

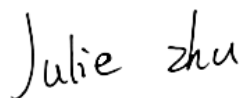
TEST REPORT

Applicant: Zhejiang Lierda Internet of Things technology Co., Ltd
Address: Room 1402, Building 1, No. 1326, Wenyi West Road, Cangqian street, Yuhang District, Hangzhou, Zhejiang Prov., China
Equipment Type: 433M wireless communication module
Model Name: LSD1RF-ST433M00
Brand Name: lierda
FCC ID: 2AOFDLSD1RFST433M00
Test Standard: 47 CFR Part 15 Subpart C (refer section 3.1)
Sample Arrival Date: Apr. 18, 2022
Test Date: Jul. 22, 2022 - Apr. 11, 2023
Date of Issue: Apr. 27, 2023

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Julie Zhu



Checked by: Ye Hongji



Approved by: Liao Jianming
(Technical Director)



| Revision History | | |
|-------------------------|---------------|------------------------------|
| Version | Issue Date | Revisions |
| Rev. 01 | Apr. 23, 2023 | Initial Issue |
| Rev. 02 | Apr. 27, 2023 | Add two notes in section A.5 |

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1 GENERAL INFORMATION

1.1 Test Laboratory

| | |
|--------------|--|
| Name | Shenzhen BALUN Technology Co., Ltd. |
| Address | Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| Phone Number | +86 755 6685 0100 |

1.2 Test Location

| | |
|---------------------------|---|
| Name | Shenzhen BALUN Technology Co., Ltd. |
| Location | <input checked="" type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| | <input type="checkbox"/> 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| Accreditation Certificate | The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196. |

2 PRODUCT INFORMATION

2.1 Applicant Information

| | |
|-----------|---|
| Applicant | Zhejiang Lierda Internet of Things technology Co., Ltd |
| Address | Room 1402, Building 1, No. 1326, Wenyi West Road, Cangqian street, Yuhang District, Hangzhou, Zhejiang Prov., China |

2.2 Manufacturer Information

| | |
|--------------|---|
| Manufacturer | Zhejiang Lierda Internet of Things technology Co., Ltd |
| Address | Room 1402, Building 1, No. 1326, Wenyi West Road, Cangqian street, Yuhang District, Hangzhou, Zhejiang Prov., China |

2.3 Factory Information

| | |
|---------|-----|
| Factory | N/A |
| Address | N/A |

2.4 General Description for Equipment under Test (EUT)

| | |
|---|------------------------------------|
| EUT Name | 433M wireless communication module |
| Model Name Under Test | LSD1RF-ST433M00 |
| Series Model Name | N/A |
| Description of Model name differentiation | N/A |
| Hardware Version | 03 |
| Software Version | 01 |
| Dimensions (Approx.) | N/A |
| Weight (Approx.) | N/A |

2.5 Technical Information

| | |
|-----------------------------------|-------------------------|
| Network and Wireless connectivity | 434.04 MHz ~ 434.79 MHz |
|-----------------------------------|-------------------------|

The requirement for the following technical information of the EUT was tested in this report:

| | |
|---------------------|--|
| Modulation Type | 2-FSK |
| Product Type | <input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location |
| Operating Frequency | 434.04 MHz ~ 434.79 MHz |
| Antenna Type | Spring Antenna |
| Antenna Gain | 2.0 dBi |

All channel was listed on the following table:

| Channel Number | Frequency (MHz) | Channel Number | Frequency (MHz) | Channel Number | Frequency (MHz) |
|----------------|-----------------|----------------|-----------------|----------------|-----------------|
| 1 | 434.065 | 11 | 434.315 | 21 | 434.565 |
| 2 | 434.090 | 12 | 434.340 | 22 | 434.590 |
| 3 | 434.115 | 13 | 434.365 | 23 | 434.615 |
| 4 | 434.140 | 14 | 434.390 | 24 | 434.640 |
| 5 | 434.165 | 15 | 434.415 | 25 | 434.665 |
| 6 | 434.190 | 16 | 434.440 | 26 | 434.690 |
| 7 | 434.215 | 17 | 434.465 | 27 | 434.715 |
| 8 | 434.240 | 18 | 434.490 | 28 | 434.740 |
| 9 | 434.265 | 19 | 434.515 | 29 | 434.765 |
| 10 | 434.290 | 20 | 434.540 | | |

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

| No. | Identity | Document Title |
|-----|---------------------------|--|
| 1 | 47 CFR Part 15, Subpart C | Intentional Radiators |
| 2 | ANSI C63.10-2013 | American National Standard for Testing Unlicensed Wireless Devices |

3.2 Test Verdict

| No. | Description | FCC Part No. | Test Result | Verdict |
|-----|---|---------------------|-------------|----------------------|
| 1 | Antenna Requirement | 15.203 | -- | Pass ^{Note} |
| 2 | Conducted Emission | 15.207 | ANNEX A.1 | Pass |
| 3 | 20 dB & 99% Bandwidth | 15.231(c) | ANNEX A.2 | Pass |
| 4 | Duty Cycle | 15.35 | ANNEX A.3 | Pass |
| 5 | Field Strength of Fundamental Emissions | 15.231(b) | ANNEX A.4 | Pass |
| 6 | Radiated Emissions | 15.209 15.231(b) | ANNEX A.5 | Pass |
| 7 | Transmitting Time | 15.231(a) | ANNEX A.6 | Pass |

Note: Please refer to section 5.1

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

| | | |
|----------------------------|-------------------------|--------------------|
| Relative Humidity | 52% to 57% | |
| Atmospheric Pressure | 100 kPa to 102 kPa | |
| Temperature | NT (Normal Temperature) | +20.9°C to +25.0°C |
| Working Voltage of the EUT | NV (Normal Voltage) | 3.3 V |

4.2 Test Equipment List

| Description | Manufacturer | Model | Serial No. | Cal. Date | Cal. Due |
|----------------------------------|----------------------------|-----------------------|------------|------------|------------|
| Spectrum Analyzer | KEYSIGHT | N9020A | MY50330200 | 2022.05.19 | 2023.05.18 |
| Spectrum Analyzer | ROHDE&SCHWARZ | FSV-40 | 101544 | 2022.01.04 | 2023.01.03 |
| Spectrum Analyzer | ROHDE&SCHWARZ | FSV-40 | 101544 | 2022.12.28 | 2023.12.27 |
| Spectrum Analyzer | KEYSIGHT | N9020A | MY52510065 | 2022.09.06 | 2023.09.05 |
| Signaling Unit | ROHDE&SCHWARZ | CMW500 | 171150 | 2022.06.29 | 2023.06.28 |
| Test Antenna-Horn (1-18 GHz) | SCHWARZBECK | BBHA 9120D | 01631 | 2022.02.03 | 2025.02.02 |
| Test Antenna-Horn (18-40 GHz) | A-INFO | LB-180400KF | J211060273 | 2021.07.02 | 2024.07.01 |
| Anechoic Chamber | RAINFORD | 9m*6m*6m | N/A | 2021.09.04 | 2024.09.03 |
| Test Antenna-Bi-Log | SCHWARZBECK | VULB 9163 | 00884 | 2021.03.08 | 2024.03.07 |
| EMI Receiver | ROHDE&SCHWARZ | ESRP | 101036 | 2022.09.09 | 2023.09.08 |
| Test Antenna-Loop | SCHWARZBECK | FMZB 1519 | 1519-037 | 2021.04.16 | 2024.04.15 |
| Anechoic Chamber | EMC Electronic Co., Ltd | 20.10*11.60*7 .35m | N/A | 2021.08.15 | 2024.08.14 |

4.3 Measurement Uncertainty

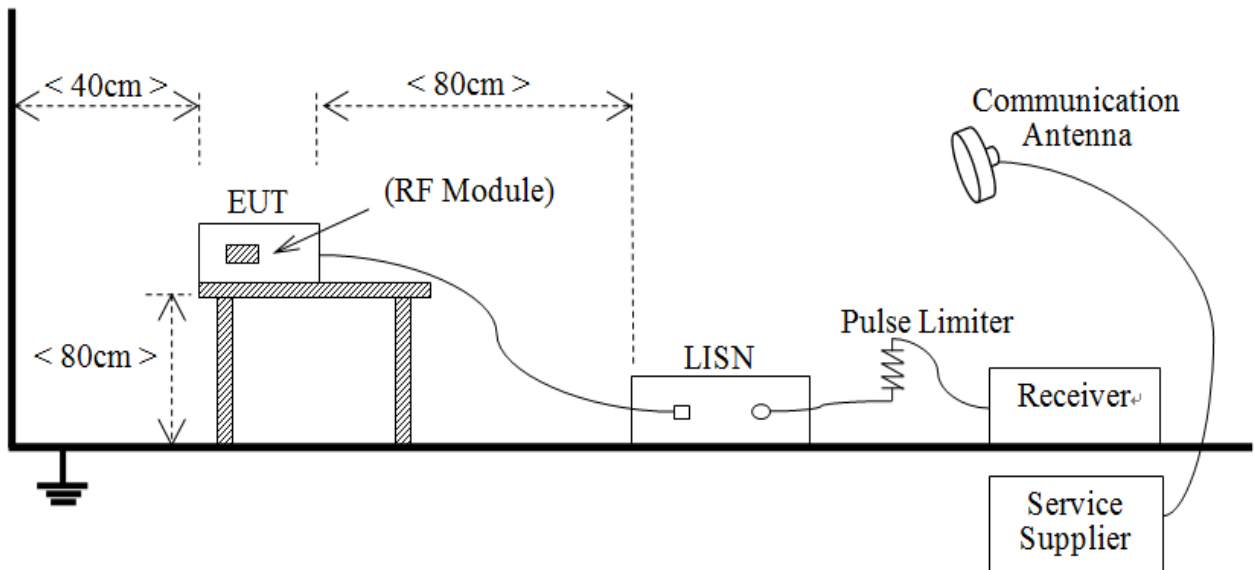
The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

| Parameters | Uncertainty |
|-----------------------------------|-------------|
| Occupied Channel Bandwidth | 2.8% |
| RF output power, conducted | 1.28 dB |
| Power Spectral Density, conducted | 1.30 dB |
| Unwanted Emissions, conducted | 1.84 dB |
| All emissions, radiated | 5.36 dB |
| Temperature | 0.82°C |
| Humidity | 4.1% |

