



# 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.

**Lab Location:** 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



## TABLE OF CONTENTS

<b>1.</b>	<b>GENERAL INFORMATION .....</b>	<b>4</b>
<b>1.1</b>	<b>EUT Description.....</b>	<b>4</b>
<b>1.2</b>	<b>Test Standards and Results .....</b>	<b>5</b>
<b>1.3</b>	<b>Facilities and Accreditations .....</b>	<b>6</b>
1.3.1	Facilities .....	6
1.3.2	Test Environment Conditions .....	7
1.3.3	Measurement Uncertainty .....	7
<b>2.</b>	<b>TEST CONDITIONS SETTING .....</b>	<b>8</b>
<b>2.1</b>	<b>Test Peripherals .....</b>	<b>8</b>
<b>2.2</b>	<b>Test Mode .....</b>	<b>8</b>
<b>2.3</b>	<b>Test Setup and Equipments List .....</b>	<b>9</b>
2.3.1	Radiated Emission .....	9
<b>3.</b>	<b>47 CFR PART 15B REQUIREMENTS .....</b>	<b>12</b>
<b>3.1</b>	<b>Radiated Emission.....</b>	<b>12</b>
3.1.1	Requirement .....	12
3.1.2	Test Description.....	13
3.1.3	Test Result .....	13

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:	Uc = 3.2 dB (k = 2)
Uncertainty of Radiated Emission: (30 MHz–1 GHz)	Uc = 5.8 dB (k = 2)
Uncertainty of Radiated Emission: (1–6 GHz)	Uc = 5.1 dB (k = 2)
Uncertainty of Radiated Emission: (6–18 GHz)	Uc = 5.5 dB (k = 2)

