



EMC TEST REPORT

Report No.: 20250517G11391X-W1

Product Name: BLUETOOTH DIGITAL SMART KEY

FCC ID: 2AI4T-XSBTK0

Model No.: XSBTK0

Trade Name: Xhorse

Applicant: Shenzhen Xhorse Electronics Co., Ltd.

Address: Floor 28, Block A, Building NO.6, International Innovation Valley, Nanshan District, Shenzhen

Received Date: 2025.05.19

Dates of Testing: 2025.05.22–2025.05.27

Issued by: CCIC Southern Testing Co., Ltd.

Electronic Testing Building, No.43, Shahe Road, Xili Street, Nanshan

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Test Report

Product Name BLUETOOTH DIGITAL SMART KEY

Model No. XSBTK0

Applicant Shenzhen Xhorse Electronics Co., Ltd.

Applicant Address Floor 28, Block A, Building NO.6, International Innovation Valley, Nanshan District, Shenzhen

Manufacturer Shenzhen Xhorse Electronics Co., Ltd.

Manufacturer Address Floor 28, Block A, Building NO.6, International Innovation Valley, Nanshan District, Shenzhen

Test Standards 47 CFR Part 15 Subpart B

Test Result PASS

Tested by Deng Shanfei

Deng Shanfei, Test Engineer

2025.05.28

Reviewed by Sun Jiaohui

Sun Jiaohui, Senior Engineer

2025.05.28

Approved by Chris You

Chris You, Manager

2025.05.28



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| Change History | | |
|----------------|------------|-------------------|
| Issue | Date | Reason for change |
| 1.0 | 2025.05.28 | First edition |
| | | |
| | | |

1. GENERAL INFORMATION

1.1 EUT Description

| | |
|--------------|-----------------------------|
| EUT Name | BLUETOOTH DIGITAL SMART KEY |
| Power supply | DC 12V |

Note 1: The EUT is a BLUETOOTH DIGITAL SMART KEY.

Note 2: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

| No. | Identity | Document Title |
|-----|-----------------------------|-------------------------|
| 1 | 47 CFR Part 15 Subpart B | Radio Frequency Devices |

Test detailed items/section required by FCC rules and results are as below:

| No. | Section | Description | Result |
|-----|---------|--------------------|--------|
| 1 | 15.107 | Conducted Emission | N.A.2 |
| 2 | 15.109 | Radiated Emission | PASS |

NOTE:

- (1) The EUT has been tested according to 47 CFR Part 15 Subpart B, CLASS B. The test procedure is according to ANSI C63.4:2014.
- (2) AC conduction is not applicable because the product is 12V DC power supply.



1.3 Facilities and Accreditations

1.3.1 Facilities

CCIC-SET Lab 1

Address: Electronic Testing Building, No.43, Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China

FCC-Registration No.: CN1283

CCIC Southern Testing Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN1283.

ISED Registration: 11185A, CAB number: CN0064

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A.

A2LA Code: 5721.01

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

CNAS L1659

CCIC Southern Testing Co., Ltd. CCIC is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

CCIC-SET Lab 4

Address: No.125, Hongmei Section, Wangsha Road, Hongmei Town, Dongguan City, Guangdong Province, China

CNAS L1659

CCIC Southern Testing Co., Ltd. CCIC is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

1.3.2 Test Environment Conditions

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

| | |
|-----------------------------|----------------|
| Temperature (°C): | 15 °C – 35 °C |
| Relative Humidity (%): | 25% –75% |
| Atmospheric Pressure (kPa): | 86 kPa-106 kPa |

1.3.3 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in Measurement” (GUM) published by ISO.

| | |
|---|---|
| Uncertainty of Conducted Emission: | $U_c = 3.2 \text{ dB (} k = 2 \text{)}$ |
| Uncertainty of Radiated Emission: (30 MHz–1 GHz) | $U_c = 5.8 \text{ dB (} k = 2 \text{)}$ |
| Uncertainty of Radiated Emission: (1–6 GHz) | $U_c = 5.1 \text{ dB (} k = 2 \text{)}$ |
| Uncertainty of Radiated Emission: (6–18 GHz) | $U_c = 5.5 \text{ dB (} k = 2 \text{)}$ |

