



# EMC TEST REPORT

Report No.: STS2501005E01

Issued for

Dezhou Jincheng Automotive Electronic Co. Ltd.

East of Fumin Road, Kaiyuan West Street, Linyi County Area,  
Dezhou City, Shandong Province, P.R. China

Product Name: Vehicle key - Remote control - Elephant  
logo

Brand Name: N/A

Model Name: EZ9A061820023

Series Model(s): N/A

FCC ID: 2BM82EZ9A061820023

Test Standards: FCC 47 CFR Part 15: Subpart B

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

**TEST REPORT**

**Applicant's Name** ..... : Dezhou Jincheng Automotive Electronic Co. Ltd.

Address ..... : East of Fumin Road, Kaiyuan West Street, Linyi County Area, Dezhou City, Shandong Province, P.R. China

**Manufacturer's Name** ..... : Dezhou Jincheng Automotive Electronic Co. Ltd.

Address ..... : East of Fumin Road, Kaiyuan West Street, Linyi County Area, Dezhou City, Shandong Province, P.R. China

**Product description**

Product Name ..... : Vehicle key - Remote control - Elephant logo

Brand Name ..... : N/A

Test Model Name ..... : EZ9A061820023

Series Model(s) ..... : N/A

**Standards** ..... : FCC 47 CFR Part 15: Subpart B

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**Date of Test** ..... :

Date of Receipt of Test Item ..... : 30 Dec. 2024

Date (s) of performance of tests ..... : 30 Dec. 2024 ~ 08 Jan. 2025

Date of Issue ..... : 08 Jan. 2025

Test Result ..... : **Pass**

Testing Engineer :

Star Deng

( Star Deng)

Technical Manager :

Tony Liu

( Tony Liu)

Authorized Signatory :

Bovey Yang

( Bovey Yang)





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Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	08 Jan. 2025	STS2501005E01	ALL	Initial Issue



## 1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission			
Standard	Test Item	Result	Remark
FCC 47 CFR Part 15: Subpart B	Conducted Emission	N/A	EUT is battery-powered and cannot be directly or indirectly connected to the artificially coupled network
	Radiated Emissions	PASS	Meet Class B limit

**Note:**

(1) "N/A" denotes test is not applicable in this Test Report

### 1.1 TEST FACTORY

Company Name:	Shenzhen STS Test Services Co. Ltd.
Address:	101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China
Telephone:	+86-755 3688 6288
Fax:	+86-755 3688 6277
Registration No.:	FCC test Firm Registration Number: 625569
	IC test Firm Registration Number: 12108A
	A2LA Certificate No.: 4338.01

### 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$  · where expended uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$  · providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission (9KHz-150KHz)	±2.19dB
2	Conducted Emission (150KHz-30MHz)	±2.53dB
3	All emissions, radiated(<1G) 30MHz-1000MHz	±4.18dB
4	All emissions, radiated(>1G) 1GHz-6GHz	±4.90dB
5	All emissions, radiated(>1G) 6GHz-18GHz	±5.24dB



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

Product Name	Vehicle key - Remote control - Elephant logo	
Brand Name	N/A	
Model Name	EZ9A061820023	
Series Name	N/A	
Model Difference	N/A	
Product Description	The EUT is a Vehicle key - Remote control - Elephant logo ITE equipment having a primary function of either (or a combination of) entry, storage, display, retrieval, transmission, processing, switching, or control of data and/or telecommunication messages and which may be equipped with one or more ports typically for information transfer.	
Frequency Bands	SRD	433.97MHz
Modulation Mode	SRD	FSK
Rating	Input: DC 3V	
Adapter	N/A	
Battery	N/A	
Hardware version number	V1.0.0	
Software version number	V1.0.0	



## 2.2 DESCRIPTION OF TEST MODES

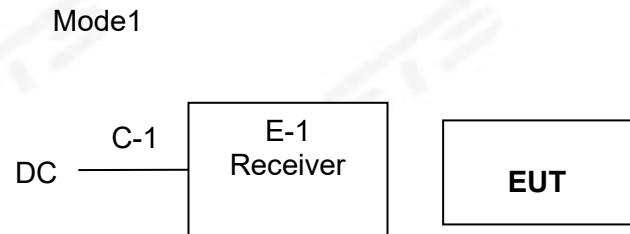
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	Working

For Radiated Test	
Final Test Mode	Description
Mode 1	Working



## 2.3 DESCRIPTION OF TEST SETUP



## 2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Note
E-1	Receiver	N/A	N/A	N/A

Item	Equipment	Ferrite Core	Length	Note
C-1	AC Cable	N/A	110cm	N/A

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in «Length» column.