## 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	/	2A14T-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.

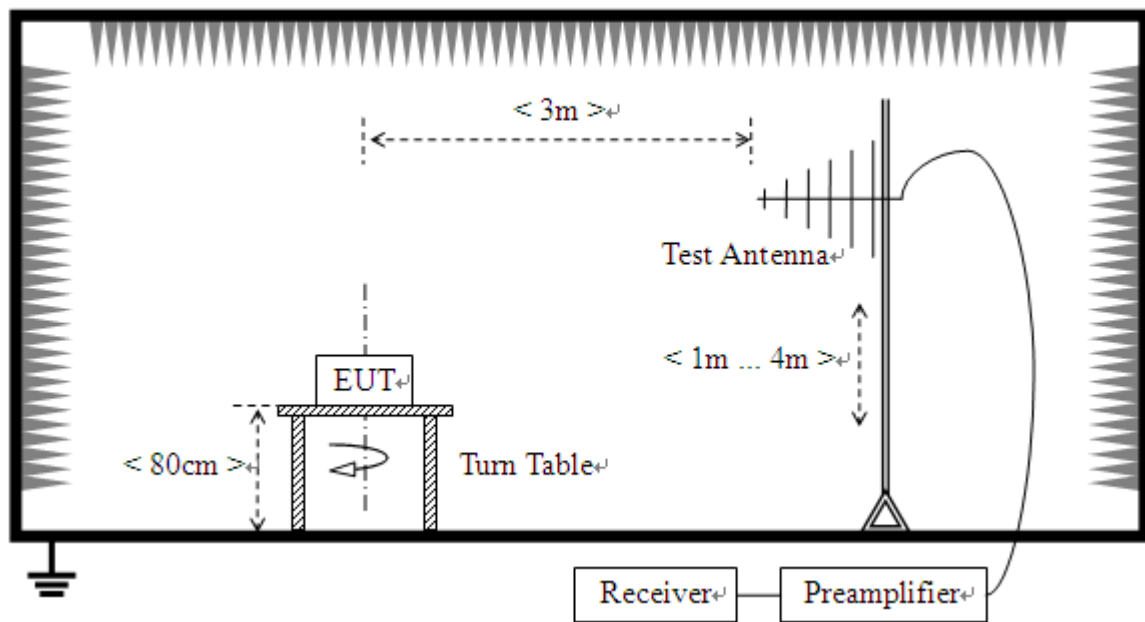


## 2.3 Test Setup and Equipments List

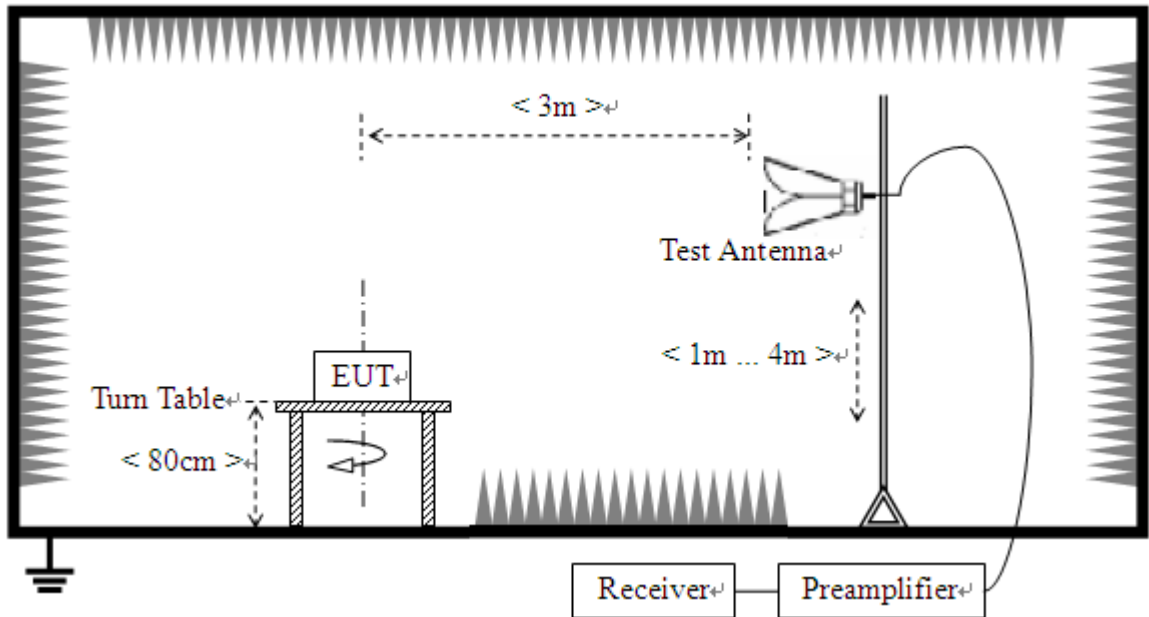
### 2.3.1 Radiated Emission

#### 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)	/	XSMJA750-S MNM(RA)-12 M	C230800588	2023.08.21	2026.08.20
Cable(18GHz~40GHz)	/	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	
	$\mu\text{V/m}$	Dist	( $\mu\text{V/m}$ )	( $\text{dBuV/m}$ )
30.0 – 88.0	100	3 m	100	$20\log 100$
88.0 – 216.0	150	3 m	150	$20\log 150$
216.0 – 960.0	200	3 m	200	$20\log 200$
Above 960.0	500	3 m	500	$20\log 500$

- 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.
- 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.
- 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:

- The tighter limit shall apply at the boundary between two frequency range.
- Limitation expressed in  $\text{dBuV/m}$  is calculated by  $20\log \text{Emission Level}(\mu\text{V/m})$ .
- If measurement is made at 3 m distance, then F.S Limitation at 3 m distance is adjusted by using the formula of  $L_{d1} = L_{d2} * (d_2/d_1)^2$ .

Example:

F.S Limit at 30 m distance is 30  $\mu\text{V/m}$ , then F.S Limitation at 3 m distance is adjusted as

$$L_{d1} = L_1 = 30 \mu\text{V/m} * (10)^2 = 100 * 30 \mu\text{V/m}.$$



### **3.1.2 Test Description**

See section 2.3.2 of this report.

