



FCC / ISED – TEST REPORT

Report Number : **60.790.24.016.01R02** Date of Issue: April 9, 2024

Model/HVIN : SBC-D09

Product Type : MasterMind T3

Applicant : Dayton Industrial Co., Ltd

Address : 2-12 Kwai Fat Road, 11-A Kwai Chung, New Territories, Hong Kong.

Production Facility : KENDY ELECRTONICS (DONGGUAN) CO., LTD.

Address : XIN SI HUANG TANG VILLAGE HENG LI TOWN, DONGGUAN CITY, GUANGDONG, CHINA.

Test Result : Positive Negative

Total pages including Appendices : 27

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2 Details about the Test Laboratory

Details about the Test Laboratory

Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12 & 13, Zhiheng Wisdomland Business Park, Guankou Erlu, Nantou, Nanshan District
Shenzhen 518052
P.R. China

Telephone: 86 755 8828 6998

Fax: 86 755 8828 5299

FCC Registration No.: 514049

FCC Deignation No.: CN5009

IC Registration No.: 10320A

ISED CAB Identifier: CN0077



3 Description of the Equipment Under Test

| | |
|--|---|
| Product: | MasterMind T3 |
| Model no.: | SBC-D09 |
| Hardware Version Identification No. (HVIN) | SBC-D09 |
| Product Marketing Name (PMN) | MasterMind T3 |
| Brand name: | N/A |
| FCC ID: | O4GT3A |
| IC: | 7666A-T3 |
| Rating: | 12.0 VDC (Powered by Bike Battery) Or 5.0 VDC (Powered by USB Port) |
| RF Transmission Frequency: | 2457MHz |
| No. of Operated Channel: | 1 |
| Modulation: | GFSK |
| Antenna Type: | Rod Antenna |
| Antenna | Gain: 0 dBi |
| Description of the EUT: | The Equipment Under Test (EUT) is a MasterMind T3 which support Bluetooth (BLE) function and Ant+ function. Only ANT+ Function included in this report. |

NOTE:

1. The above EUT's information is declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

4 Summary of Test Standards

| Test Standards | |
|--|---|
| FCC Part 15 Subpart C 10-1-2021 Edition | PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators |
| RSS-Gen Issue 5 April 2018 + Amendment 1 March 2019 + Amendment 2 February 2021 | General Requirements for Compliance of Radio Apparatus |
| RSS-210 Issue 10 December 2019 + Amendment April 2020 | Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment |

All the test methods were according to ANSI C63.10-2013.



5 Summary of Test Results

| Technical Requirements | | | | | | |
|---|---|-------------|-------------------------------------|--------------------------|--------------------------|-----------------------|
| FCC Part 15 Subpart C/ RSS-210 Issue 10 + AMD / RSS-Gen Issue 5 + A1 + A2 | | | | | | |
| Test Condition | Test Site | Test Result | | | Test Environment | |
| | | Pass | Fail | N/A | | |
| §15.207 & RSS-GEN 8.8 | Conducted emission AC power port | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | T: 24.8°C H: 53.7% |
| §15.215 & RSS-GEN 6.7 | 20dB bandwidth and 99% Occupied Bandwidth | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | T: 24.8°C H: 53.7% |
| §15.249 & §15.209 & §15.205 & RSS-210 B.10 & RSS-Gen 6.13 | Radiated Emissions | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | T: 24.7°C H: 49.3% |
| §15.203 & RSS-Gen 6.8 | Antenna requirement | See note 2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | -- |

Note 1: N/A=Not Applicable.

Note 2: The EUT uses a rod antenna, which gain is 0 dBi. In accordance to §15.203 & RSS-Gen 6.8, it is considered sufficiently to comply with the provisions of this section.

Note 3: T :Temperature, H: Humidity



6 General Remarks

Remarks

This submittal(s) (test report) is intended for **FCC ID: O4GT3A**, **IC: 7666A-T3**, complies with Section 15.207, 15.209, 15.249 of the FCC Part 15, Subpart C rules and RSS-210, RSS-GEN.

SUMMARY:

All tests according to the regulations cited on page 5 were

n - Performed

o - **Not** Performed

The Equipment under Test

n - **Fulfills** the general approval requirements.

o - **Does not** fulfill the general approval requirements.

Sample Received Date: March 27, 2024

Testing Start Date: March 27, 2024

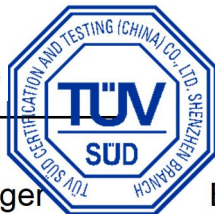
Testing End Date: April 9, 2024

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch -

Reviewed by:

Prepared by:

Tested by:



Eric LI
Section Manager

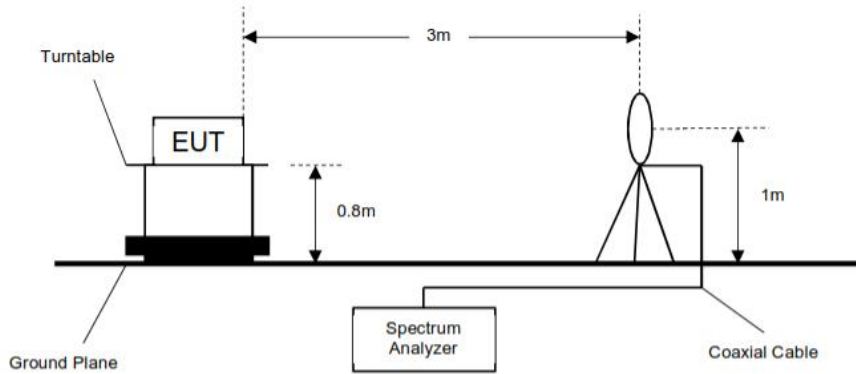
Kevin DU
EMC Project Engineer

Louise LIU
EMC Test Engineer

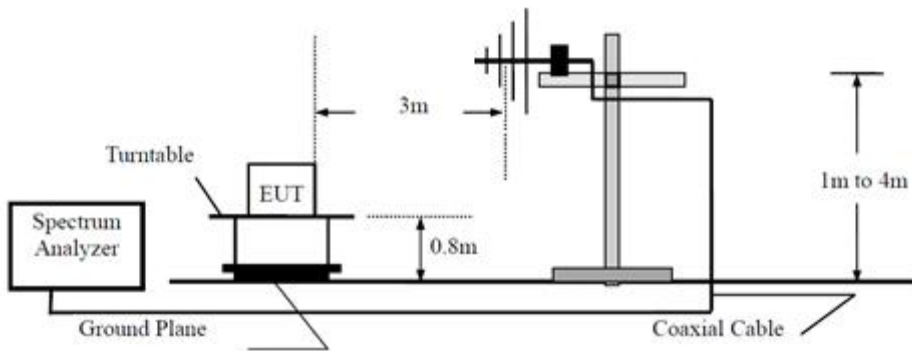
7 Test Setups

7.1 Radiated test setups

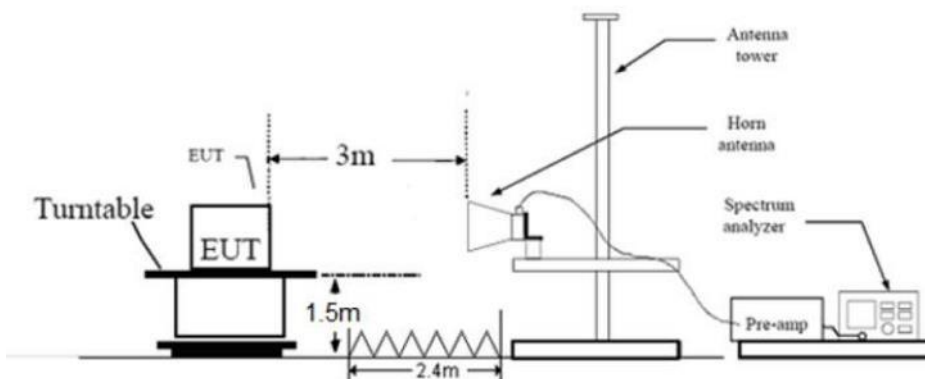
9kHz - 30MHz



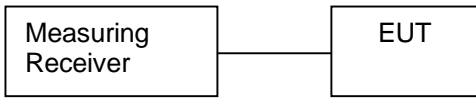
30MHz - 1GHz



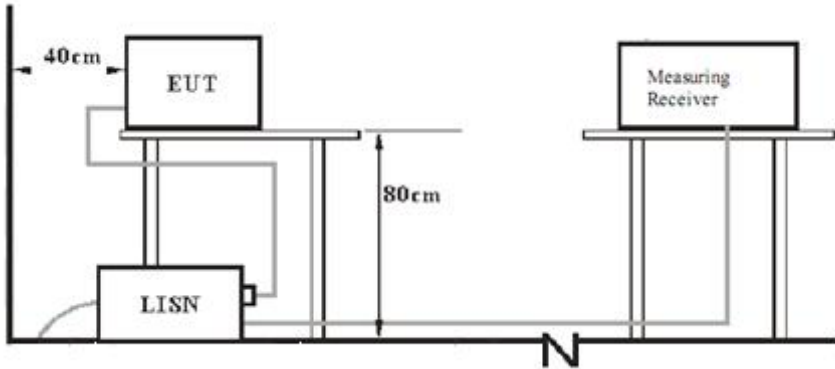
Above 1GHz



7.2 Conducted RF test setups



7.3 AC Power Line Conducted Emission test setups



8 Systems Test Configuration

Auxiliary Equipment Used during Test:

| Description | Manufacturer | Model NO. | Remark |
|-----------------------|--------------|-----------|-----------------------|
| Laptop | Lenovo | X220 | 0A72168 |
| Adaptor | Apple | A1357 | -- |
| RF Test Mode Software | nRFgo | 1.16 | Provided by applicant |

Cables Used During Test:

| Cable | Length | Shielded/unshielded | With / without ferrite |
|-------|--------|---------------------|------------------------|
| --- | --- | --- | --- |

The system was configured to non-hopping mode, testing with the Single Channel.

Non-hopping mode: The system was configured to operate at a signal channel transmitting. The test software allows the configuration and operation at the worst-case duty and the highest transmit power.

The transmitter rate 1Mbps and 2Mbps mode are tested, only the worst case transmitter rate data mode is recorded in the report.



9 Technical Requirement

9.1 Conducted Emission

Test Method

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. Both sides of AC line were checked for maximum conducted interference.
6. The frequency range from 150 kHz to 30 MHz was searched.
7. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

Limit

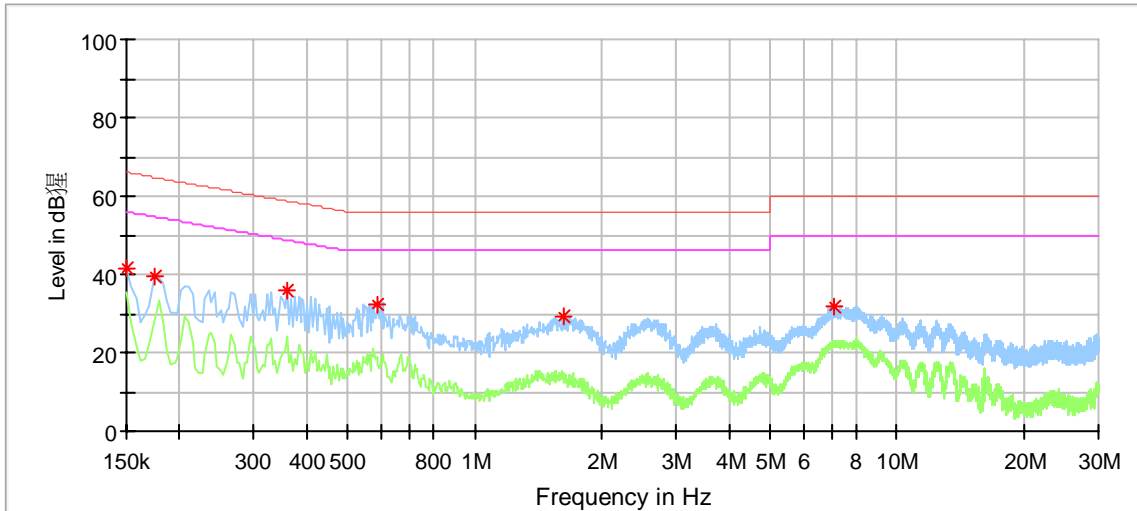
According to §15.207 & RSS-GEN 8.8, conducted emissions limit as below:

| Frequency MHz | QP Limit dBµV | AV Limit dBµV |
|------------------|------------------|------------------|
| 0.150-0.500 | 66-56* | 56-46* |
| 0.500-5 | 56 | 46 |
| 5-30 | 60 | 50 |

*Decreasing linearly with logarithm of the frequency

Conducted Emission

Product Type : MasterMind T3
 M/N : SBC-D09
 Operating Condition : Normal Working
 Test Specification : Line
 Comment : AC 120V/60Hz



Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Line | Corr. (dB) |
|-----------------|----------------|----------------|--------------|-------------|------|------------|
| 0.150000 | 41.64 | --- | 66.00 | 24.36 | L1 | 9.52 |
| 0.174000 | 39.49 | --- | 64.77 | 25.27 | L1 | 9.54 |
| 0.358000 | 35.77 | --- | 58.78 | 23.01 | L1 | 9.57 |
| 0.590000 | 32.11 | --- | 56.00 | 23.89 | L1 | 9.60 |
| 1.618000 | 29.48 | --- | 56.00 | 26.52 | L1 | 9.61 |
| 7.062000 | 31.77 | --- | 60.00 | 28.23 | L1 | 9.84 |

Remark:

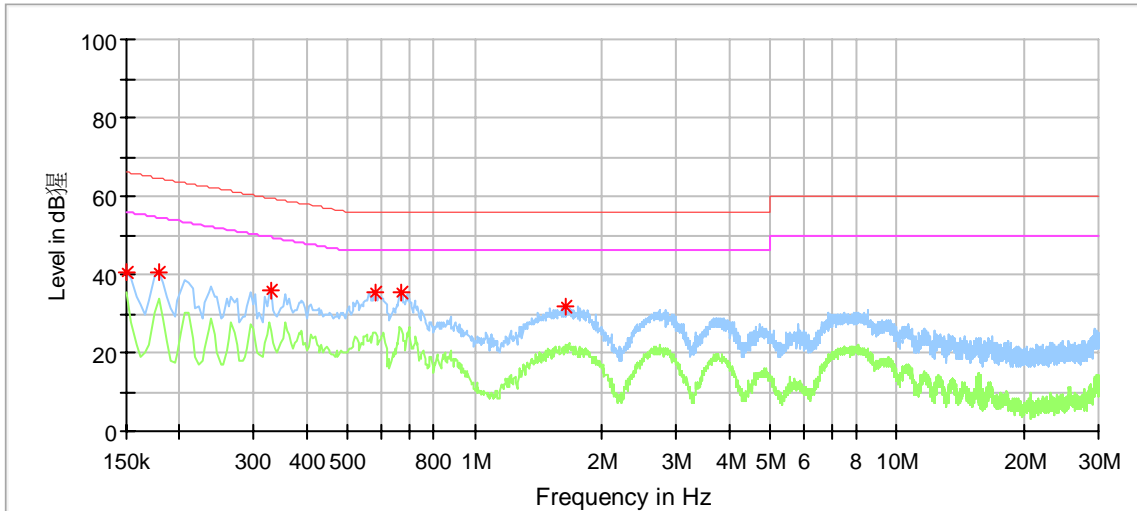
Max Peak= Read level + Corrector factor

Correct factor=cable loss + LISN factor

(The Reading Level is recorded by software which is not shown in the sheet)

Conducted Emission

Product Type : MasterMind T3
 M/N : SBC-D09
 Operating Condition : Normal Working
 Test Specification : Neutral
 Comment : AC 120V/60Hz



Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV) | Average (dBµV) | Limit (dBµV) | Margin (dB) | Line | Corr. (dB) |
|-----------------|----------------|----------------|--------------|-------------|------|------------|
| 0.150000 | 40.47 | --- | 66.00 | 25.53 | N | 9.55 |
| 0.178000 | 40.55 | --- | 64.58 | 24.02 | N | 9.57 |
| 0.330000 | 35.70 | --- | 59.45 | 23.75 | N | 9.60 |
| 0.582000 | 35.45 | --- | 56.00 | 20.55 | N | 9.63 |
| 0.670000 | 35.42 | --- | 56.00 | 20.58 | N | 9.63 |
| 1.642000 | 31.83 | --- | 56.00 | 24.17 | N | 9.64 |

Remark:

Max Peak= Read level + Corrector factor

Correct factor=cable loss + LISN factor

(The Reading Level is recorded by software which is not shown in the sheet)



9.2 20 dB Bandwidth

Test Method

1. The RF output of EUT was connected to the spectrum analyzer. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting, the instrument center frequency is set to the nominal EUT channel center frequency enable the EUT transmit continuously.
3. Use the following spectrum analyzer settings:
RBW=100KHz, VBW≥3RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Use the automatic bandwidth measurement capability of an instrument, use the X dB bandwidth mode with X set to 20 dB.
5. Allow the trace to stabilize, record the 6 dB Bandwidth value.

Limit

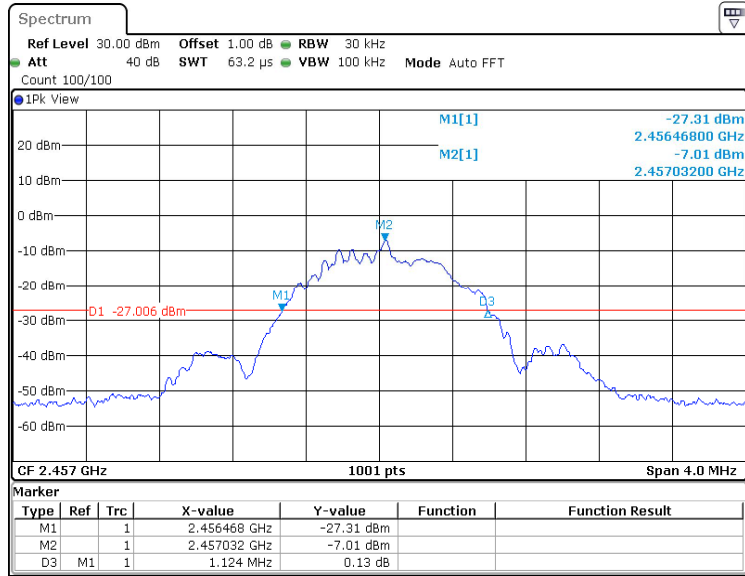
Limit [kHz]

Test result

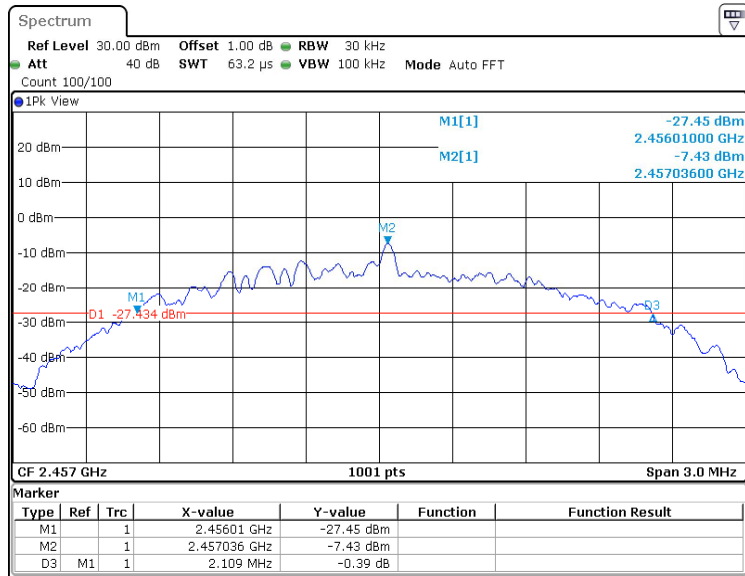
| Frequency MHz | Mode | 20dB bandwidth MHz | Result |
|------------------|--------|--------------------------|--------|
| 2457 MHz | 1M bps | 1.124 | Pass |
| 2457 MHz | 2M bps | 2.109 | Pass |