2. TEST CONDITIONS SETTING

2.1 Test Peripherals

The following is a listing of the EUT and peripherals utilized during the performance of EMC test:

Support Equipment:

| Description | Brand name | Model | Serial No. | FCCID |
|---------------|------------|-------|------------|-------------|
| KEY TOOL MIDI | Xhorse | XDKMD | / | 2AI4T-XDKMD |

Support Cable:

| Description | Shield Type | Ferrite Core | Length |
|----------------|-------------|--------------|--------|
| DC Power Cable | / | / | 0.6m |

2.2 Test Mode

Note 3: The EUT is a BLUETOOTH DIGITAL SMART KEY; It could support the following operating mode and frequency band: Bluetooth; 433.92 MHz&125 kHz;

Note 4: The EUT have the following typical setups during the test:

Setup 1: Bluetooth + EUT working + DC Power Supply (12V);

Setup 2: 433.92 MHz TX + EUT working + DC Power Supply (12V);

Setup 3: 125 kHz RX + EUT working + DC Power Supply (12V);

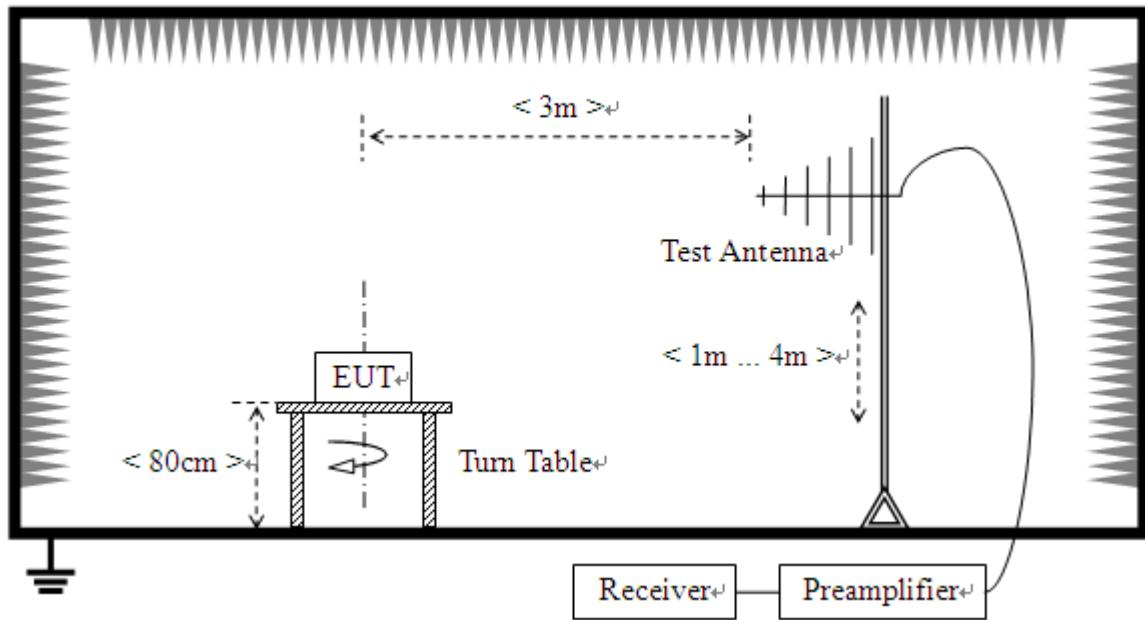
Note 5: All the patterns have been tested and only the worst results are recorded in the report. This test had the worst result in Bluetooth mode.