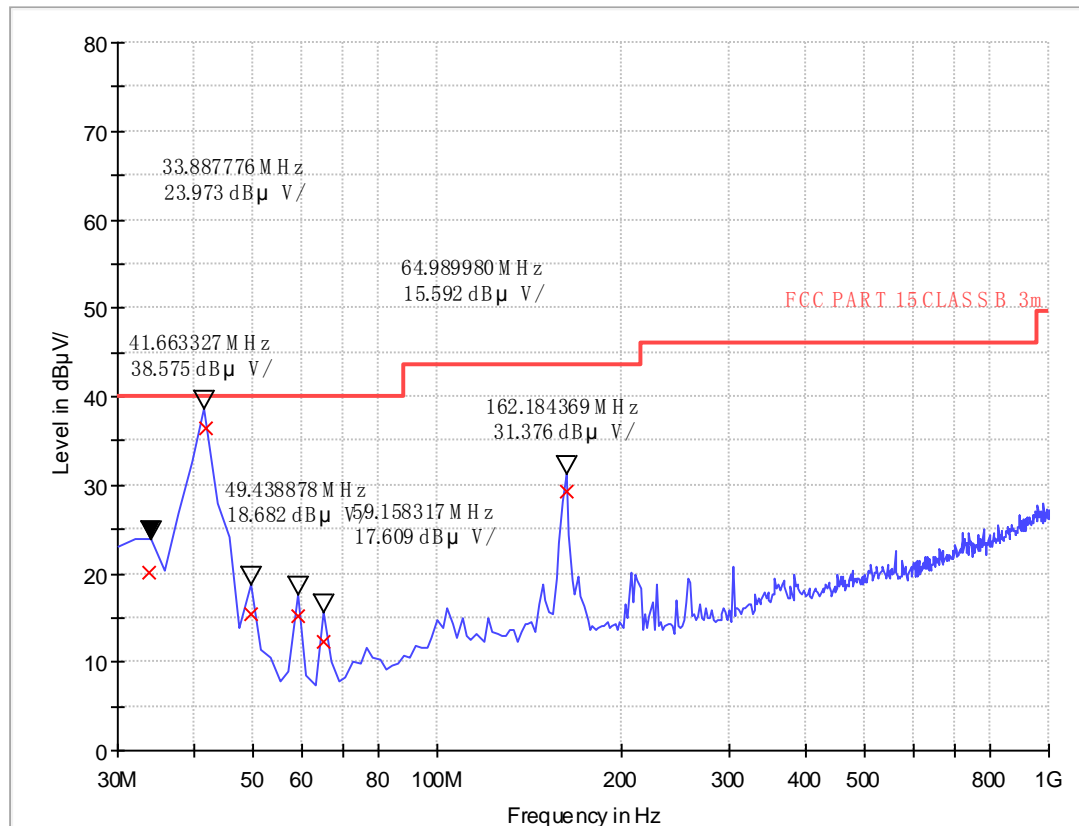
### **3.1.3 Test Result**

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



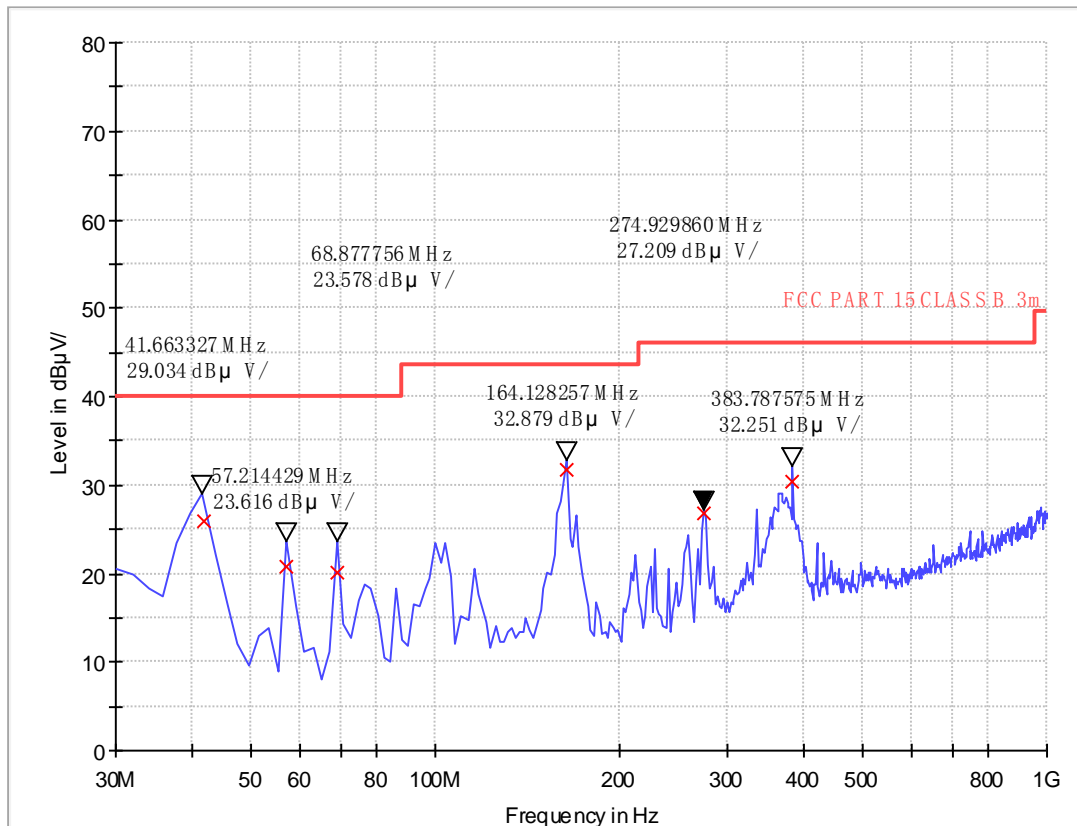
(Plot C: Test Antenna Vertical 30M – 1G)