Test Graphs as below:

1M ANT+_Ant0_2457



2M ANT+_Ant0_2457





9.3 99% bandwidth

Test Method of 99% Bandwidth

1. Set center frequency to the nominal EUT channel center frequency
2. Set span = 1.5 times to 5.0 times the OBW. Set RBW = 1 % to 5 % of the OBW
Set VBW ≥ 3 RBW Trace mode = max hold. Sweep = auto couple.
Allow the trace to stabilize.
3. Use the 99 % power bandwidth function of the instrument.
4. Record the results in the test report.

Limit

Limit [kHz]

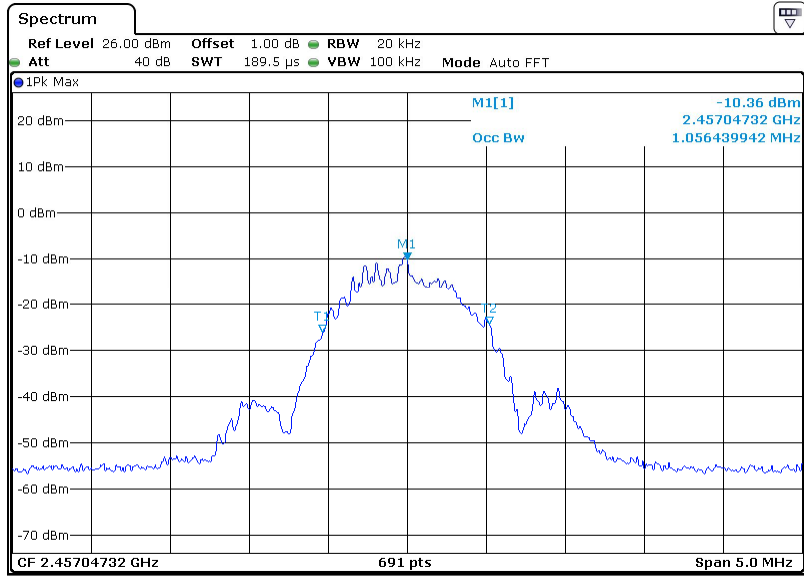
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Test result

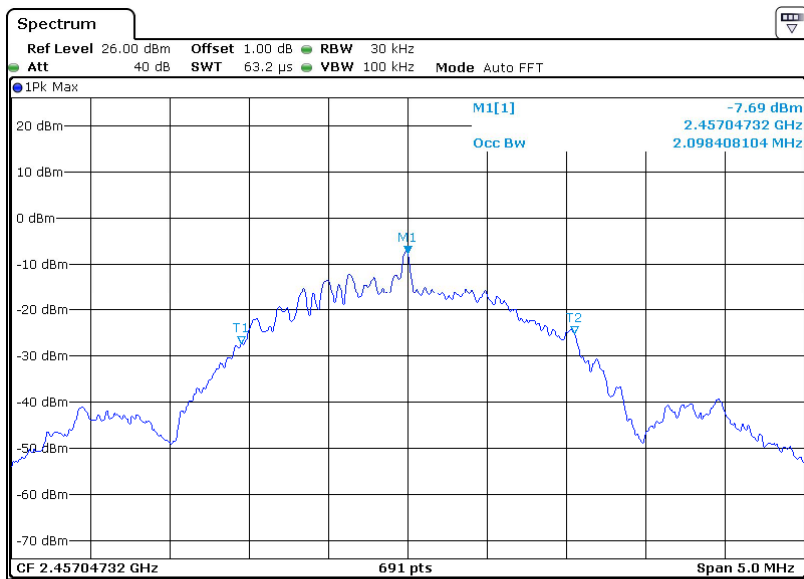
| Frequency MHz | Mode | 99% bandwidth MHz | Result |
|------------------|--------|----------------------|--------|
| 2457 MHz | 1 Mbps | 1.056 | Pass |
| 2457 MHz | 2 Mbps | 2.098 | Pass |

Test Graphs as below:

1M ANT+_Ant0_2457



2M ANT+_Ant0_2457



9.4 Radiated Emissions

Test Method

1. The EUT was placed on a turn table which is 1.5m above ground plane for above 1GHz and 0.8m above ground for below 1GHz at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference – receiving antenna, which was mounted on the top of a variable – height antenna tower.
3. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. Use the following spectrum analyzer settings According to C63.10:

Procedure for Unwanted Emissions Measurements Below 1000 MHz

Span = wide enough to capture the peak level of the in-band emission and all spurious
 RBW = 100 KHz to 120KHz, VBW ≥ RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

For Peak unwanted emissions Above 1GHz:

Span = wide enough to capture the peak level of the in-band emission and all spurious
 RBW = 1MHz, VBW ≥ RBW for peak measurement, Sweep = auto, Detector function = peak, Trace = max hold.

Procedures for average unwanted emissions measurements above 1000 MHz

- a) RBW = 1MHz.
- b) VBW \ [3 × RBW].
- c) Detector = RMS (power averaging), if [span / (# of points in sweep)] \ RBW / 2. Satisfying this condition can require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, then the detector mode shall be set to peak.
- d) Averaging type = power (i.e., rms) (As an alternative, the detector and averaging type may be set for linear voltage averaging. Some instruments require linear display mode to use linear voltage averaging. Log or dB averaging shall not be used.)
- e) Sweep time = auto.
- f) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, then the number of traces shall be increased by a factor of 1 / D, where D is the duty cycle. For example, with 50% duty cycle, at least 200 traces shall be averaged. (If a specific emission is demonstrated to be continuous—i.e., 100% duty cycle—then rather than turning ON and OFF with the transmit cycle, at least 100 traces shall be averaged.)
- g) If tests are performed with the EUT transmitting at a duty cycle less than 98%, then a correction factor shall be added to the measurement results prior to comparing with the emission limit, to compute the emission level that would have been measured had the test been performed at 100% duty cycle. The correction factor is computed as follows:



- 1) If power averaging (rms) mode was used in the preceding step e), then the correction factor is $[10 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB shall be added to the measured emission levels.
- 2) If linear voltage averaging mode was used in the preceding step e), then the correction factor is $[20 \log (1 / D)]$, where D is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB shall be added to the measured emission levels.
- 3) If a specific emission is demonstrated to be continuous (100% duty cycle) rather than turning ON and OFF with the transmit cycle, then no duty cycle correction is required for that emission(AV) at frequency above 1GHz.