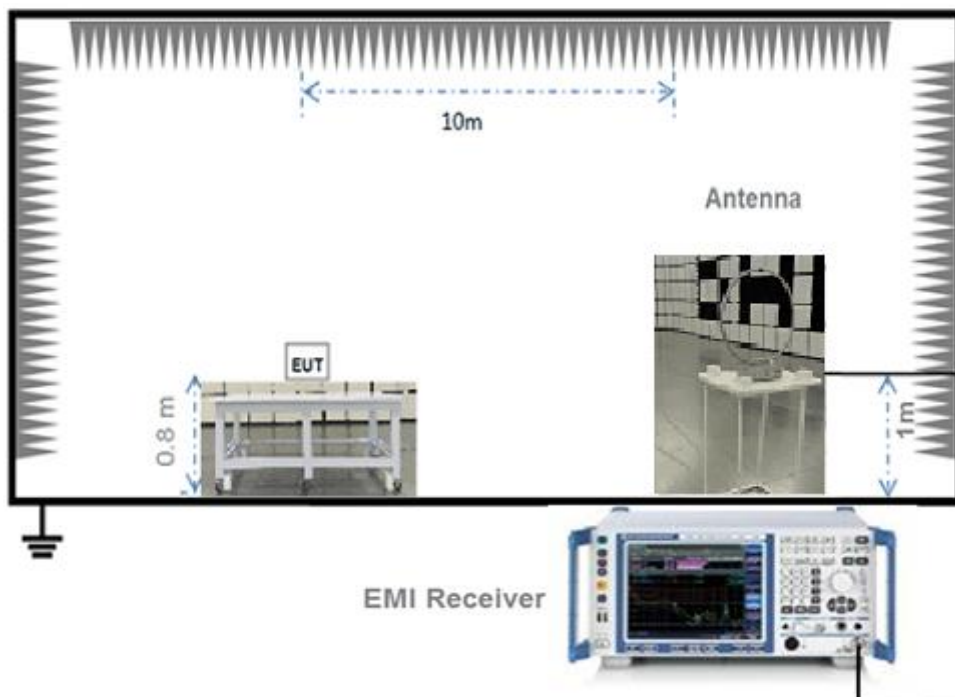
4.4 Description of Test Setup

4.4.1 For AC Power Supply Port Test



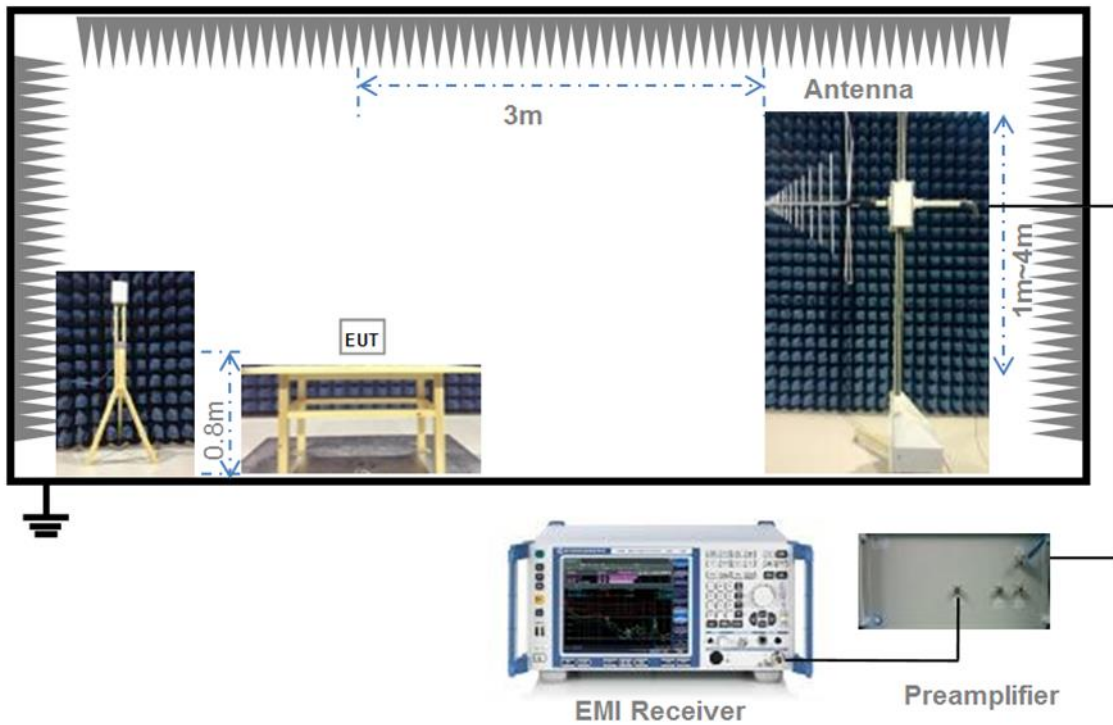
(Diagram 2)

4.4.2 For Radiated Test (Below 30 MHz)



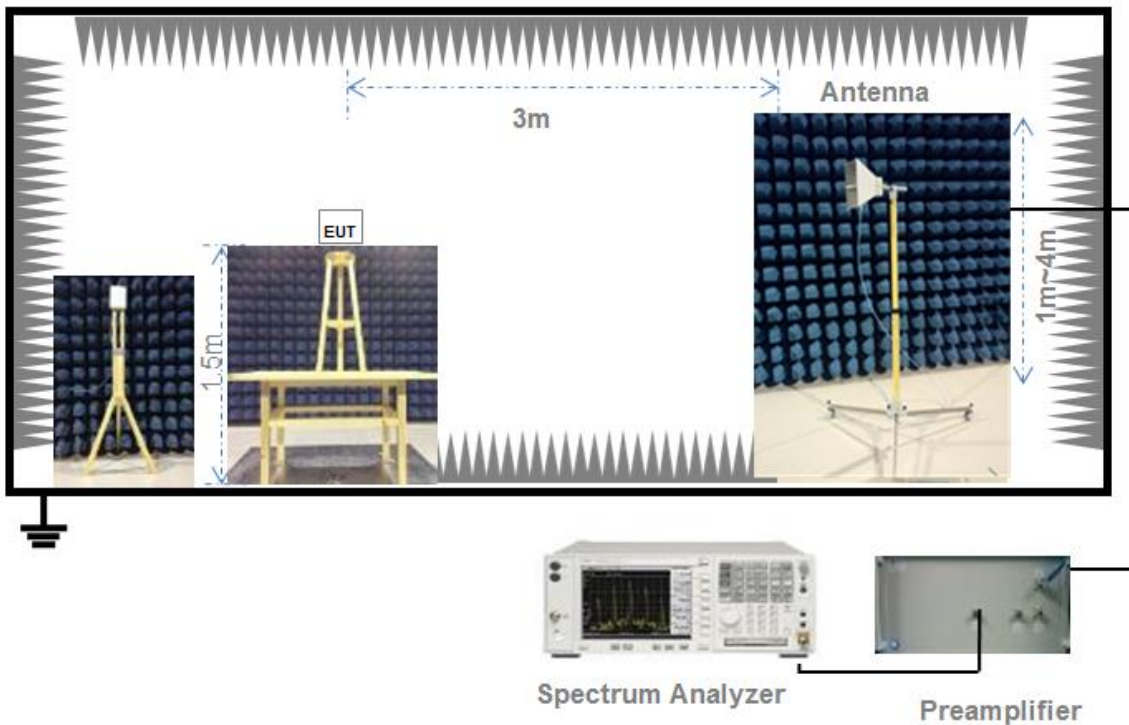
(Diagram 3)

4.4.3 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.4.4 For Radiated Test (Above 1 GHz)



(Diagram 5)

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Relevant Standards

FCC §15.203 & 15.247(b)

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 shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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 FCC rule.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

| Protected Method | Description |
|---|--|
| The antenna is embedded in the product. | An embedded-in antenna design is used. |

| Reference Documents | Item |
|---------------------|--|
| Photo | Please refer to the EUT Photo documents. |

5.1.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

5.2 Conducted Emission

5.2.1 Limit

FCC §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN).

| Frequency range (MHz) | Conducted Limit (dB μ V) | |
|--------------------------|------------------------------|----------|
| | Quai-peak | Average |
| 0.15 - 0.50 | 66 to 56 | 56 to 46 |
| 0.50 - 5 | 56 | 46 |
| 0.50 - 30 | 60 | 50 |

5.2.2 Test Setup

See section 4.4.1 for test setup description for the AC power supply port. The photo of test setup please refer to ANNEX B.

5.2.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.2.4 Test Result

Please refer to ANNEX A.1.

5.3 20 dB Bandwidth

5.3.1 Limit

FCC §15.231

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

5.3.2 Test Setup

See section 4.4.3 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

Use the following spectrum analyzer settings:

Span = two times and five times the OBW

RBW = 1% to 5% of the OBW

VBW \geq three times RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.3.4 Test Result

Please refer to ANNEX A.2.

5.4 Field Strength of Fundamental Emissions and Radiated Emissions

5.4.1 Limit

FCC §15.231 & §15.209

According to FCC section 15.231(b), In addition to the provisions of §15.205, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

| Fundamental frequency (MHz) | Field strength of fundamental (microvolts/meter) | Field strength of spurious emissions (microvolts/meter) |
|-----------------------------|--|---|
| 40.66-40.70 | 2250 | 225 |
| 70-130 | 1250 | 125 |
| 130-174 | ¹ 1250 to 3750 | 125 to 375 |
| 174-260 | 3750 | 375 |
| 260-470 | ¹ 3750 to 12500 | 375 to 1250 |
| Above 470 | 12500 | 1250 |

¹Linear interpolations.

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength ($\mu\text{V}/\text{m}$) |
|-----------------|---|
| 0.009 - 0.490 | 2400/F(kHz) |
| 0.490 - 1.705 | 24000/F(kHz) |
| 1.705 - 30.0 | 30 |
| 30 - 88 | 100 |
| 88 - 216 | 150 |
| 216 - 960 | 200 |
| Above 960 | 500 |

Note:

- For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.
- For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.4.2 Test Setup

See section 4.4.2 to 4.4.4 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

The measurement frequency range is from 30 MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented. The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW \geq RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.4.4 Test Result

Please refer to ANNEX A.4 & A.5.

5.5 Transmitting Time

5.5.1 Limit

FCC §15.231

(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

5.5.2 Test Setup

See section 4.4.3 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

The EUT transmitter was activated, the spectrum analyzer single sweep was triggered while a command on the EUT was activated and plots were captured

5.5.4 Test Result

Please refer to ANNEX A.6.

ANNEX A TEST RESULT

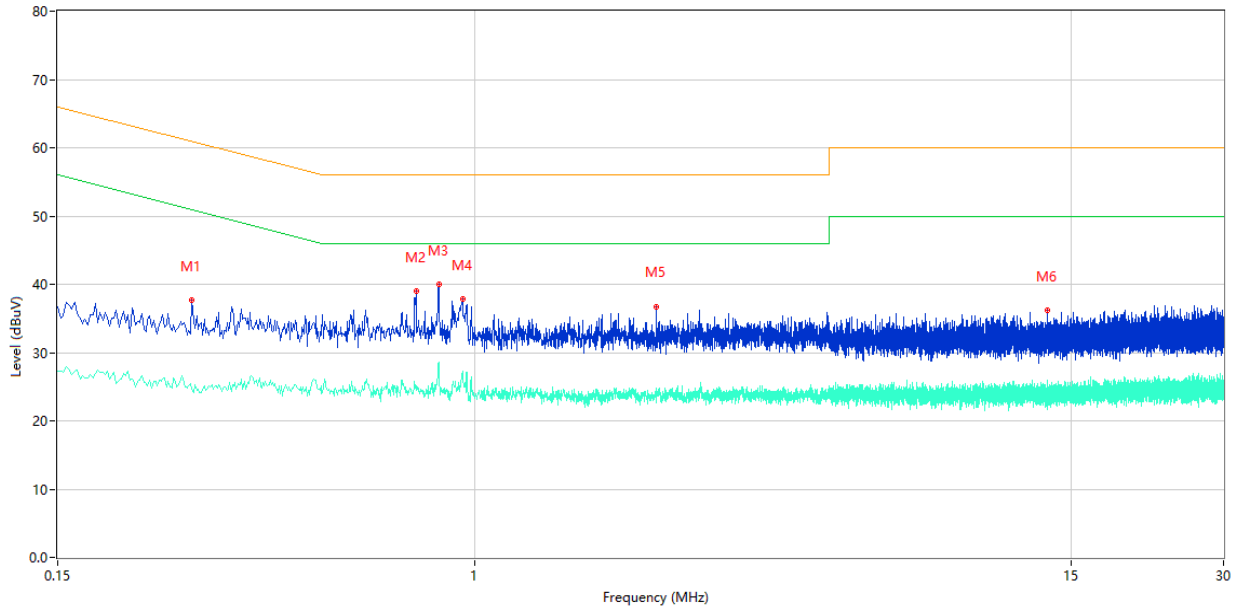
A.1 Conducted Emissions

Note 1: The EUT is working in the Normal link mode.