2.3 Test Setup and Equipments List

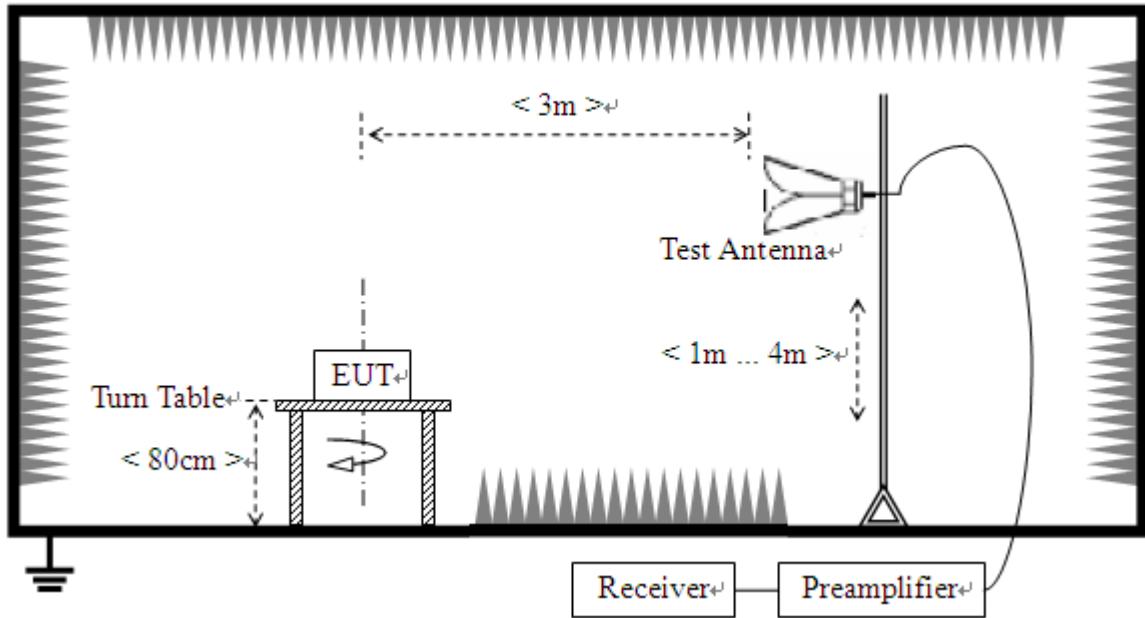
2.3.1 Radiated Emission

A. Test Setup:

- 1) For radiated emissions from 30 MHz to 1 GHz



- 2) For radiated emissions above 1 GHz



B. Test Procedure

The test is performed in a 3 m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8 m high insulating Turn Table, and keeps 3 m away from the Test Antenna, which is mounted on a variable-height antenna master tower.

For the test Antenna:

In the frequency range above 30 MHz, Bi-Log Test Antenna (30 MHz to 1 GHz) and Horn Test Antenna (above 1 GHz) are used. Test Antenna is 3 m away from the EUT. Test Antenna height is varied from 1 m to 4 m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

C. Equipments List:

| Description | Manufacturer | Model | Serial No. | Calibration Date | Calibration Due. Date |
|---------------------|---------------|---------------------------|------------|------------------|-----------------------|
| EMI Test Receiver | ROHDE&SCHWARZ | ESIB7 | A0501375 | 2025.01.13 | 2026.01.12 |
| Broadband Ant. | ETC | MCTD2786 | A150402239 | 2025.04.27 | 2026.04.26 |
| 3M Anechoic Chamber | Albatross | SAC-3MAC 9*6*6m | A0412375 | 2024.02.27 | 2027.02.27 |
| EMI Test Receiver | ROHDE&SCHWARZ | ESW26 | A180502935 | 2025.04.25 | 2026.04.24 |
| 5M Anechoic Chamber | Albatross | SAC-5MAC 12.8x6.8x6.4m | A0304210 | 2024.08.02 | 2026.08.01 |
| EMI Horn Ant. | ROHDE&SCHWARZ | HF906 | A0304225 | 2024.04.02 | 2027.04.01 |