Limit

According to §15.249 (a) & RSS-210 B.10, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

| Fundamental frequency | Field strength of fundamental (millivolts/meter) | Field strength of harmonics (microvolts/meter) |
|-----------------------|--|--|
| 902–928 MHz | 50 | 500 |
| 2400–2483.5 MHz | 50 | 500 |
| 5725–5875 MHz | 50 | 500 |
| 24.0–24.25 GHz | 250 | 2500 |

According to §15.249 (c) & RSS-GEN 8.9, Field strength limits are specified at 3 meters distance. According to §15.249 (d) & RSS-GEN, Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209 & RSS-GEN 8.9, whichever is the lesser attenuation.

According to §15.205 Unwanted emissions falling into restricted bands in §15.205 (a) & RSS-GEN 8.10 shall comply with the limits specified in §15.209 & RSS-GEN 8.9.

| Frequency MHz | Field Strength uV/m | Field Strength dBµV/m | Detector |
|---------------|---------------------|-----------------------|----------|
| 30-88 | 100 | 40 | QP |
| 88-216 | 150 | 43.5 | QP |
| 216-960 | 200 | 46 | QP |
| 960-1000 | 500 | 54 | QP |
| Above 1000 | 500 | 54 | AV |
| Above 1000 | 5000 | 74 | PK |

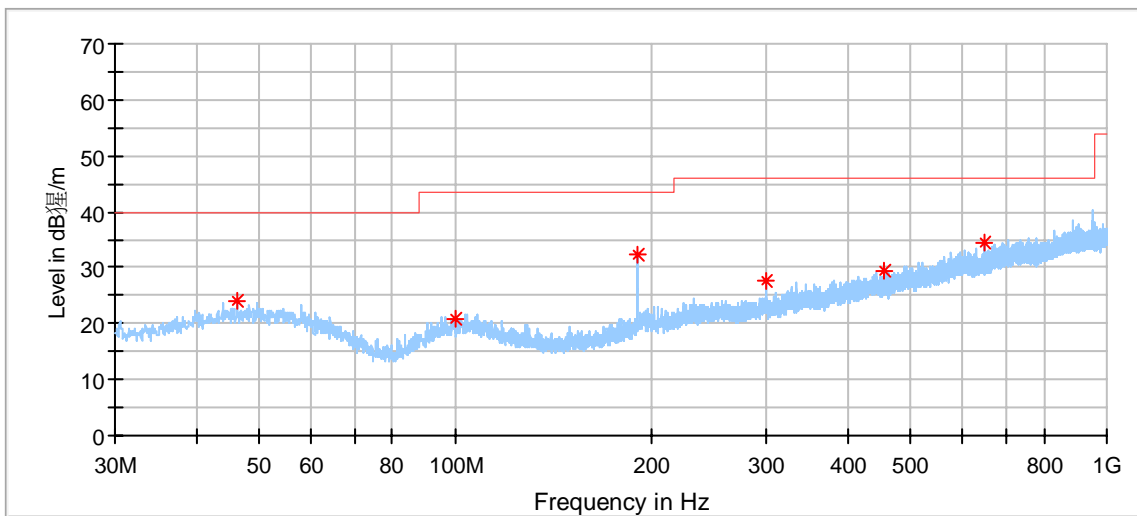
Spurious radiated emissions for transmitter

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

The only worse case (1 Mbps) test result is listed in the report.

Transmitting spurious emission test result as below:

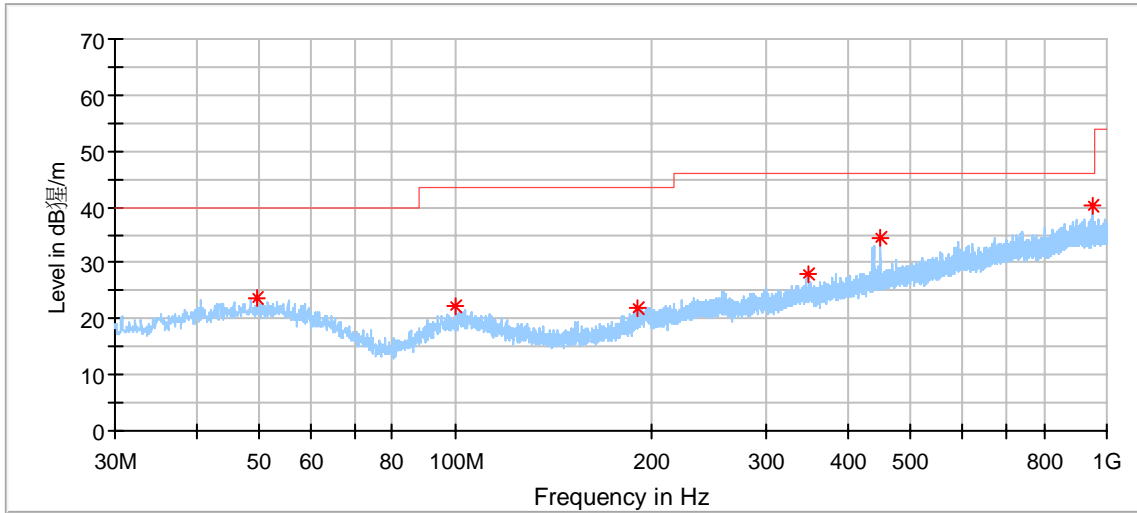
Test data_30MHz to 1000MHz
ANT+ 1 Mbps



Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 46.220556 | 23.99 | 40.00 | 16.01 | 100.0 | H | 114.0 | 18.27 |
| 100.001667 | 20.92 | 43.50 | 22.58 | 100.0 | H | 9.0 | 15.81 |
| 190.642778 | 32.28 | 43.50 | 11.22 | 100.0 | H | 156.0 | 15.32 |
| 299.228889 | 27.49 | 46.00 | 18.51 | 100.0 | H | 56.0 | 18.21 |
| 456.207222 | 29.51 | 46.00 | 16.49 | 100.0 | H | 189.0 | 21.74 |
| 647.836111 | 34.35 | 46.00 | 11.65 | 100.0 | H | 0.0 | 25.00 |