## 2.5 MEASUREMENT INSTRUMENTS LIST

### 2.5.1 CONDUCTED TEST SITE

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
EMI Test Receiver	R&S	ESCI	101427	2024.9.23	2025.9.22
LISN	R&S	AiT-F01220	8130179	2024.9.23	2025.9.22
Absorbing Clamp	R&S	MDS-21	100668	2024.4.15	2025.4.14
CE Cable	N/A	C01	N/A	2024.9.23	2025.9.22
Temperature & Humidity	Anymetre	JR900	240686	2024.10.15	2025.10.14
Testing Software	EZ-EMC(Ver.STSLAB-03A1 CE)				

### 2.5.2 RADIATED TEST SITE

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
EMI Test Receiver	R&S	ESCI	101427	2024.9.23	2025.9.22
Bi-log Antenna	TESEQ	CBL6111D	45873	2024.9.28	2025.9.27
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1343	2024.9.28	2025.9.27
Pre-amplifier(1G-26.5G)	Agilent	HP8449B	3008A02383	2024.2.23	2025.2.22
Pre-amplifier(0.1M-3GHz)	EM	EM330	060665	2024.2.23	2025.2.22
Spectrum Analyzer	Agilent	N9020A	MY49100060	2024.9.23	2025.9.22
RE Cable (9K-1G)	N/A	R01	N/A	2024.9.23	2025.9.22
RE Cable (1G-26G)	N/A	R02	N/A	2024.9.23	2025.9.22
Temperature & Humidity	Mieo	HH660	N/A	2024.9.26	2025.9.25
SAC	ChengYu	9*6*6	N/A	2023.9.05	2026.9.06
Testing Software	EZ-EMC(Ver.STSLAB-03A1 RE)				



### 3. EMC EMISSION TEST

#### 3.1 CONDUCTED EMISSION MEASUREMENT

##### 3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

FREQUENCY (MHz)	<input type="checkbox"/> Class A (dB $\mu$ V)		<input checked="" type="checkbox"/> Class B (dB $\mu$ V)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 ~ 0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.5 ~ 5	73.00	60.00	56.00	46.00
5 ~ 30	73.00	60.00	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

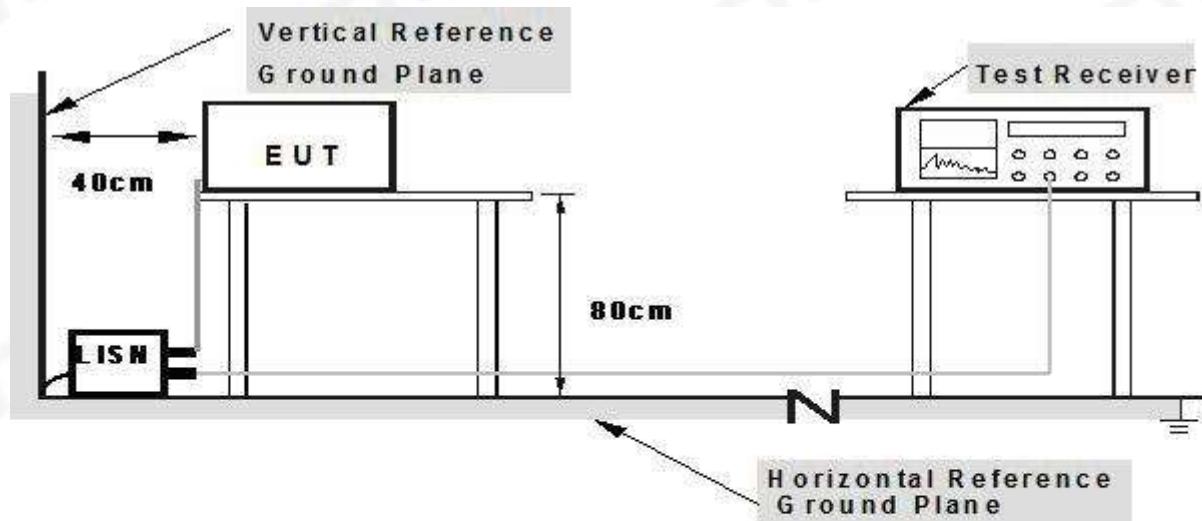
##### 3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.1.3 DEVIATION FROM TEST STANDARD

No deviation

### 3.1.4 TEST SETUP



**Note: 1. Support units were connected to second LISN.**  
**2. Both of LISNs (AMH) are 80 cm from EUT and at least 80 cm from other units and other metal planes**

### 3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

### 3.1.6 TEST RESULTS

Temperature:	--°C	Relative Humidity:	--%
Phase:	L/N	Test Mode:	N/A
Test Voltage:	N/A	Test Date:	N/A

Note: Not applicable



### 3.2 RADIATED EMISSION MEASUREMENT

#### 3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Below 1 GHz

Measurement Method and Applied Limits:

ANSI C63.4:2014

Frequency (MHz)	<input type="checkbox"/> Class A		<input checked="" type="checkbox"/> Class B
	Field strength (dBuV/m) (at 10m)	Field strength (dBuV/m) (at 3m)	Field strength (dBuV/m) (at 3m)
30 ~ 88	39	49.5	40
88 ~ 216	43.5	54	43.5
216 ~ 960	46.4	56.9	46
Above 960	49.5	60	54

Above 1 GHz

Measurement Method and Applied Limits:

ANSI C63.4:2014

Frequency (MHz)	<input type="checkbox"/> Class A				<input type="checkbox"/> Class B	
	(dBuV/m) (at 3m)		(dBuV/m) (at 10m)		(dBuV/m) (at 3m)	
	Peak	Average	Peak	Average	Peak	Average
Above 1000	80	60	69.5	49.5	74	54

#### Frequency Range of Radiated Disturbance Measurement

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 ~ 108	1000
108 ~ 500	2000
500 ~ 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

Note:

- (1) . The limit for radiated test was performed in the following: FCC PART 15B.
- (2) The tighter limit applies at the band edges
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).