| Description | Manufacturer | Model | Serial No. | Calibration Date | Calibration Due. Date |
|-------------------------------|--------------|-------------------------------|------------|------------------|-----------------------|
| Cable(9kHz~30MHz) | / | / | C230800587 | 2023.08.21 | 2026.08.20 |
| Cable(30MHz~18GHz z) | / | XSMJA750-S MNM(RA)-12 M | C230800588 | 2023.08.21 | 2026.08.20 |
| Cable(18GHz~40GHz z) | / | SUCOFLEX1 02 | C230800590 | 2023.08.21 | 2026.08.20 |
| 10dB Attenuator (Radiated) | Schwarzbeck | DGA 9552 N | A181103396 | 2024.12.31 | 2025.12.30 |

3. 47 CFR PART 15B REQUIREMENTS

3.1 Radiated Emission

3.1.1 Requirement

According to FCC section 15.109, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

| Frequency range (MHz) | Field Strength | | Field Strength Limitation at 3 m Measurement Dist | |
|-----------------------|----------------|------|---|-----------|
| | μV/m | Dist | (uV/m) | (dBuV/m) |
| 30.0 – 88.0 | 100 | 3 m | 100 | 20log 100 |
| 88.0 – 216.0 | 150 | 3 m | 150 | 20log 150 |
| 216.0 – 960.0 | 200 | 3 m | 200 | 20log 200 |
| Above 960.0 | 500 | 3 m | 500 | 20log 500 |

- a) For frequencies above 1000 MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.
- b) Test Antenna is 3 m away from the EUT. Test Antenna height is varied from 1 m to 4 m above the ground to determine the maximum value of the field strength.
- c) For below 1G: QP detector RBW 120 kHz, VBW 300 kHz.

For Above 1G: PK detector RBW 1 MHz, VBW 3 MHz for PK value; AV detector RBW 1 MHz, VBW 10 Hz for AV value.

Note:

- 1) The tighter limit shall apply at the boundary between two frequency range.
- 2) Limitation expressed in dBuV/m is calculated by 20log Emission Level(uV/m).
- 3) If measurement is made at 3 m distance, then F.S Limitation at 3 m distance is adjusted by using the formula of $Ld1 = Ld2 * (d2/d1)^2$.

Example:

F.S Limit at 30 m distance is 30 uV/m, then F.S Limitation at 3 m distance is adjusted as $Ld1 = L1 = 30 \text{ uV/m} * (10)^2 = 100 * 30 \text{ uV/m}$.

3.1.2 Test Description

See section 2.3.2 of this report.