Note 2: Results (dBuV) = Original reading level of Spectrum Analyzer (dBuV) + Factor (dB)

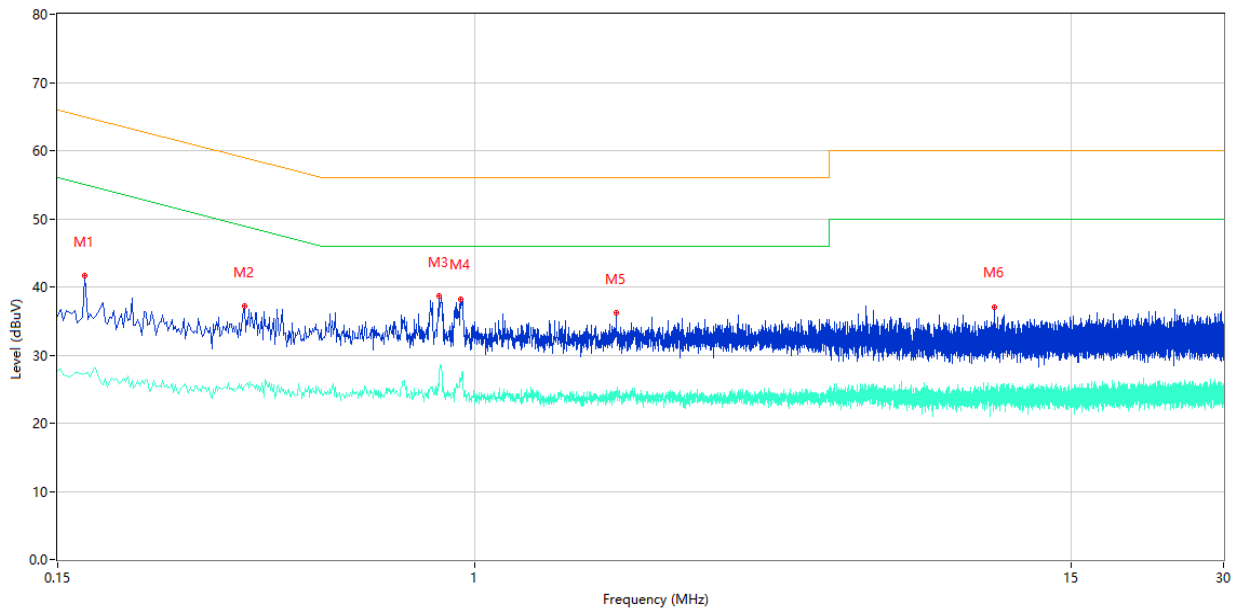
Test Data and Plots

PHASE L



| No. | Frequency (MHz) | Results (dBuV) | Factor (dB) | Limit (dBuV) | Margin (dB) | Detector | Line | Verdict |
|-----|-----------------|----------------|-------------|--------------|-------------|----------|------|---------|
| 1 | 0.276 | 37.70 | 10.00 | 60.94 | 23.24 | Peak | L | Pass |
| 1** | 0.276 | 24.72 | 10.00 | 50.94 | 26.22 | AV | L | Pass |
| 2 | 0.764 | 39.01 | 10.43 | 56.00 | 16.99 | Peak | L | Pass |
| 2** | 0.764 | 24.40 | 10.43 | 46.00 | 21.60 | AV | L | Pass |
| 3 | 0.848 | 40.07 | 10.75 | 56.00 | 15.93 | Peak | L | Pass |
| 3** | 0.848 | 28.58 | 10.75 | 46.00 | 17.42 | AV | L | Pass |
| 4 | 0.944 | 37.84 | 10.19 | 56.00 | 18.16 | Peak | L | Pass |
| 4** | 0.944 | 27.32 | 10.19 | 46.00 | 18.68 | AV | L | Pass |
| 5 | 2.276 | 36.70 | 10.32 | 56.00 | 19.30 | Peak | L | Pass |
| 5** | 2.276 | 24.77 | 10.32 | 46.00 | 21.23 | AV | L | Pass |
| 6 | 13.462 | 36.23 | 10.23 | 60.00 | 23.77 | Peak | L | Pass |
| 6** | 13.462 | 22.49 | 10.23 | 50.00 | 27.51 | AV | L | Pass |

PHASE N



| No. | Frequency (MHz) | Results (dBuV) | Factor (dB) | Limit (dBuV) | Margin (dB) | Detector | Line | Verdict |
|-----|-----------------|----------------|-------------|--------------|-------------|----------|------|---------|
| 1 | 0.168 | 35.54 | 10.08 | 65.06 | 29.52 | Peak | N | Pass |
| 1** | 0.168 | 27.06 | 10.08 | 55.06 | 28.00 | AV | N | Pass |
| 2 | 0.350 | 37.11 | 10.97 | 58.96 | 21.85 | Peak | N | Pass |
| 2** | 0.350 | 25.42 | 10.97 | 48.96 | 23.54 | AV | N | Pass |
| 3 | 0.850 | 38.60 | 10.75 | 56.00 | 17.40 | Peak | N | Pass |
| 3** | 0.850 | 27.75 | 10.75 | 46.00 | 18.25 | AV | N | Pass |
| 4 | 0.936 | 38.19 | 10.21 | 56.00 | 17.81 | Peak | N | Pass |
| 4** | 0.936 | 26.09 | 10.21 | 46.00 | 19.91 | AV | N | Pass |
| 5 | 1.902 | 36.20 | 10.80 | 56.00 | 19.80 | Peak | N | Pass |
| 5** | 1.902 | 24.79 | 10.80 | 46.00 | 21.21 | AV | N | Pass |
| 6 | 10.602 | 37.11 | 10.43 | 60.00 | 22.89 | Peak | N | Pass |
| 6** | 10.602 | 24.62 | 10.43 | 50.00 | 25.38 | AV | N | Pass |

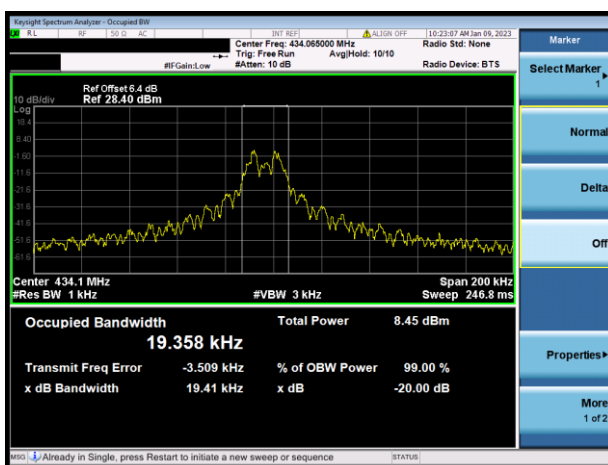
A.2 20 dB Bandwidth

Test Data

| Frequency (MHz) | 20 dB Bandwidth (kHz) | 99% Bandwidth (kHz) | Limit (kHz) | Verdict |
|-----------------|-----------------------|---------------------|-------------|---------|
| 434.065 | 19.410 | 19.358 | 1085.1625 | Pass |
| 434.415 | 19.600 | 18.963 | 1086.0375 | Pass |
| 434.765 | 19.500 | 19.032 | 1086.9125 | Pass |

Test Plots

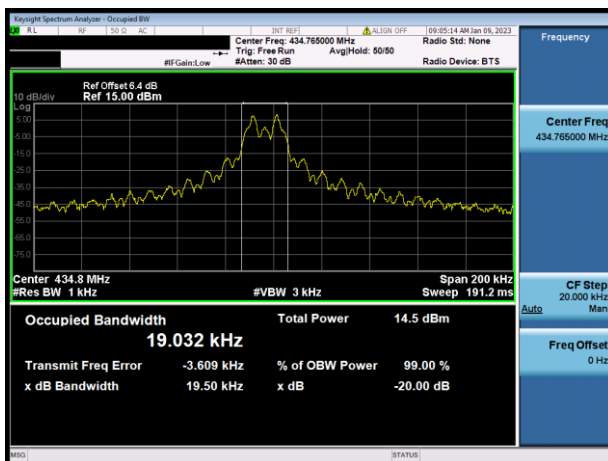
LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL

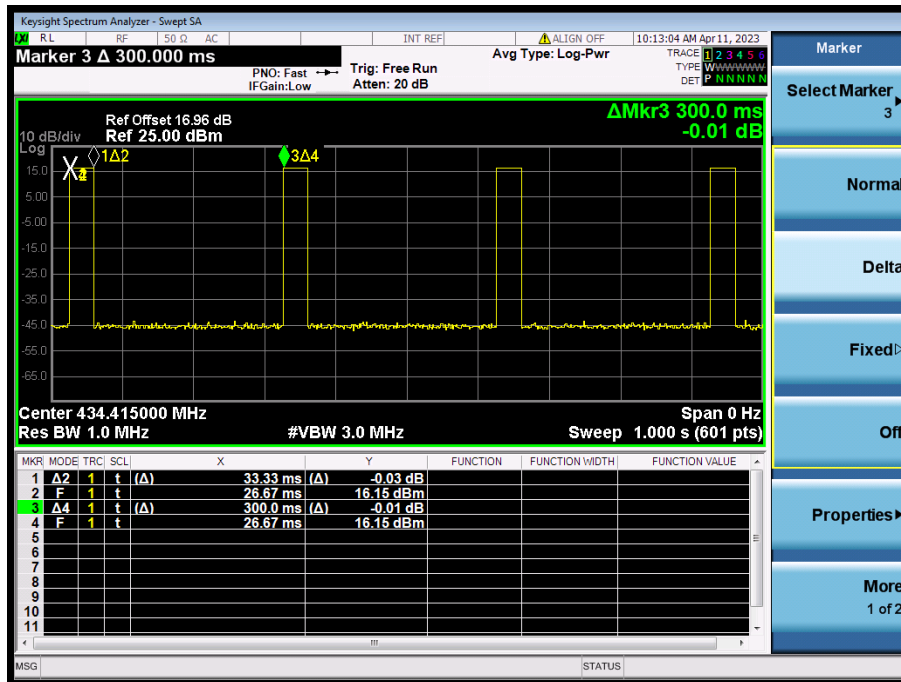


A.3 Duty cycle

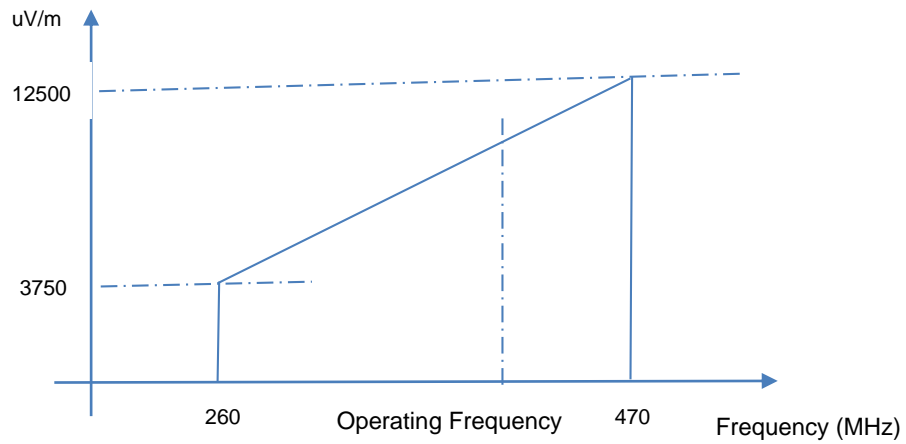
Test Data

| | |
|------------------------------|--|
| Data Transmissions | Number of pulses |
| Duty cycle correction factor | $20 \cdot \log(33.33/300) = -19.09 \text{ dB}$ |

