz</p> <p>Center: 2.402 GHz 1 MHz/ Span: 10 MHz</p> <p>Date: 5.MAR.2024 14:03:04</p> | / |
| Middle channel | / |
|  <p>Ref: 25 dBm Att: 25 dB RBW: 3 MHz VSW: 10 MHz SWT: 2.5 ms Marker 1 [T1] 1.45 dBm 2.43960000 GHz</p> <p>Center: 2.44 GHz 1 MHz/ Span: 10 MHz</p> <p>Date: 5.MAR.2024 14:05:07</p> | / |
| High channel | / |
|  <p>Ref: 25 dBm Att: 25 dB RBW: 3 MHz VSW: 10 MHz SWT: 2.5 ms Marker 1 [T1] 1.28 dBm 2.47996000 GHz</p> <p>Center: 2.48 GHz 1 MHz/ Span: 10 MHz</p> <p>Date: 5.MAR.2024 14:07:08</p> | / |

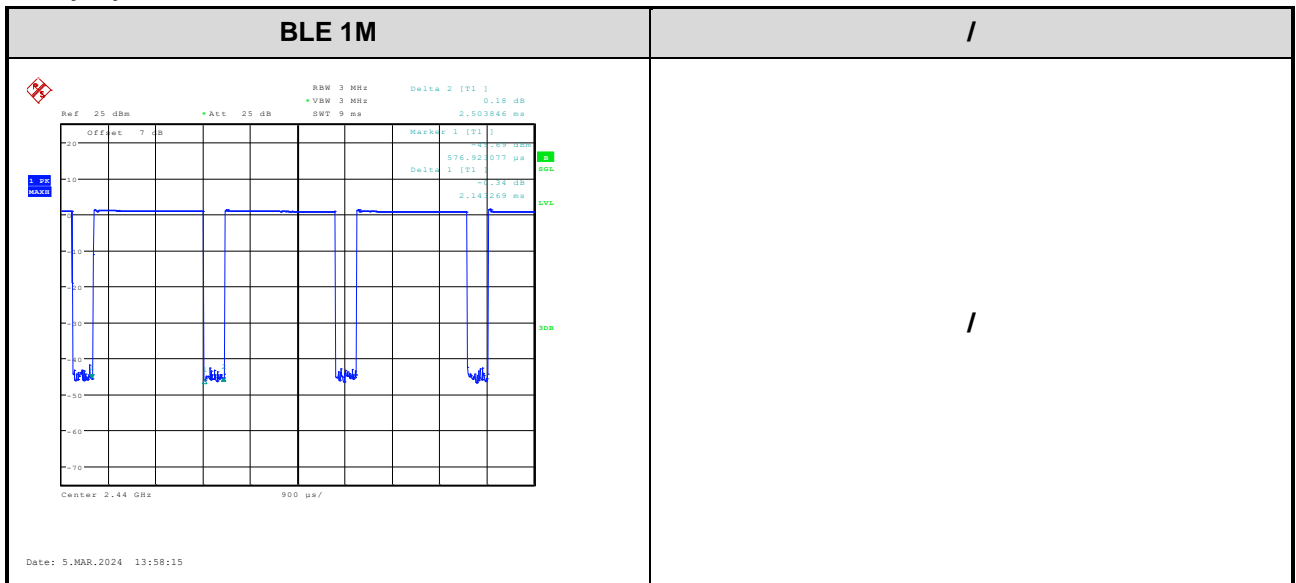
Power Spectral Density:

| BLE 1M | / |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| Lowest channel | / |
| <p>Ref: 25 dBm *Att: 25 dB Offset: 7 dB RBW: 3 kHz VBW: 10 kHz SWT: 105 ms Marker 1 [T1]: 0.42 dBm Center: 2.402 GHz Span: 912 kHz</p> <p>Date: 5.MAR.2024 14:03:14</p> | / |
| Middle channel | / |
| <p>Ref: 25 dBm *Att: 25 dB Offset: 7 dB RBW: 3 kHz VBW: 10 kHz SWT: 105 ms Marker 1 [T1]: 0.58 dBm Center: 2.44 GHz Span: 918 kHz</p> <p>Date: 5.MAR.2024 14:05:13</p> | / |
| High channel | / |
| <p>Ref: 25 dBm *Att: 25 dB Offset: 7 dB RBW: 3 kHz VBW: 10 kHz SWT: 105 ms Marker 1 [T1]: 0.33 dBm Center: 2.48 GHz Span: 906 kHz</p> <p>Date: 5.MAR.2024 14:07:15</p> | / |

100kHz Bandwidth of Frequency Band Edge:



Duty Cycle:



4 Test Setup Photo

Please refer to the attachment RWAZ202300051 Test Setup photo.

5 E.U.T Photo

Please refer to the attachment RWAZ202300051 External photo and RWAZ202300051 Internal photo.

---End of Report---