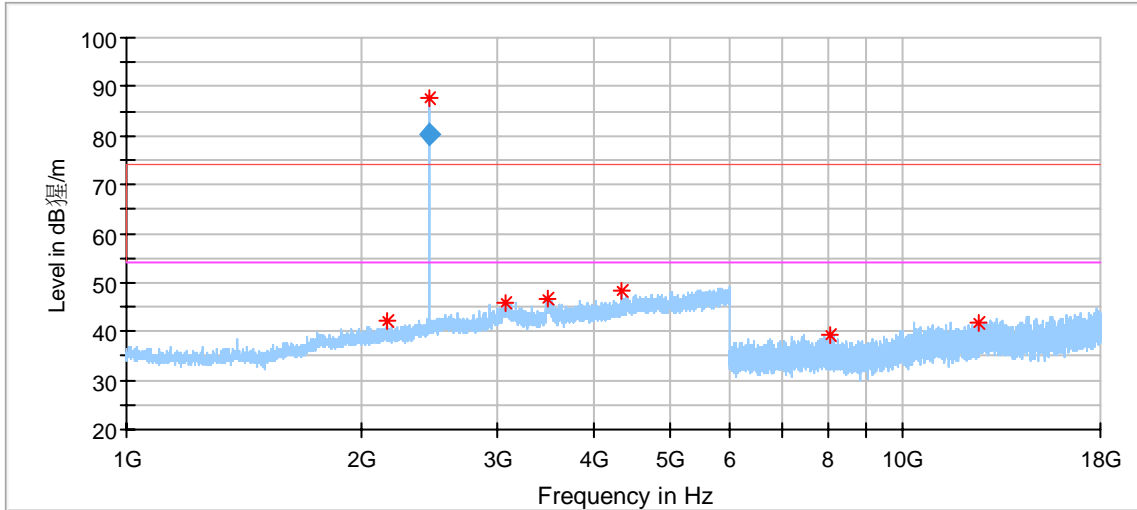
Test data_30MHz to 1000MHz
ANT+ 1 Mbps



Critical_Freqs

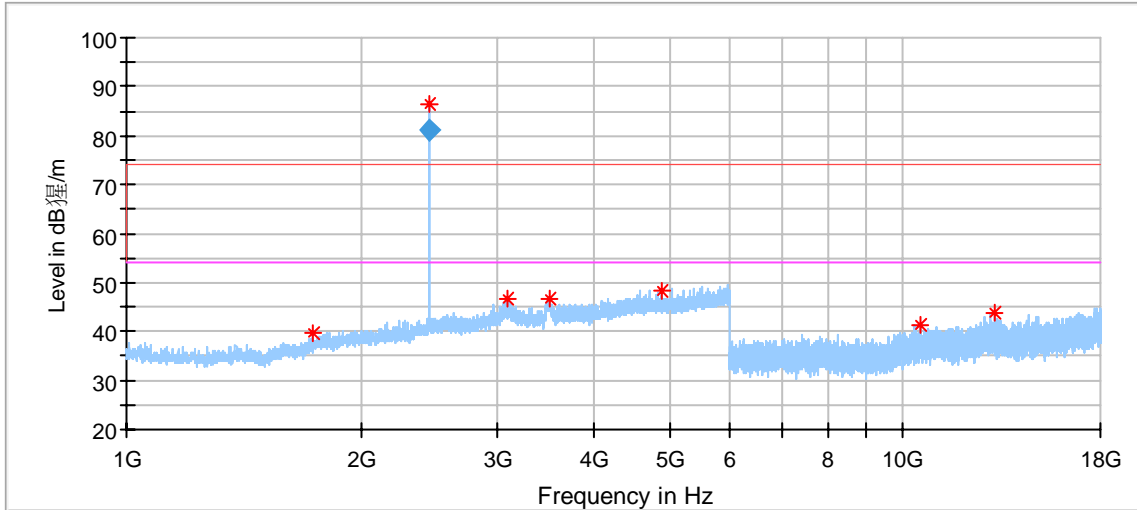
| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 49.561667 | 23.71 | 40.00 | 16.29 | 100.0 | V | 212.0 | 18.17 |
| 100.109444 | 22.36 | 43.50 | 21.14 | 100.0 | V | 56.0 | 15.82 |
| 190.535000 | 21.85 | 43.50 | 21.65 | 100.0 | V | 166.0 | 15.30 |
| 346.812778 | 28.00 | 46.00 | 18.00 | 100.0 | V | 353.0 | 19.79 |
| 448.608889 | 34.63 | 46.00 | 11.37 | 100.0 | V | 0.0 | 21.64 |
| 954.463889 | 40.12 | 46.00 | 5.88 | 100.0 | V | 148.0 | 29.13 |

Test data 1GHz to 18GHz:
ANT+ 1 Mbps



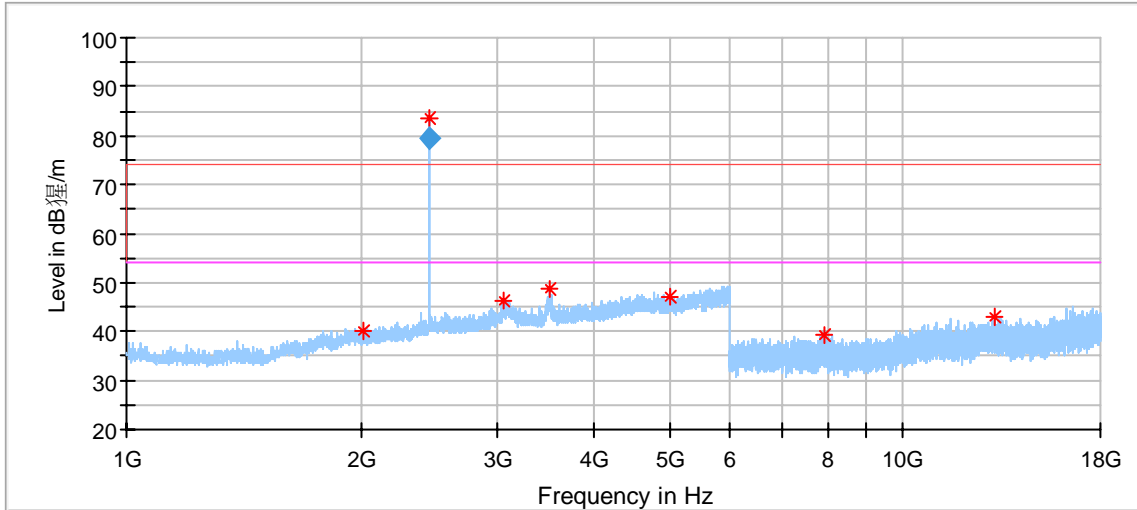
| Frequency MHz | Result dBµV/m | Limit dBµV/m | Margin dB | Detector PK/QP/AV | Corr. (dB) | Pol | RSE. or Fund. |
|--------------------|---------------|---------------|--------------|-------------------|--------------|----------|--------------------|
| 2160.500000 | 42.25 | 74.00 | 31.75 | Peak | -4.55 | H | Spurious emission |
| 2457.000000 | 87.77 | 114.00 | 26.23 | Peak | -2.79 | H | Fundamental |
| 2457.000000 | 80.22 | 94.00 | 13.78 | AV | -2.79 | H | Fundamental |
| 3073.000000 | 45.83 | 74.00 | 28.17 | Peak | 0.54 | H | Spurious emission |
| 3491.000000 | 46.58 | 74.00 | 27.42 | Peak | 2.27 | H | Spurious emission |
| 4346.000000 | 48.21 | 74.00 | 25.79 | Peak | 1.73 | H | Spurious emission |
| 8049.500000 | 39.35 | 74.00 | 34.65 | Peak | 6.63 | H | Spurious emission |
| 12531.500000 | 41.55 | 74.00 | 32.45 | Peak | 11.35 | H | Spurious emission |