Test Plots



A.4 Field Strength of Fundamental Emissions



The Field Strength of Fundamental Emissions (Operating Frequency) is:

$$3750 \text{ uV/m} = 20 \cdot \log(3750) \text{ dBuV/m} = 71.48 \text{ dBuV/m}$$

$$12500 \text{ uV/m} = 20 \cdot \log(12500) \text{ dBuV/m} = 81.94 \text{ dBuV/m}$$

Test Data

| Field Strength of Fundamental Emissions and Field strength of spurious emissions Value | | | | | |
|--|-------------------------|----------|--------------------|-------------|------------|
| Operating Frequency (MHz) | Field Strength (dBuV/m) | Detector | Limit @3m (dBuV/m) | Margin (dB) | Antenna |
| 434.054 | 89.06 | PEAK | 100.8 | 11.74 | Horizontal |
| | 85.35 | PEAK | 100.8 | 15.45 | Vertical |
| 434.102 | 69.97 | AVERAGE | 80.8 | 10.83 | Horizontal |
| | 66.26 | AVERAGE | 80.8 | 14.54 | Vertical |
| 868.128 | 47.95 | PEAK | 80.8 | 32.85 | Horizontal |
| | 40.41 | PEAK | 80.8 | 40.39 | Vertical |
| 868.128 | 28.86 | AVERAGE | 60.8 | 31.94 | Horizontal |
| | 21.32 | AVERAGE | 60.8 | 39.48 | Vertical |
| 434.442 | 89.03 | PEAK | 100.8 | 11.77 | Horizontal |
| | 85.21 | PEAK | 100.8 | 15.59 | Vertical |
| 434.442 | 69.94 | AVERAGE | 80.8 | 10.86 | Horizontal |
| | 66.12 | AVERAGE | 80.8 | 14.68 | Vertical |
| 868.856 | 47.37 | PEAK | 80.8 | 33.43 | Horizontal |
| | 40.02 | PEAK | 80.8 | 40.78 | Vertical |
| 868.856 | 28.28 | AVERAGE | 60.8 | 32.52 | Horizontal |
| | 20.93 | AVERAGE | 60.8 | 39.87 | Vertical |
| 434.781 | 89.00 | PEAK | 100.8 | 11.80 | Horizontal |
| | 85.21 | PEAK | 100.8 | 15.59 | Vertical |
| 434.781 | 69.91 | AVERAGE | 80.8 | 10.89 | Horizontal |
| | 66.12 | AVERAGE | 80.8 | 14.68 | Vertical |
| 869.535 | 47.53 | PEAK | 80.8 | 33.27 | Horizontal |
| | 39.90 | PEAK | 80.8 | 40.90 | Vertical |
| 869.535 | 28.44 | AVERAGE | 60.8 | 32.36 | Horizontal |
| | 20.81 | AVERAGE | 60.8 | 39.99 | Vertical |

A.5 Radiated Emission

Note 1: The symbol of "--" in the table which means not application.

Note 2: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

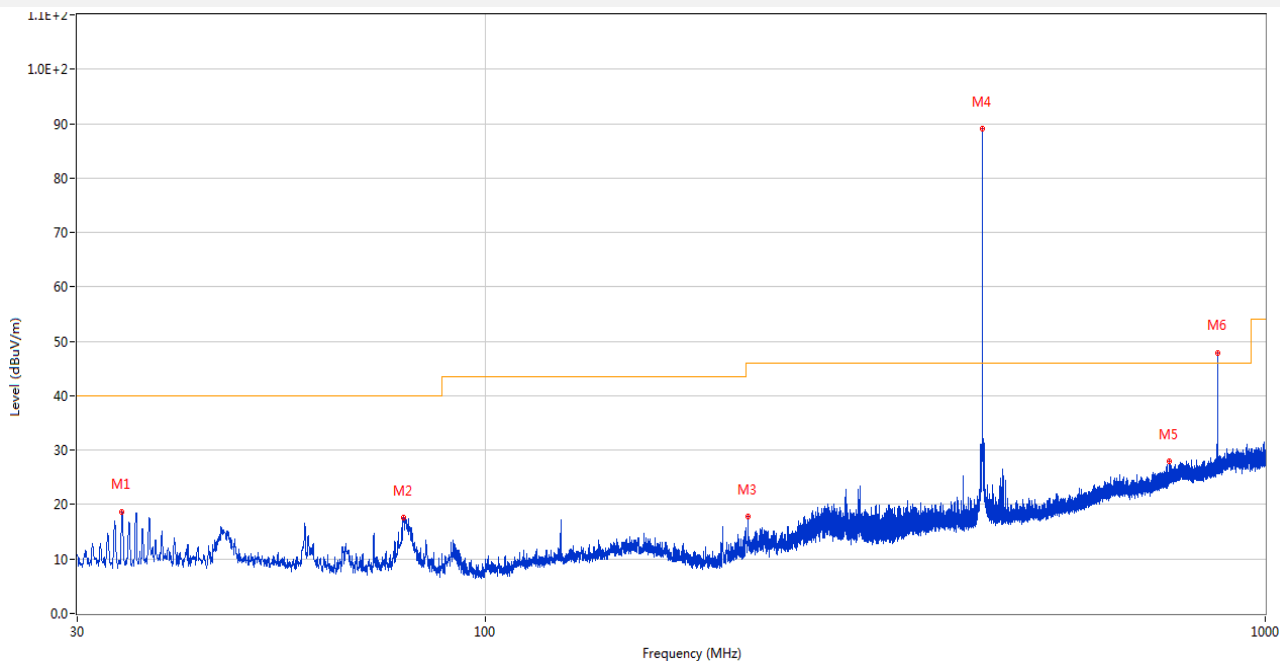
Note 3: The verdict please refer to the A.3 field strength of fundamental emissions and field strength of spurious emissions value.

Note 4: Limit field strength of fundamental: $20 \cdot \log((12500-3750)/(470-260)+(fc-260)+3750)$ dBuV/m+20dB =100.8dBuV/m@3m (PK)

Note 5: Limit field strength of harmonics: $20 \cdot \log((1250-375)/(470-260)+(fc-260)+375)$ dBuV/m+20dB =80.8dBuV/m@3m (PK)