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



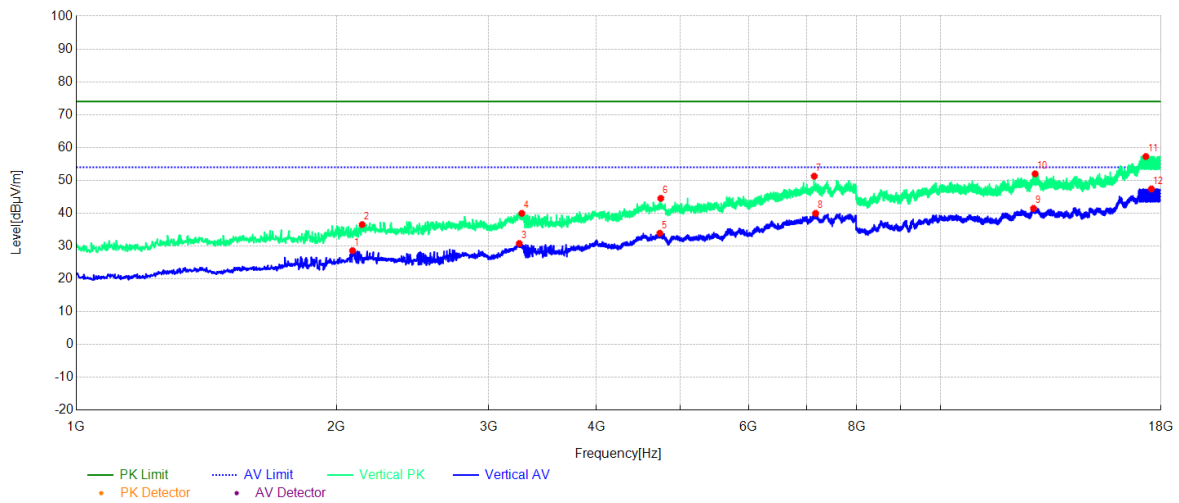
(Plot D: Test Antenna Horizontal 30M – 1G)

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(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.

## A. Radiation disturbances, antenna polarization: Vertical, Setup1

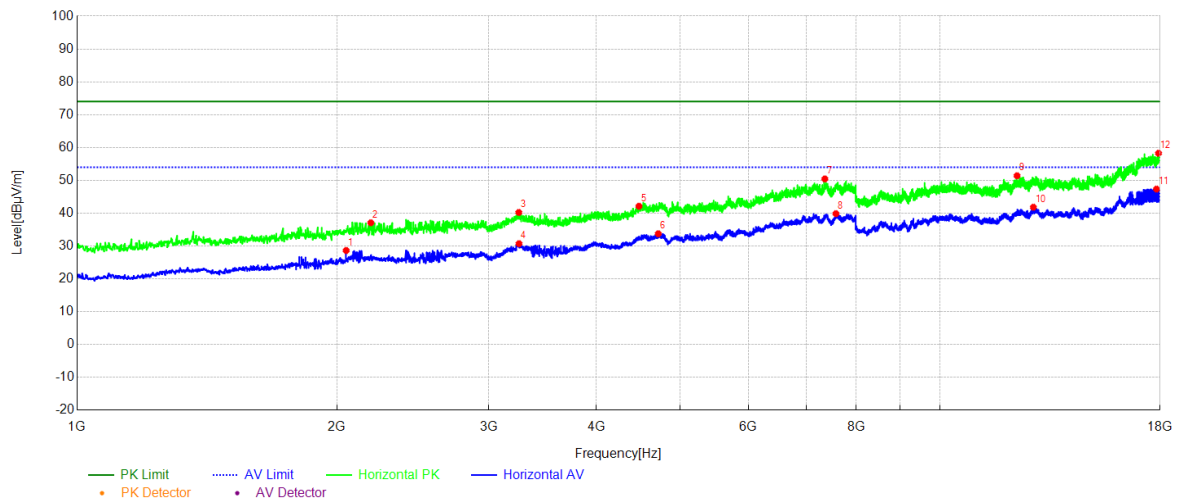


(Plot M: Test Antenna Vertical 1G – 18G)

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dBμV/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 [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dBμV/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-----