Test data 1GHz to 18GHz:
ANT+ 1 Mbps



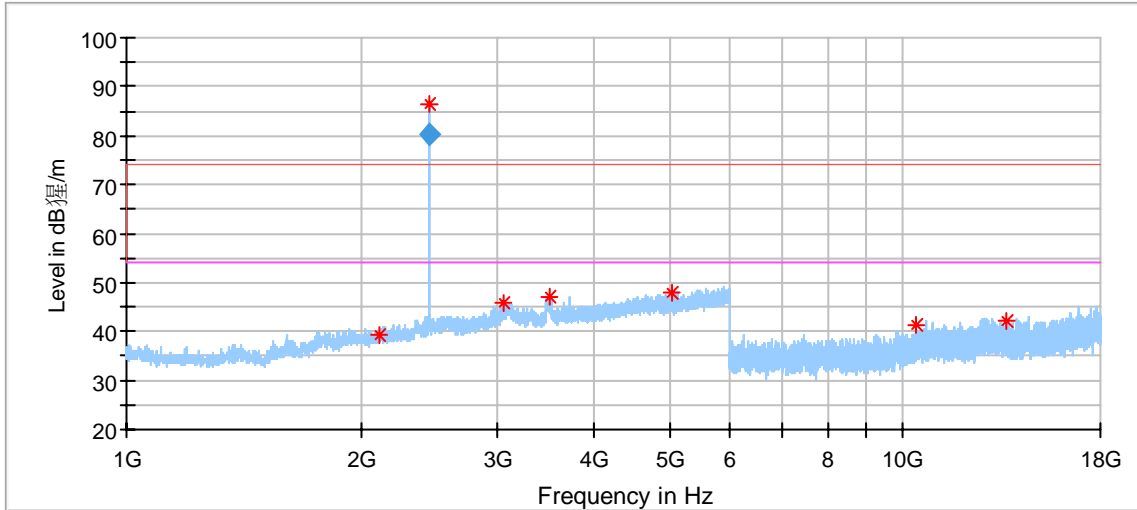
| Frequency MHz | Result dBµV/m | Limit dBµV/m | Margin dB | Detector PK/QP/AV | Corr. (dB) | Pol | RSE. or Fund. |
|--------------------|---------------|---------------|--------------|-------------------|--------------|----------|--------------------|
| 1735.500000 | 39.84 | 74.00 | 34.16 | Peak | -6.95 | V | Spurious emission |
| 2457.000000 | 86.31 | 114.00 | 27.69 | Peak | -2.79 | V | Fundamental |
| 2457.000000 | 81.32 | 94.00 | 12.68 | AV | -2.79 | V | Fundamental |
| 3089.000000 | 46.83 | 74.00 | 27.17 | Peak | 0.61 | V | Spurious emission |
| 3502.000000 | 46.56 | 74.00 | 27.44 | Peak | 2.82 | V | Spurious emission |
| 4905.500000 | 48.51 | 74.00 | 25.49 | Peak | 3.22 | V | Spurious emission |
| 10522.500000 | 41.29 | 74.00 | 32.71 | Peak | 9.27 | V | Spurious emission |
| 13131.000000 | 43.64 | 74.00 | 30.36 | Peak | 11.73 | V | Spurious emission |

Test data 1GHz to 18GHz:
ANT+ 2 Mbps



| Frequency MHz | Result dBµV/m | Limit dBµV/m | Margin dB | Detector PK/QP/AV | Corr. (dB) | Pol | RSE. or Fund. |
|--------------------|---------------|---------------|--------------|-------------------|--------------|----------|--------------------|
| 2021.000000 | 40.12 | 74.00 | 33.88 | Peak | -5.05 | H | Spurious emission |
| 2457.000000 | 83.61 | 114.00 | 30.39 | Peak | -2.79 | H | Fundamental |
| 2457.000000 | 79.58 | 94.00 | 14.42 | AV | -2.79 | H | Fundamental |
| 3063.500000 | 46.21 | 74.00 | 27.79 | Peak | 0.55 | H | Spurious emission |
| 3503.000000 | 48.82 | 74.00 | 25.18 | Peak | 2.76 | H | Spurious emission |
| 5014.500000 | 47.16 | 74.00 | 26.84 | Peak | 3.40 | H | Spurious emission |
| 7937.500000 | 39.35 | 74.00 | 34.65 | Peak | 6.45 | H | Spurious emission |
| 13154.000000 | 43.04 | 74.00 | 30.96 | Peak | 11.71 | H | Spurious emission |

Test data 1GHz to 18GHz:
ANT+ 2 Mbps



| Frequency MHz | Result dBµV/m | Limit dBµV/m | Margin dB | Detector PK/QP/AV | Corr. (dB) | Pol | RSE. or Fund. |
|--------------------|---------------|---------------|--------------|-------------------|--------------|----------|--------------------|
| 2111.000000 | 39.32 | 74.00 | 34.68 | Peak | -4.97 | V | Spurious emission |
| 2457.000000 | 86.37 | 114.00 | 27.63 | Peak | -2.79 | V | Fundamental |
| 2457.000000 | 80.11 | 94.00 | 13.89 | AV | -2.79 | V | Fundamental |
| 3051.000000 | 45.91 | 74.00 | 28.09 | Peak | 0.55 | V | Spurious emission |
| 3514.500000 | 46.94 | 74.00 | 27.06 | Peak | 2.10 | V | Spurious emission |
| 5034.000000 | 47.88 | 74.00 | 26.12 | Peak | 3.39 | V | Spurious emission |
| 10436.500000 | 41.16 | 74.00 | 32.84 | Peak | 9.26 | V | Spurious emission |
| 13606.500000 | 42.16 | 74.00 | 31.84 | Peak | 11.31 | V | Spurious emission |

Remark:

- (1) Data of measurement within frequency range 9kHz-30MHz, 18-26GHz are the noise floor or attenuated more than 20dB below the permissible limits or the field strength is too small to be measured, so test data does not present in this report.
- (2) We test the operated channel only and the worst case recorded in this report.
- (3) Corrected Amplitude = Read level + Corrector factor
 Above 1GHz: Corrector factor = Antenna Factor + Cable Loss- Amplifier Gain
 Below 1GHz: Corrector factor = Antenna Factor + Cable Loss
 (The Reading Level is recorded by software which is not shown in the sheet)

10 Test Equipment List

Radiated Emission Test 1# (9kHz – 1GHz)

| DESCRIPTION | MANUFACTURER | MODEL NO. | EQUIPMENT ID | SERIAL NO. | CAL. DUE DATE |
|-------------------------------------|-----------------|-------------------|--------------------|-----------------|---------------|
| EMI Test Receiver | Rohde & Schwarz | ESR 26 | 68-4-74-14-002 | 101269 | 2024-5-20 |
| Trilog Super Broadband Test Antenna | Schwarzbeck | VULB 9162 | 68-4-80-19-003 | 284 | 2024-3-5 |
| Loop Antenna | Rohde & Schwarz | HFH2-Z2 | 68-4-80-14-006 | 100398 | 2024-8-7 |
| Pre-amplifier | Rohde & Schwarz | SCU 18F | 68-4-29-19-001 | 100745 | 2024-5-19 |
| Sideband Horn Antenna | Q-PAR | QWH-SL-18-40-K-SG | 68-4-80-14-008 | 12827 | 2024-7-11 |
| Pre-amplifier | Rohde & Schwarz | SCU 40A | 68-4-29-14-002 | 100432 | 2024-8-1 |
| Attenuator | Mini-circuits | UNAT-6+ | 68-4-81-21-002 | 15542 | 2024-5-19 |
| 3m Semi-anechoic chamber | TDK | SAC-3 #2 | 68-4-90-19-006 | ---- | 2024-5-28 |
| Test software | Rohde & Schwarz | EMC32 | 68-4-90-19-006-A01 | Version10.35.02 | N/A |

Radiated Emission 2# Test (1GHz – 40GHz)

| DESCRIPTION | MANUFACTURER | MODEL NO. | EQUIPMENT ID | SERIAL NO. | CAL. DUE DATE |
|--------------------------|-----------------|-------------------|--------------------|-----------------|---------------|
| EMI Test Receiver | Rohde & Schwarz | ESR 26 | 68-4-74-14-002 | 101269 | 2024-5-20 |
| Wave Guide Antenna | ETS | 3117 | 68-4-80-19-001 | 00218954 | 2024-4-26 |
| Pre-amplifier | Rohde & Schwarz | SCU 18F | 68-4-29-19-002 | 100746 | 2024-5-19 |
| Sideband Horn Antenna | Q-PAR | QWH-SL-18-40-K-SG | 68-4-80-14-008 | 12827 | 2024-7-11 |
| Pre-amplifier | Rohde & Schwarz | SCU 40A | 68-4-29-14-002 | 100432 | 2024-8-1 |
| Attenuator | Mini-circuits | UNAT-6+ | 68-4-81-21-002 | 15542 | 2024-5-19 |
| 3m Semi-anechoic chamber | TDK | SAC-3 #2 | 68-4-90-19-006 | ---- | 2024-5-28 |
| Test software | Rohde & Schwarz | EMC32 | 68-4-90-19-006-A01 | Version10.35.02 | N/A |

Conducted RF Test System

| DESCRIPTION | MANUFACTURER | MODEL NO. | EQUIPMENT ID | SERIAL NO. | CAL. DUE DATE |
|------------------|-----------------|--------------------|--------------------|---------------------|---------------|
| Signal Analyzer | Rohde & Schwarz | FSV40 | 68-4-74-14-004 | 101030 | 2024-5-19 |
| RF Switch Module | Rohde & Schwarz | OSP120/OSP-B157W | 68-4-93-14-003 | 101226/100929 | 2024-5-20 |
| Power Splitter | Weinschel | 1580 | 68-4-85-14-001 | SC319 | 2024-5-20 |
| 10dB Attenuator | Weinschel | 4M-10 | 68-4-81-14-003 | 43152 | 2024-5-19 |
| 10dB Attenuator | R&S | DNF | 68-4-81-14-004 | DNF-001 | 2024-5-19 |
| 10dB Attenuator | R&S | DNF | 68-4-81-14-005 | DNF-002 | 2024-5-19 |
| 10dB Attenuator | R&S | DNF | 68-4-81-14-006 | DNF-003 | 2024-5-19 |
| 10dB Attenuator | R&S | DNF | 68-4-81-14-007 | DNF-004 | 2024-5-19 |
| Test software | Tonscend | System for BT/WIFI | 68-4-74-14-006-A13 | Version 2.6.77.0518 | N/A |
| Shielding Room | TDK | TS8997 | 68-4-90-19-003 | ---- | 2025-10-15 |

Conducted Emission Test

| DESCRIPTION | MANUFACTURER | MODEL NO. | EQUIPMENT ID | SERIAL NO. | CAL. DUE DATE |
|-------------------|-----------------|-----------|--------------------|----------------|---------------|
| EMI Test Receiver | Rohde & Schwarz | ESR 3 | 68-4-74-14-001 | 101782 | 2024-5-20 |
| LISN | Rohde & Schwarz | ENV432 | 68-4-87-16-001 | 101318 | 2024-5-20 |
| Test software | Rohde & Schwarz | EMC32 | 68-4-90-14-003-A10 | Version9.15.00 | N/A |
| Shielding Room | TDK | CSR #1 | 68-4-90-19-004 | ---- | 2025-10-15 |

11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

| System Measurement Uncertainty | |
|--|--|
| Test Items | Extended Uncertainty |
| Uncertainty for Conducted Emission 150kHz-30MHz (for test using AMN ENV432 or ENV4200) | 3.57dB |
| Uncertainty for Radiated Emission in 3m chamber 9kHz-30MHz | 4.70dB |
| Uncertainty for Radiated Emission in new 3m chamber 30MHz-1000MHz | Horizontal: 4.59dB; Vertical: 4.75dB |
| Uncertainty for Radiated Emission in new 3m 1000MHz-18000MHz | Horizontal: 5.08dB; Vertical: 5.09dB; |
| Uncertainty for Radiated Emission 18000MHz-40000MHz | Horizontal: 4.52dB; Vertical: 4.51dB |
| Uncertainty for Conducted RF test | RF Power Conducted: 1.31dB Frequency test involved: 0.6x10 ⁻⁸ or 1% |

Measurement Uncertainty Decision Rule:

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2023, clause 4.3.3 and 4.3.4.

---THE END OF REPORT---