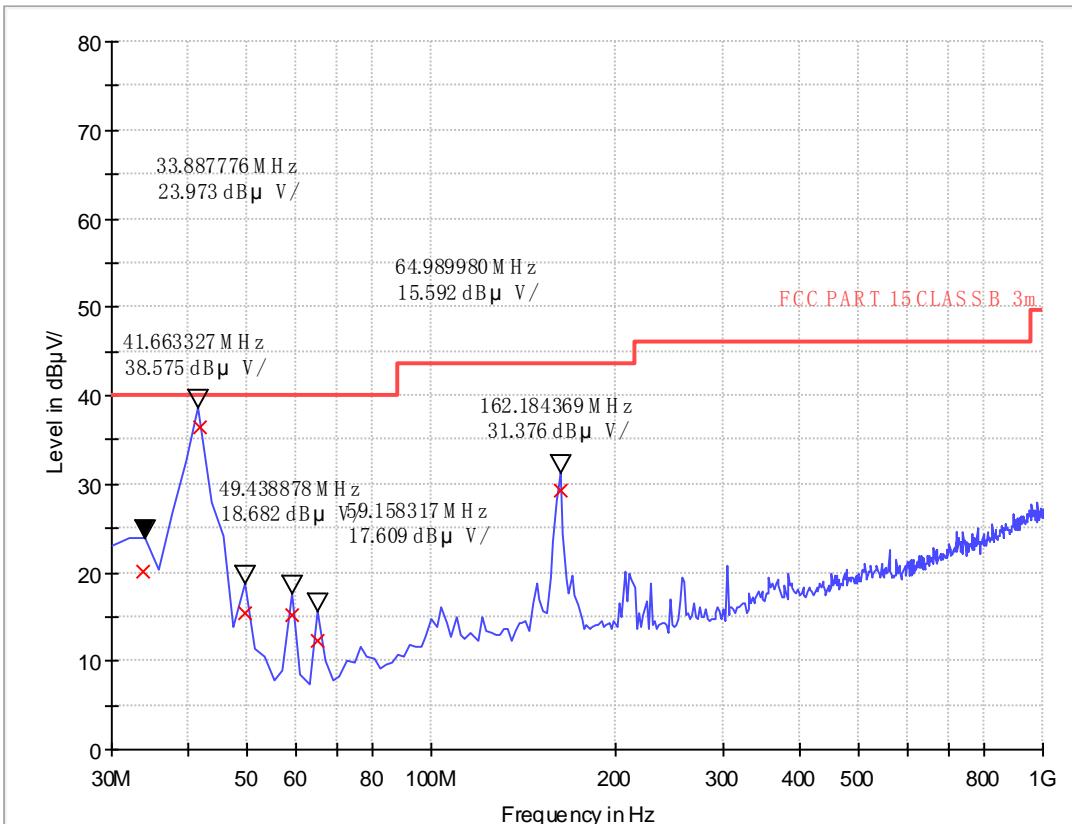
3.1.3 Test Result

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.

Note: All radiated emission tests were performed in X, Y, Z axis direction, and only the worst axis test condition was recorded in this test report.

A. Radiation disturbances, antenna polarization: Vertical, Setup 1



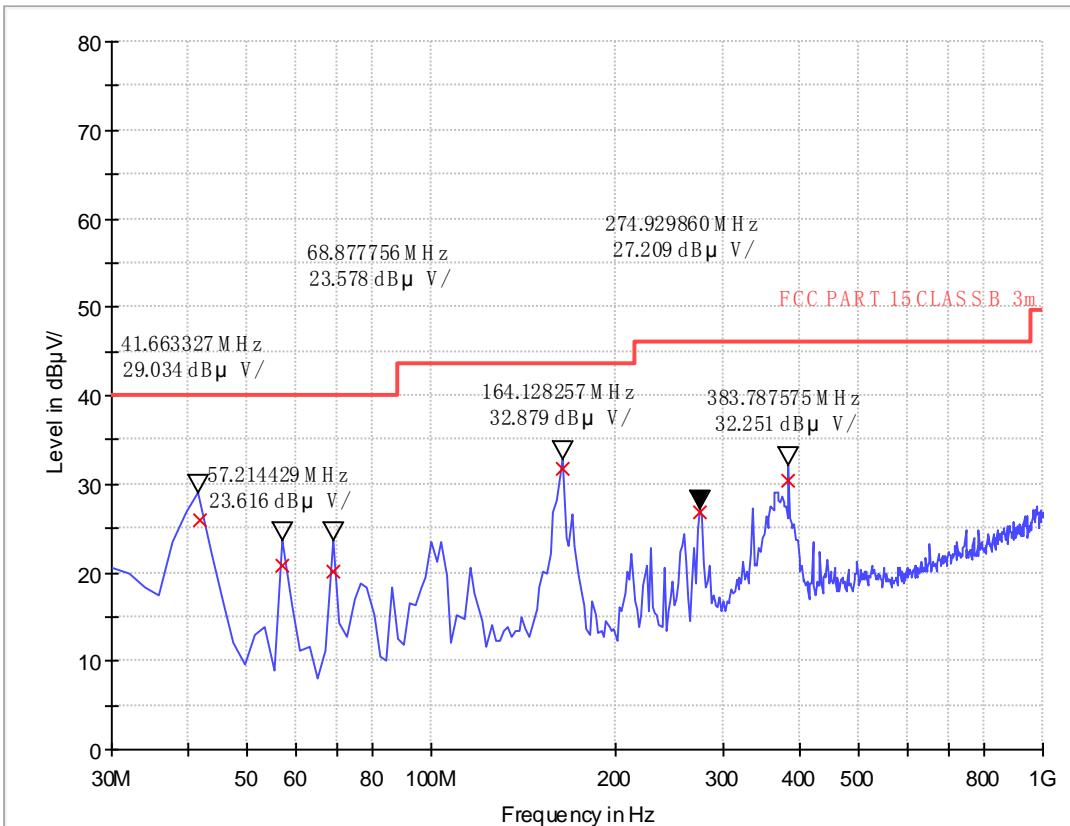
(Plot C: Test Antenna Vertical 30M – 1G)