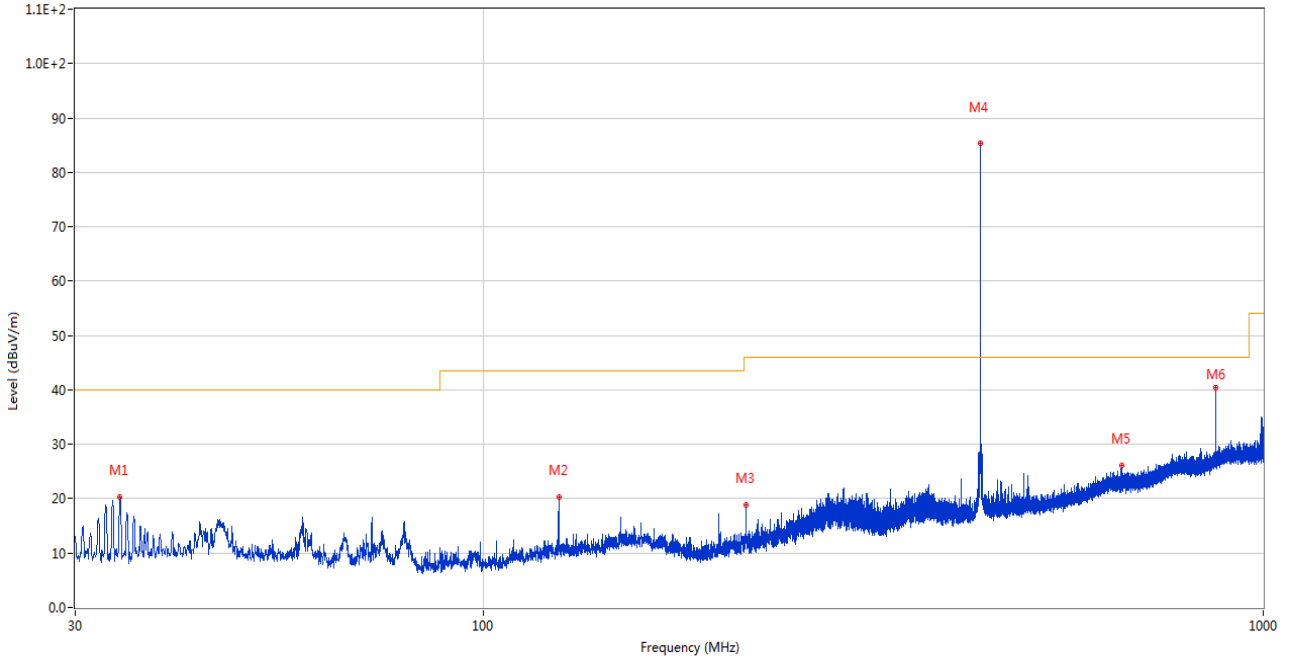
Test Data and Plots

LOW CHANNEL 30 MHz to 1 GHz, ANT H



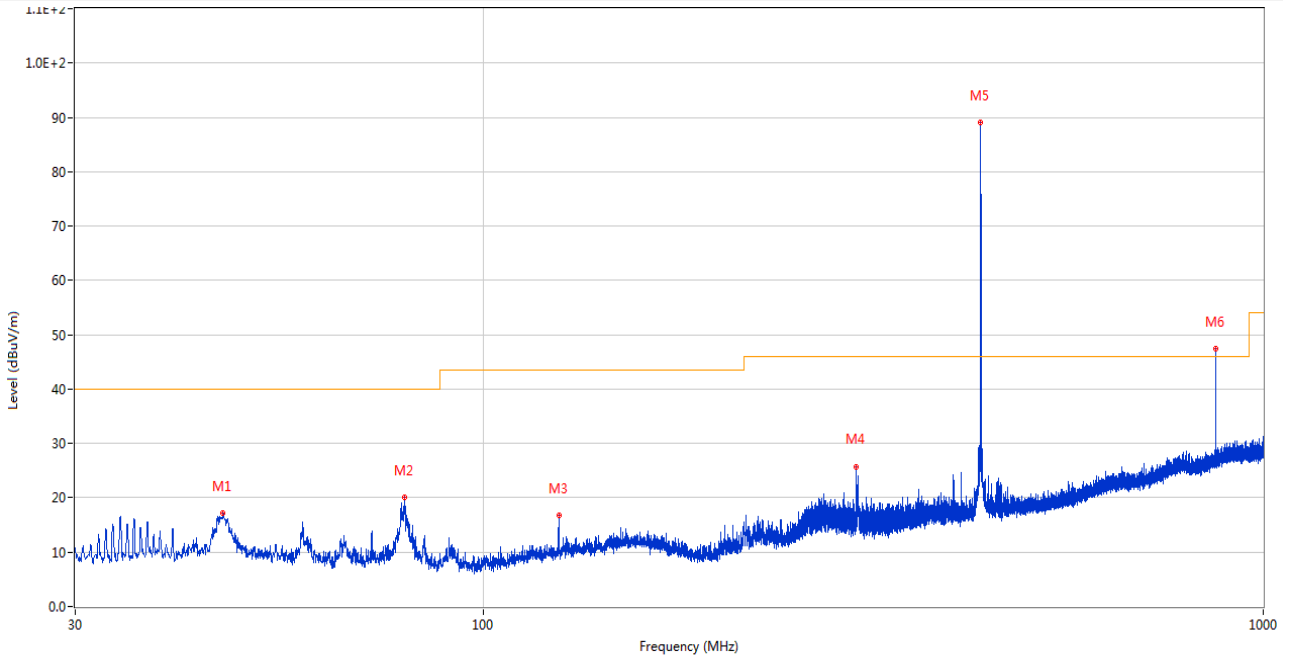
| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|------------|---------|
| 1 | 34.219 | 18.73 | -26.68 | 40.0 | 21.27 | Peak | 32.00 | 200 | Horizontal | Pass |
| 2 | 78.500 | 17.59 | -29.67 | 40.0 | 22.41 | Peak | 107.00 | 200 | Horizontal | Pass |
| 3 | 217.307 | 17.76 | -27.30 | 46.0 | 28.24 | Peak | 360.00 | 100 | Horizontal | Pass |
| 4 | 434.054 | 89.06 | -20.14 | 100.8 | 11.74 | Peak | 89.00 | 200 | Horizontal | Pass |
| 5 | 754.347 | 27.98 | -10.58 | 46.0 | 18.02 | Peak | 313.00 | 200 | Horizontal | Pass |
| 6 | 868.128 | 47.95 | -8.87 | 80.8 | 32.85 | Peak | 91.00 | 200 | Horizontal | Pass |

LOW CHANNEL 30 MHz to 1 GHz, ANT V



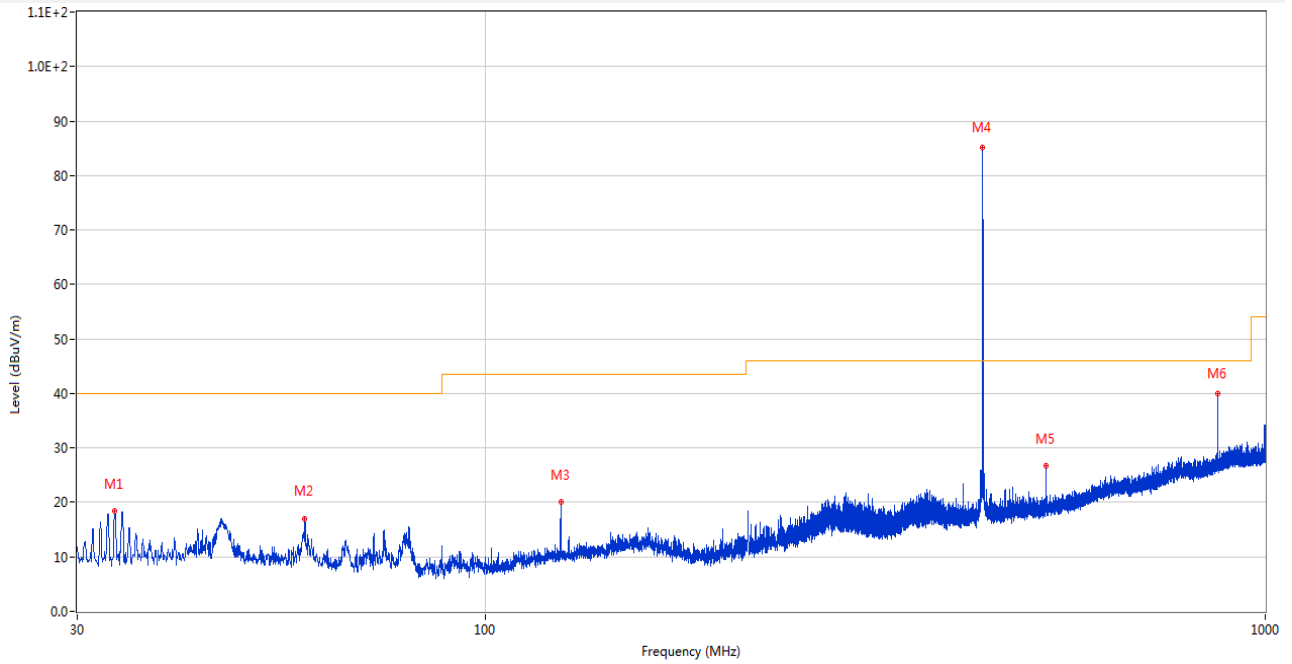
| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|----------|---------|
| 1 | 34.219 | 20.32 | -26.68 | 40.0 | 19.68 | Peak | 309.00 | 100 | Vertical | Pass |
| 2 | 125.011 | 20.31 | -26.21 | 43.5 | 23.19 | Peak | 168.00 | 200 | Vertical | Pass |
| 3 | 217.258 | 18.88 | -27.31 | 46.0 | 27.12 | Peak | 91.00 | 200 | Vertical | Pass |
| 4 | 434.102 | 85.35 | -20.14 | 100.8 | 15.45 | Peak | 232.00 | 200 | Vertical | Pass |
| 5 | 658.899 | 26.05 | -13.40 | 46.0 | 19.95 | Peak | 5.00 | 100 | Vertical | Pass |
| 6 | 868.128 | 40.41 | -8.87 | 80.8 | 40.39 | Peak | 360.00 | 200 | Vertical | Pass |

MIDDLE CHANNEL 30 MHz to 1 GHz, ANT H



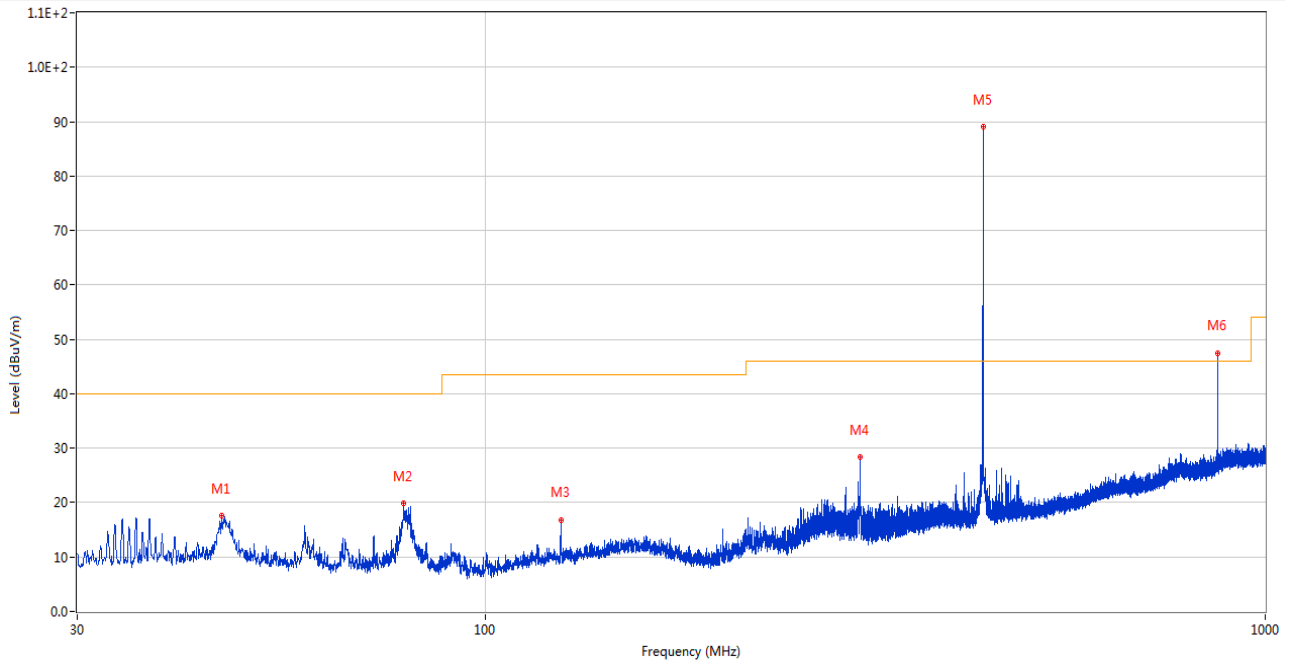
| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|------------|---------|
| 1 | 46.393 | 17.25 | -26.22 | 40.0 | 22.75 | Peak | 53.00 | 200 | Horizontal | Pass |
| 2 | 79.325 | 20.01 | -29.79 | 40.0 | 19.99 | Peak | 273.00 | 200 | Horizontal | Pass |
| 3 | 125.011 | 16.71 | -26.21 | 43.5 | 26.79 | Peak | 331.00 | 100 | Horizontal | Pass |
| 4 | 300.678 | 25.77 | -23.83 | 46.0 | 20.23 | Peak | 118.00 | 200 | Horizontal | Pass |
| 5 | 434.442 | 89.03 | -20.14 | 100.8 | 11.77 | Peak | 87.00 | 200 | Horizontal | Pass |
| 6 | 868.856 | 47.37 | -8.89 | 80.8 | 33.43 | Peak | 93.00 | 200 | Horizontal | Pass |

MIDDLE CHANNEL 30 MHz to 1 GHz, ANT V



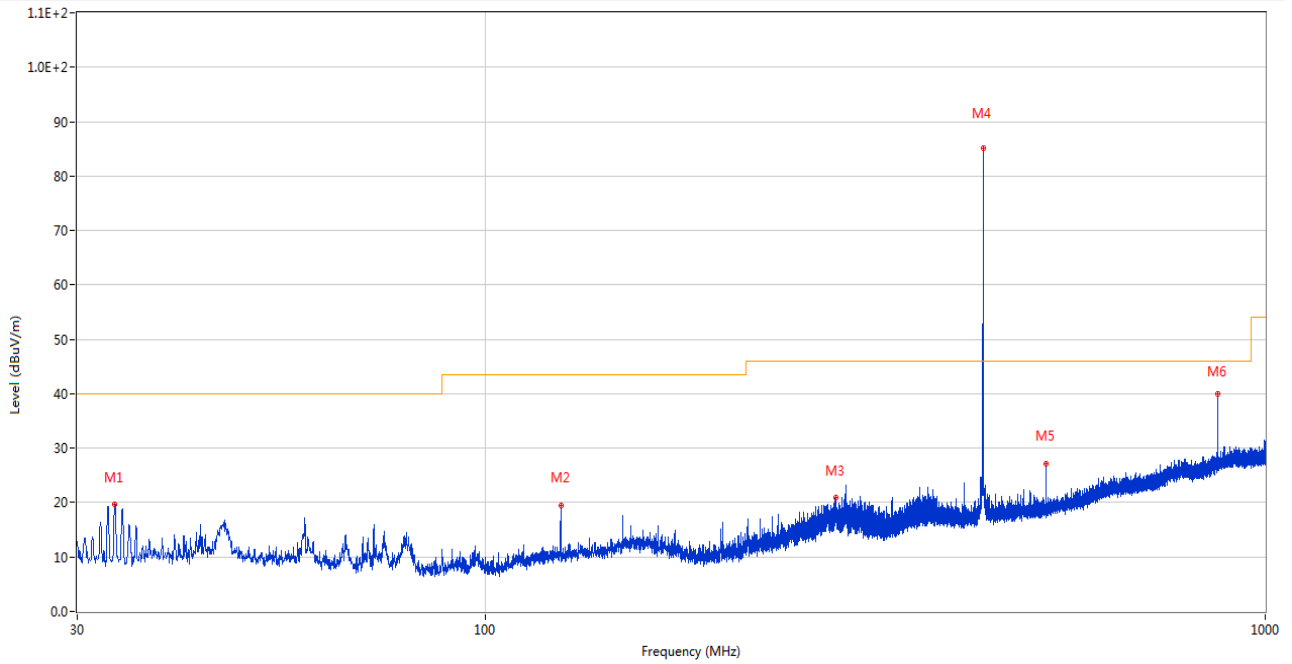
| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|----------|---------|
| 1 | 33.541 | 18.43 | -26.75 | 40.0 | 21.57 | Peak | 274.00 | 100 | Vertical | Pass |
| 2 | 58.761 | 17.09 | -26.74 | 40.0 | 22.91 | Peak | 47.00 | 100 | Vertical | Pass |
| 3 | 125.011 | 20.00 | -26.21 | 43.5 | 23.50 | Peak | 81.00 | 200 | Vertical | Pass |
| 4 | 434.442 | 85.21 | -20.14 | 100.8 | 15.59 | Peak | 233.00 | 200 | Vertical | Pass |
| 5 | 523.730 | 26.77 | -17.78 | 46.0 | 19.23 | Peak | 202.00 | 100 | Vertical | Pass |
| 6 | 868.856 | 40.02 | -8.89 | 80.8 | 40.78 | Peak | 358.00 | 200 | Vertical | Pass |

HIGH CHANNEL 30 MHz to 1 GHz, ANT H



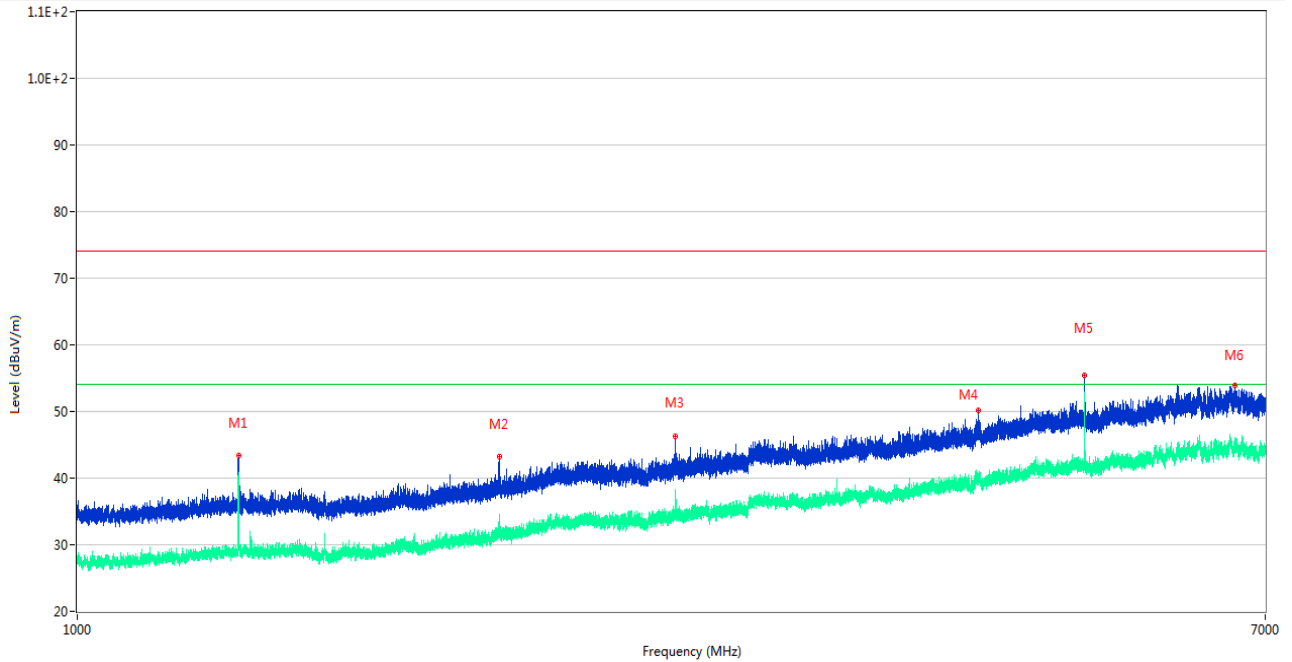
| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|------------|---------|
| 1 | 45.956 | 17.67 | -26.26 | 40.0 | 22.33 | Peak | 142.00 | 200 | Horizontal | Pass |
| 2 | 78.597 | 19.95 | -29.68 | 40.0 | 20.05 | Peak | 108.00 | 200 | Horizontal | Pass |
| 3 | 125.011 | 16.86 | -26.21 | 43.5 | 26.64 | Peak | 56.00 | 100 | Horizontal | Pass |
| 4 | 302.230 | 28.30 | -23.65 | 46.0 | 17.70 | Peak | 118.00 | 200 | Horizontal | Pass |
| 5 | 434.781 | 89.00 | -20.14 | 100.8 | 11.8 | Peak | 92.00 | 200 | Horizontal | Pass |
| 6 | 869.535 | 47.53 | -8.90 | 80.8 | 33.27 | Peak | 92.00 | 200 | Horizontal | Pass |

HIGH CHANNEL 30 MHz to 1 GHz, ANT V



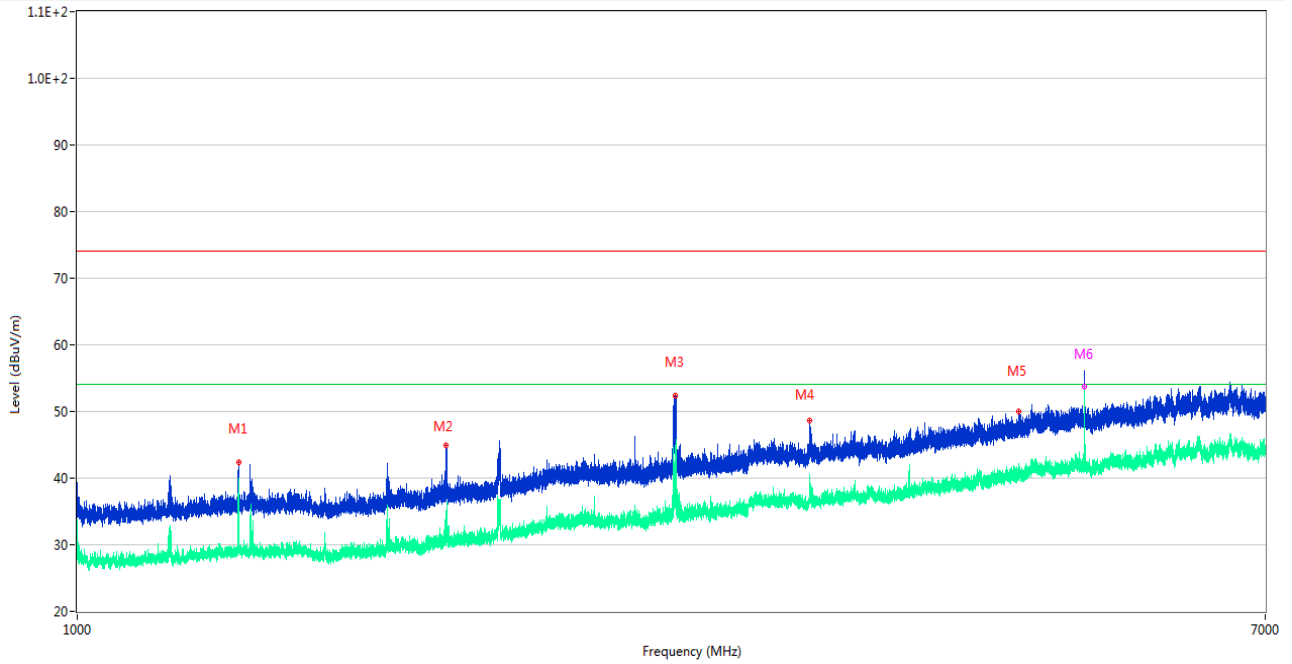
| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|----------|---------|
| 1 | 33.541 | 19.72 | -26.75 | 40.0 | 20.28 | Peak | 101.00 | 100 | Vertical | Pass |
| 2 | 125.011 | 19.55 | -26.21 | 43.5 | 23.95 | Peak | 216.00 | 200 | Vertical | Pass |
| 3 | 281.618 | 20.85 | -24.41 | 46.0 | 25.15 | Peak | 63.00 | 100 | Vertical | Pass |
| 4 | 434.781 | 85.21 | -20.14 | 100.8 | 15.59 | Peak | 233.00 | 200 | Vertical | Pass |
| 5 | 523.682 | 27.21 | -17.79 | 46.0 | 18.79 | Peak | 0.00 | 100 | Vertical | Pass |
| 6 | 869.535 | 39.90 | -8.90 | 80.8 | 40.9 | Peak | 360.00 | 200 | Vertical | Pass |