| Frequency (MHz) | QuasiPeak (dB μ V/m) | Bandwidth (kHz) | Antenna height (cm) | Limit (dB μ V/m) | Margin (dB) | Antenna | Corr. (dB) | Verdict |
|-----------------|--------------------------|-----------------|---------------------|----------------------|-------------|----------|------------|---------|
| 33.88 | 20.19 | 120.000 | 102 | 40.0 | 19.81 | Vertical | 17.2 | Pass |
| 41.68 | 36.39 | 120.000 | 106 | 40.0 | 3.61 | Vertical | 13.3 | Pass |
| 49.44 | 15.41 | 120.000 | 101 | 40.0 | 24.59 | Vertical | 9.2 | Pass |
| 59.16 | 15.14 | 120.000 | 109 | 40.0 | 24.86 | Vertical | 5.8 | Pass |
| 65.00 | 12.22 | 120.000 | 105 | 40.0 | 27.78 | Vertical | 5.9 | Pass |
| 162.20 | 29.22 | 120.000 | 104 | 43.5 | 14.28 | Vertical | 12.0 | Pass |

Remark:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB).
3. Margin value = Limit value – Emission Level.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. Only the antenna height (from 1 m to 4 m) at maximum reading are recorded.

B. Radiation disturbances, antenna polarization: Horizontal, Setup 1



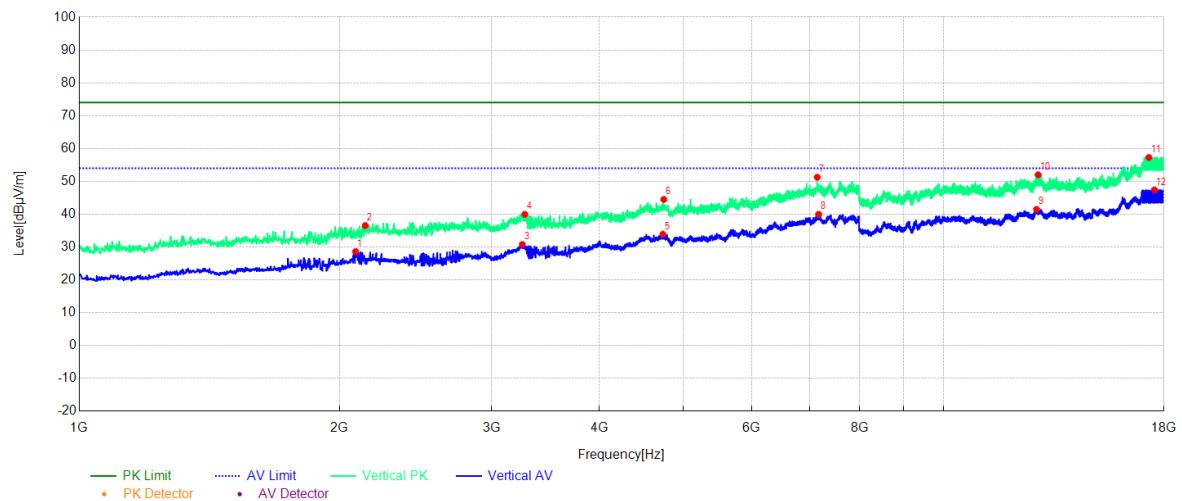
(Plot D: Test Antenna Horizontal 30M – 1G)

| Frequency (MHz) | QuasiPeak (dB μ V/m) | Bandwidth (kHz) | Antenna height (cm) | Limit (dB μ V/m) | Margin (dB) | Antenna | Corr. (dB) | Verdict |
|-----------------|--------------------------|-----------------|---------------------|----------------------|-------------|------------|------------|---------|
| 41.68 | 26.02 | 120.000 | 105 | 40.0 | 13.98 | Horizontal | 13.3 | Pass |
| 57.20 | 20.69 | 120.000 | 109 | 40.0 | 19.31 | Horizontal | 6.4 | Pass |
| 68.88 | 20.14 | 120.000 | 105 | 40.0 | 19.86 | Horizontal | 6.2 | Pass |
| 164.12 | 31.63 | 120.000 | 106 | 43.5 | 11.87 | Horizontal | 12.0 | Pass |
| 274.92 | 26.79 | 120.000 | 103 | 46.0 | 19.21 | Horizontal | 14.3 | Pass |
| 383.80 | 30.42 | 120.000 | 104 | 46.0 | 15.58 | Horizontal | 16.6 | Pass |

Remark:

1. Emission Level(dB μ V/m) = Raw Value(dB μ V) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB).
3. Margin value = Limit value – Emission Level.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. Only the antenna height (from 1 m to 4 m) at maximum reading are recorded.

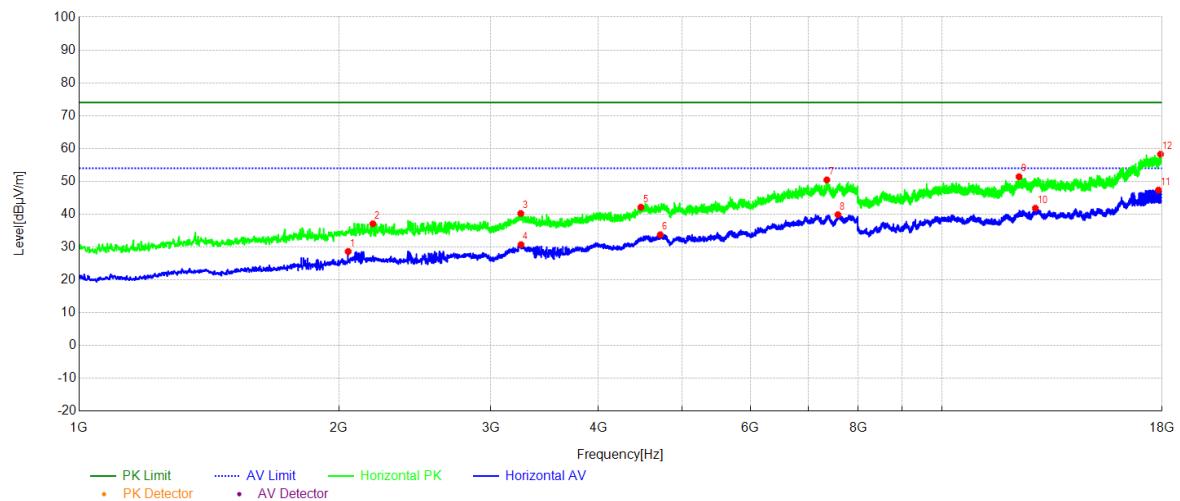
A. Radiation disturbances, antenna polarization: Vertical, Setup1