LOW CHANNEL 1 GHz to 7 GHz, ANT H



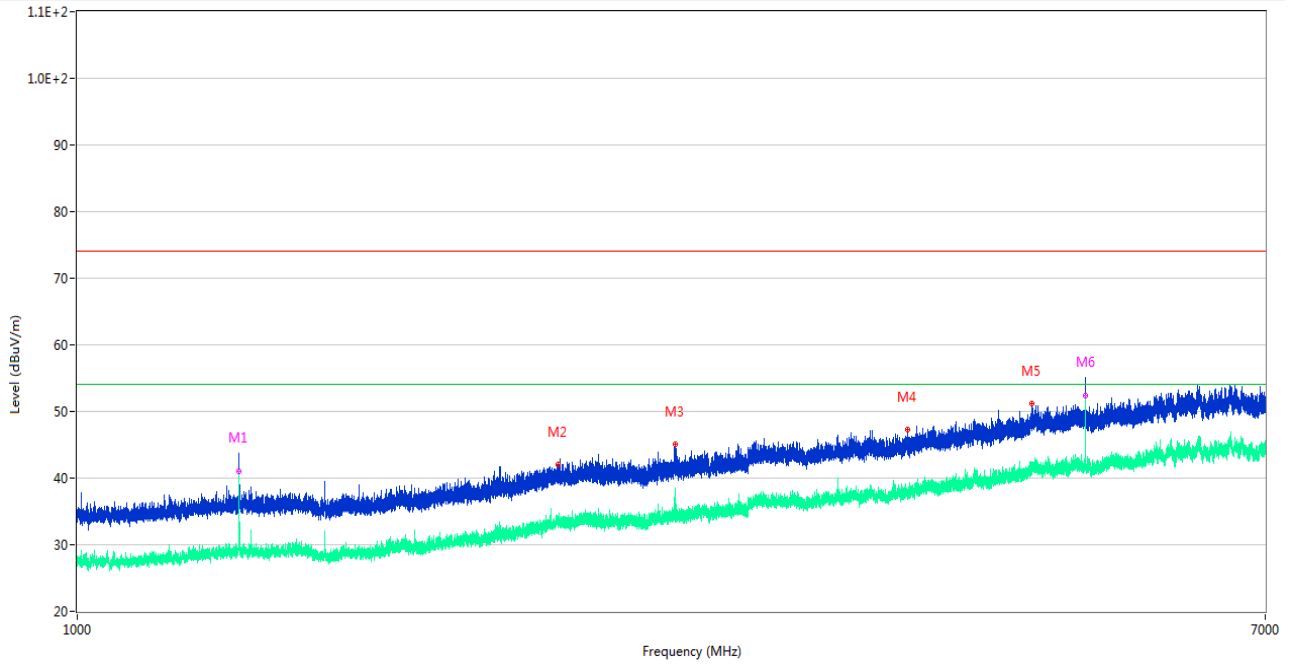
| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|------------|---------|
| 1 | 1302.300 | 43.34 | -16.92 | 80.8 | 37.46 | Peak | 216.00 | 200 | Horizontal | Pass |
| 1** | 1302.300 | 40.61 | -16.92 | 60.8 | 20.19 | AV | 216.00 | 200 | Horizontal | Pass |
| 2 | 1996.600 | 43.21 | -15.05 | 74.0 | 30.79 | Peak | 90.00 | 150 | Horizontal | Pass |
| 2** | 1996.600 | 31.96 | -15.05 | 54.0 | 22.04 | AV | 90.00 | 150 | Horizontal | Pass |
| 3 | 2664.300 | 46.30 | -11.52 | 74.0 | 27.70 | Peak | 204.00 | 100 | Horizontal | Pass |
| 3** | 2664.300 | 37.83 | -11.52 | 54.0 | 16.17 | AV | 204.00 | 100 | Horizontal | Pass |
| 4 | 4378.000 | 50.17 | -2.88 | 74.0 | 23.83 | Peak | 147.00 | 150 | Horizontal | Pass |
| 4** | 4378.000 | 39.73 | -2.88 | 54.0 | 14.27 | AV | 147.00 | 150 | Horizontal | Pass |
| 5 | 5208.600 | 55.48 | -2.00 | 80.8 | 25.32 | Peak | 316.00 | 100 | Horizontal | Pass |
| 5** | 5208.600 | 51.90 | -2.00 | 60.8 | 8.9 | AV | 316.00 | 100 | Horizontal | Pass |
| 6 | 6657.600 | 53.93 | 1.04 | 74.0 | 20.07 | Peak | 0.00 | 150 | Horizontal | Pass |
| 6** | 6657.600 | 44.71 | 1.04 | 54.0 | 9.29 | AV | 0.00 | 150 | Horizontal | Pass |

LOW CHANNEL 1 GHz to 7 GHz, ANT V



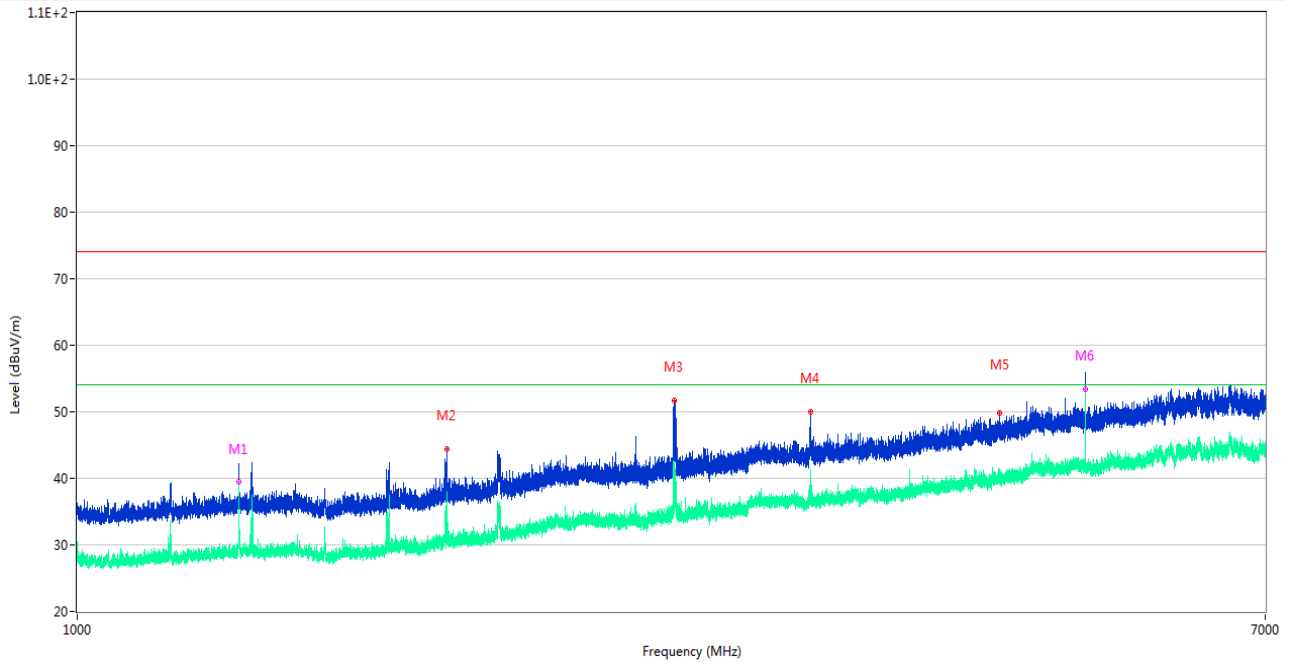
| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|----------|---------|
| 1 | 1302.200 | 42.39 | -16.94 | 80.8 | 38.41 | Peak | 17.00 | 200 | Vertical | Pass |
| 1** | 1302.200 | 38.41 | -16.94 | 60.8 | 22.39 | AV | 17.00 | 200 | Vertical | Pass |
| 2 | 1828.700 | 44.99 | -16.27 | 74.0 | 29.01 | Peak | 151.00 | 150 | Vertical | Pass |
| 2** | 1828.700 | 30.40 | -16.27 | 54.0 | 23.60 | AV | 151.00 | 150 | Vertical | Pass |
| 3 | 2665.300 | 52.42 | -11.66 | 74.0 | 21.58 | Peak | 157.00 | 100 | Vertical | Pass |
| 3** | 2665.300 | 37.49 | -11.66 | 54.0 | 16.51 | AV | 157.00 | 100 | Vertical | Pass |
| 4 | 3318.000 | 48.59 | -7.74 | 74.0 | 25.41 | Peak | 115.00 | 150 | Vertical | Pass |
| 4** | 3318.000 | 37.29 | -7.74 | 54.0 | 16.71 | AV | 115.00 | 150 | Vertical | Pass |
| 5 | 4671.800 | 50.08 | -2.25 | 74.0 | 23.92 | Peak | 213.00 | 100 | Vertical | Pass |
| 5** | 4671.800 | 40.05 | -2.25 | 54.0 | 13.95 | AV | 213.00 | 100 | Vertical | Pass |
| 6 | 5209.200 | 55.06 | -2.01 | 80.8 | 25.74 | Peak | 360.00 | 200 | Vertical | Pass |
| 6** | 5209.200 | 53.65 | -2.01 | 60.8 | 7.15 | AV | 360.00 | 200 | Vertical | Pass |

MIDDLE CHANNEL 1 GHz to 7 GHz, ANT H



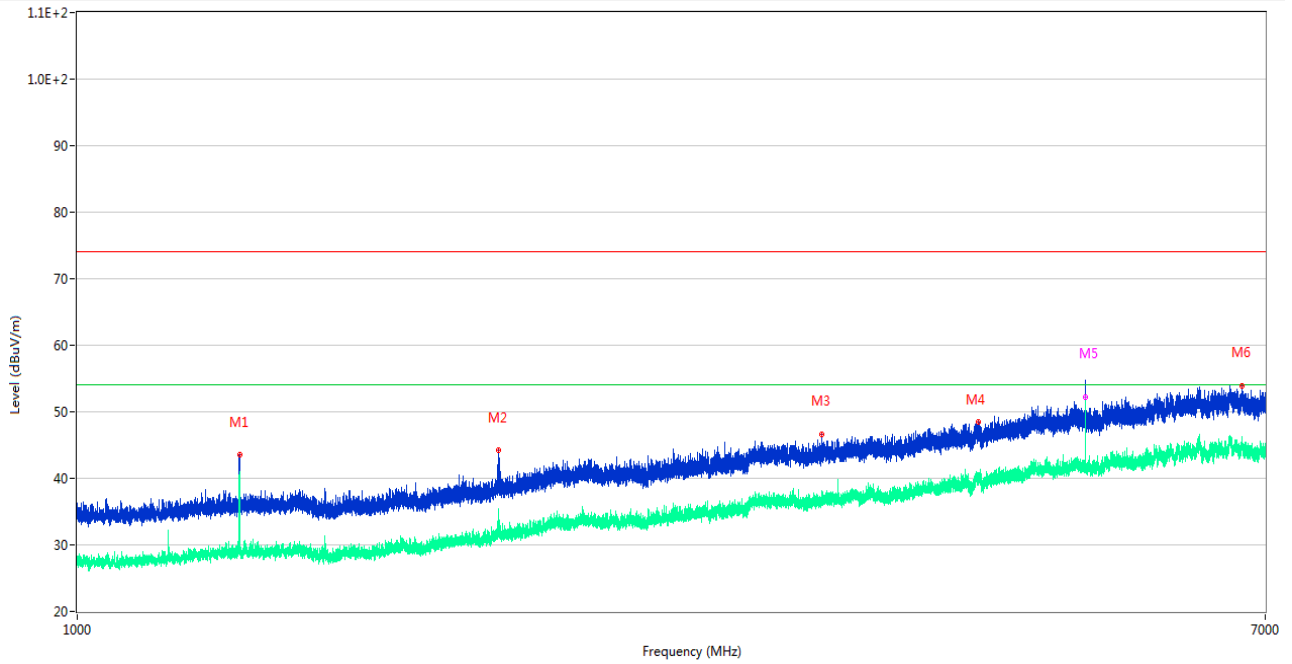
| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|------------|---------|
| 1 | 1303.400 | 43.38 | -16.87 | 80.8 | 37.42 | Peak | 216.00 | 150 | Horizontal | Pass |
| 1** | 1303.400 | 41.03 | -16.87 | 60.8 | 19.77 | AV | 216.00 | 150 | Horizontal | Pass |
| 2 | 2197.600 | 41.99 | -12.77 | 74.0 | 32.01 | Peak | 3.00 | 100 | Horizontal | Pass |
| 2** | 2197.600 | 33.23 | -12.77 | 54.0 | 20.77 | AV | 3.00 | 100 | Horizontal | Pass |
| 3 | 2662.700 | 45.04 | -11.23 | 74.0 | 28.96 | Peak | 120.00 | 150 | Horizontal | Pass |
| 3** | 2662.700 | 35.41 | -11.23 | 54.0 | 18.59 | AV | 120.00 | 150 | Horizontal | Pass |
| 4 | 3895.400 | 47.26 | -4.98 | 74.0 | 26.74 | Peak | 3.00 | 200 | Horizontal | Pass |
| 4** | 3895.400 | 37.22 | -4.98 | 54.0 | 16.78 | AV | 3.00 | 200 | Horizontal | Pass |
| 5 | 4773.200 | 51.13 | -1.42 | 74.0 | 22.87 | Peak | 92.00 | 100 | Horizontal | Pass |
| 5** | 4773.200 | 42.17 | -1.42 | 54.0 | 11.83 | AV | 92.00 | 100 | Horizontal | Pass |
| 6 | 5213.000 | 55.01 | -2.36 | 80.8 | 25.79 | Peak | 320.00 | 150 | Horizontal | Pass |
| 6** | 5213.000 | 52.34 | -2.36 | 60.8 | 8.46 | AV | 320.00 | 150 | Horizontal | Pass |

MIDDLE CHANNEL 1 GHz to 7 GHz, ANT V



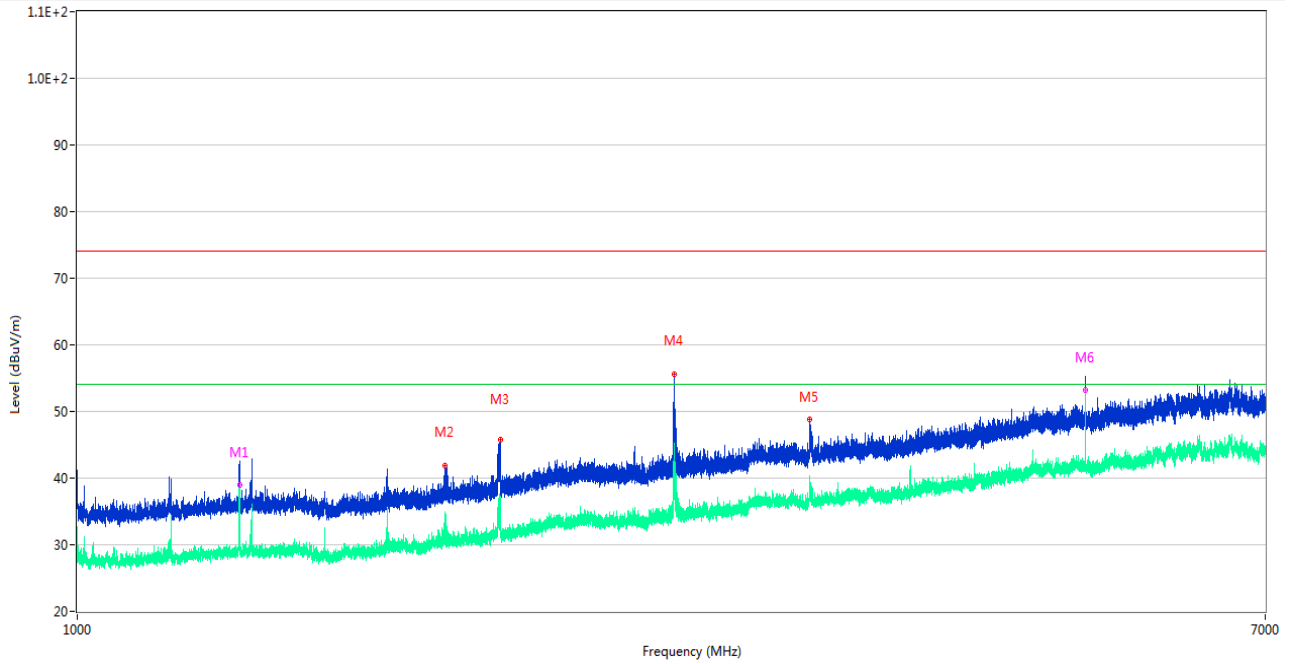
| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|----------|---------|
| 1 | 1303.300 | 42.19 | -16.86 | 80.8 | 38.61 | Peak | 19.00 | 150 | Vertical | Pass |
| 1** | 1303.300 | 39.41 | -16.86 | 60.8 | 21.39 | AV | 19.00 | 150 | Vertical | Pass |
| 2 | 1830.900 | 44.42 | -16.29 | 74.0 | 29.58 | Peak | 140.00 | 150 | Vertical | Pass |
| 2** | 1830.900 | 30.92 | -16.29 | 54.0 | 23.08 | AV | 140.00 | 150 | Vertical | Pass |
| 3 | 2658.700 | 51.72 | -11.21 | 74.0 | 22.28 | Peak | 154.00 | 100 | Vertical | Pass |
| 3** | 2658.700 | 39.63 | -11.21 | 54.0 | 14.37 | AV | 154.00 | 100 | Vertical | Pass |
| 4 | 3324.800 | 50.02 | -7.99 | 74.0 | 23.98 | Peak | 145.00 | 150 | Vertical | Pass |
| 4** | 3324.800 | 37.46 | -7.99 | 54.0 | 16.54 | AV | 145.00 | 150 | Vertical | Pass |
| 5 | 4527.000 | 49.75 | -3.34 | 74.0 | 24.25 | Peak | 0.00 | 100 | Vertical | Pass |
| 5** | 4527.000 | 40.95 | -3.34 | 54.0 | 13.05 | AV | 0.00 | 100 | Vertical | Pass |
| 6 | 5213.200 | 55.86 | -2.35 | 80.8 | 24.94 | Peak | 326.00 | 200 | Vertical | Pass |
| 6** | 5213.200 | 53.46 | -2.35 | 60.8 | 7.34 | AV | 326.00 | 200 | Vertical | Pass |

HIGH CHANNEL 1 GHz to 7 GHz, ANT H



| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|------------|---------|
| 1 | 1304.200 | 43.53 | -16.96 | 80.8 | 37.27 | Peak | 93.00 | 150 | Horizontal | Pass |
| 1** | 1304.200 | 40.79 | -16.96 | 60.8 | 20.01 | AV | 93.00 | 150 | Horizontal | Pass |
| 2 | 1994.200 | 44.22 | -15.18 | 74.0 | 29.78 | Peak | 66.00 | 200 | Horizontal | Pass |
| 2** | 1994.200 | 35.40 | -15.18 | 54.0 | 18.60 | AV | 66.00 | 200 | Horizontal | Pass |
| 3 | 3386.600 | 46.61 | -6.54 | 74.0 | 27.39 | Peak | 339.00 | 150 | Horizontal | Pass |
| 3** | 3386.600 | 38.14 | -6.54 | 54.0 | 15.86 | AV | 339.00 | 150 | Horizontal | Pass |
| 4 | 4374.200 | 48.50 | -3.14 | 74.0 | 25.50 | Peak | 138.00 | 100 | Horizontal | Pass |
| 4** | 4374.200 | 39.56 | -3.14 | 54.0 | 14.44 | AV | 138.00 | 100 | Horizontal | Pass |
| 5 | 5217.400 | 54.64 | -2.54 | 80.8 | 26.16 | Peak | 42.00 | 100 | Horizontal | Pass |
| 5** | 5217.400 | 52.25 | -2.54 | 60.8 | 8.55 | AV | 42.00 | 100 | Horizontal | Pass |
| 6 | 6736.600 | 53.91 | 2.43 | 74.0 | 20.09 | Peak | 177.00 | 200 | Horizontal | Pass |
| 6** | 6736.600 | 45.55 | 2.43 | 54.0 | 8.45 | AV | 177.00 | 200 | Horizontal | Pass |

HIGH CHANNEL 1 GHz to 7 GHz, ANT V



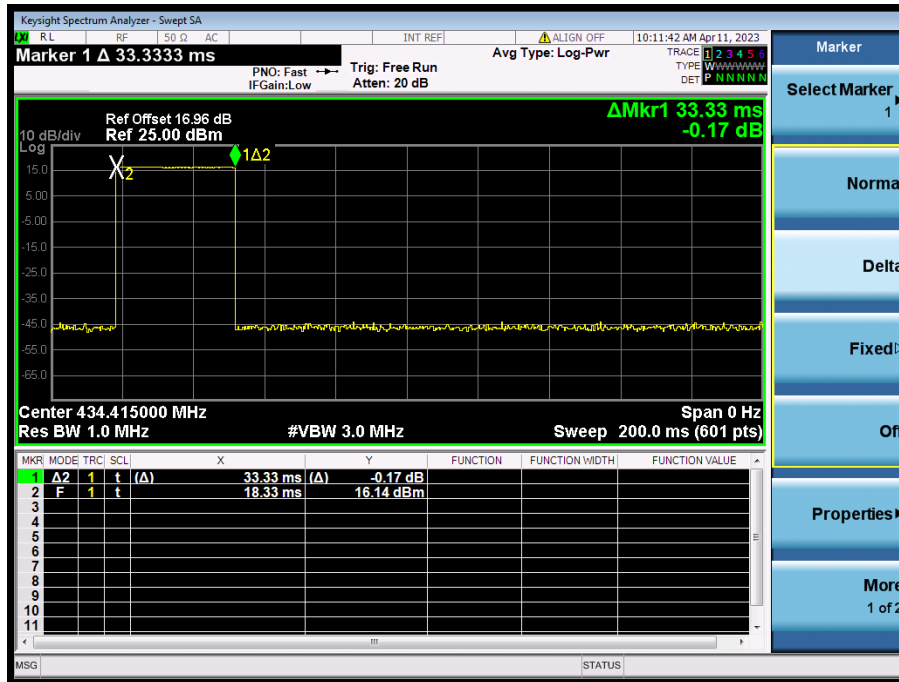
| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Margin (dB) | Detector | Table (Degree) | Height (cm) | Antenna | Verdict |
|-----|-----------------|------------------|-------------|----------------|-------------|----------|----------------|-------------|----------|---------|
| 1 | 1304.300 | 41.67 | -16.97 | 80.8 | 39.13 | Peak | 19.00 | 100 | Vertical | Pass |
| 1** | 1304.300 | 38.92 | -16.97 | 60.8 | 21.88 | AV | 19.00 | 100 | Vertical | Pass |
| 2 | 1827.200 | 41.91 | -16.12 | 74.0 | 32.09 | Peak | 155.00 | 200 | Vertical | Pass |
| 2** | 1827.200 | 30.28 | -16.12 | 54.0 | 23.72 | AV | 155.00 | 200 | Vertical | Pass |
| 3 | 1999.800 | 45.71 | -15.20 | 74.0 | 28.29 | Peak | 122.00 | 100 | Vertical | Pass |
| 3** | 1999.800 | 36.42 | -15.20 | 54.0 | 17.58 | AV | 122.00 | 100 | Vertical | Pass |
| 4 | 2659.100 | 55.67 | -11.23 | 74.0 | 18.33 | Peak | 155.00 | 150 | Vertical | Pass |
| 4** | 2659.100 | 45.28 | -11.23 | 54.0 | 8.72 | AV | 155.00 | 150 | Vertical | Pass |
| 5 | 3318.800 | 48.75 | -7.80 | 74.0 | 25.25 | Peak | 147.00 | 100 | Vertical | Pass |
| 5** | 3318.800 | 37.51 | -7.80 | 54.0 | 16.49 | AV | 147.00 | 100 | Vertical | Pass |
| 6 | 5217.200 | 55.19 | -2.50 | 80.8 | 25.61 | Peak | 0.00 | 150 | Vertical | Pass |
| 6** | 5217.200 | 53.15 | -2.50 | 60.8 | 7.65 | AV | 0.00 | 150 | Vertical | Pass |

A.6 Transmitter Time

Test Data and Plot

The active time is less than 5 seconds

Active time



ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2270796-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2270796-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2270796-AI.PDF”.

Statement

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--END OF REPORT--