(Plot M: Test Antenna Vertical 1G – 18G)

| NO. | Freq. [MHz] | Level [dB μ V/m] | Factor [dB] | Limit [dB μ V/m] | Margin [dB μ V/m] | Trace | Height [cm] | Angle [°] | Polarity |
|-----|-------------|----------------------|-------------|----------------------|-----------------------|-------|-------------|-----------|----------|
| 1 | 2088.11 | 28.60 | -11.89 | 54.00 | 25.40 | AV | 106 | 234 | Vertical |
| 2 | 2142.51 | 36.53 | -12.18 | 74.00 | 37.47 | PK | 101 | 279 | Vertical |
| 3 | 3256.13 | 30.79 | -7.87 | 54.00 | 23.21 | AV | 105 | 273 | Vertical |
| 4 | 3278.23 | 39.95 | -8.27 | 74.00 | 34.05 | PK | 107 | 353 | Vertical |
| 5 | 4735.27 | 33.91 | -5.02 | 54.00 | 20.09 | AV | 103 | 157 | Vertical |
| 6 | 4747.17 | 44.51 | -4.93 | 74.00 | 29.49 | PK | 106 | 86 | Vertical |
| 7 | 7146.11 | 51.26 | 0.90 | 74.00 | 22.74 | PK | 105 | 312 | Vertical |
| 8 | 7171.62 | 39.96 | 1.05 | 54.00 | 14.04 | AV | 109 | 296 | Vertical |
| 9 | 12816.18 | 41.47 | 5.24 | 54.00 | 12.53 | AV | 104 | 238 | Vertical |
| 10 | 12870.59 | 51.98 | 5.13 | 74.00 | 22.02 | PK | 105 | 304 | Vertical |
| 11 | 17289.33 | 57.26 | 11.97 | 74.00 | 16.74 | PK | 102 | 333 | Vertical |
| 12 | 17546.05 | 47.38 | 12.14 | 54.00 | 6.62 | AV | 108 | 235 | Vertical |

B. Radiation disturbances, antenna polarization: Horizontal, Setup1



(Plot N: Test Antenna Horizontal 1G – 18G)

| NO. | Freq. [MHz] | Level [dB μ V/m] | Factor [dB] | Limit [dB μ V/m] | Margin [dB μ V/m] | Trace | Height [cm] | Angle [°] | Polarity |
|-----|-------------|----------------------|-------------|----------------------|-----------------------|-------|-------------|-----------|------------|
| 1 | 2050.71 | 28.65 | -13.01 | 54.00 | 25.35 | AV | 104 | 84 | Horizontal |
| 2 | 2190.12 | 37.08 | -12.26 | 74.00 | 36.92 | PK | 108 | 295 | Horizontal |
| 3 | 3251.03 | 40.22 | -7.78 | 74.00 | 33.78 | PK | 103 | 183 | Horizontal |
| 4 | 3252.73 | 30.73 | -7.81 | 54.00 | 23.27 | AV | 106 | 208 | Horizontal |
| 5 | 4480.25 | 42.12 | -5.72 | 74.00 | 31.88 | PK | 102 | 31 | Horizontal |
| 6 | 4716.57 | 33.74 | -5.17 | 54.00 | 20.26 | AV | 109 | 354 | Horizontal |
| 7 | 7356.94 | 50.44 | 1.01 | 74.00 | 23.56 | PK | 107 | 296 | Horizontal |
| 8 | 7577.96 | 39.85 | 0.94 | 54.00 | 14.15 | AV | 105 | 253 | Horizontal |
| 9 | 12287.43 | 51.40 | 4.59 | 74.00 | 22.60 | PK | 104 | 27 | Horizontal |
| 10 | 12834.88 | 41.83 | 5.20 | 54.00 | 12.17 | AV | 103 | 274 | Horizontal |
| 11 | 17828.28 | 47.34 | 12.51 | 54.00 | 6.66 | AV | 109 | 332 | Horizontal |
| 12 | 17925.19 | 58.25 | 13.33 | 74.00 | 15.75 | PK | 101 | 176 | Horizontal |

-----End of Report-----