### 3.2.2 TEST PROCEDURE

- a. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. EUT as the center to the edge of the auxiliary device, the distance from the maximum edge to the center of the antenna is 3 meter.
- c. The height of antenna is varied from 1 meter to 4 meter 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.
- d. 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 meter and the rotatable table was turned from 0 degrees to 360 degree to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

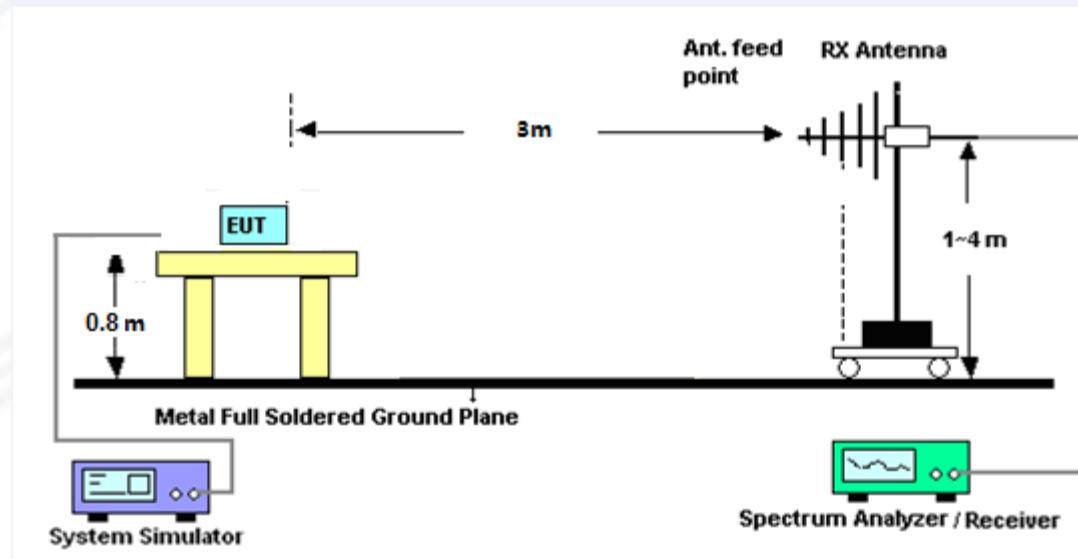
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

### 3.2.3 DEVIATION FROM TEST STANDARD

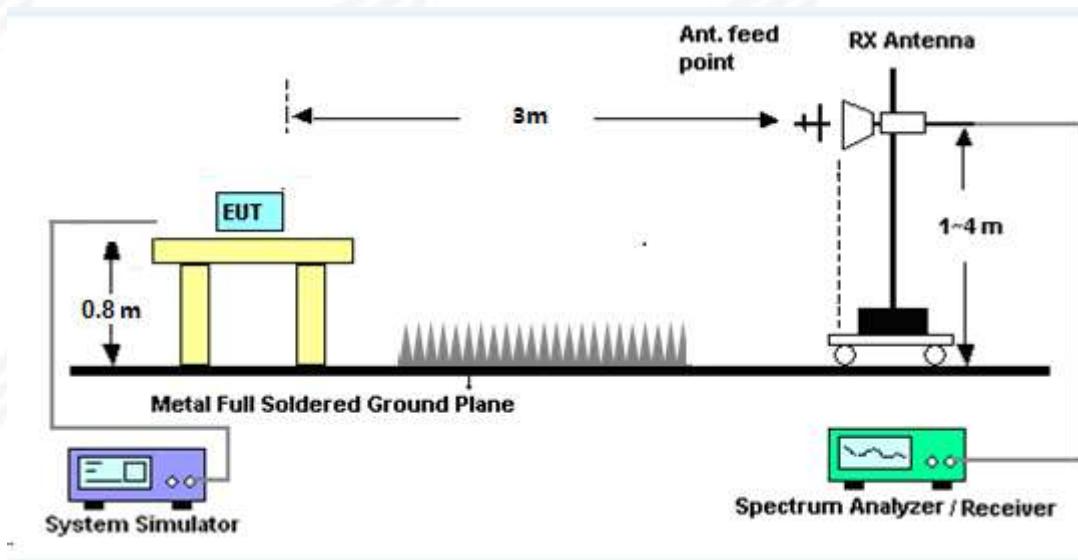
No deviation

### 3.2.4 TEST SETUP

#### (A) Radiated Emission Test Set-Up Frequency Below 1 GHz



#### (B) Radiated Emission Test Set-Up Frequency Above 1GHz



### 3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 described unless otherwise a special operating condition is specified in the following during the testing.



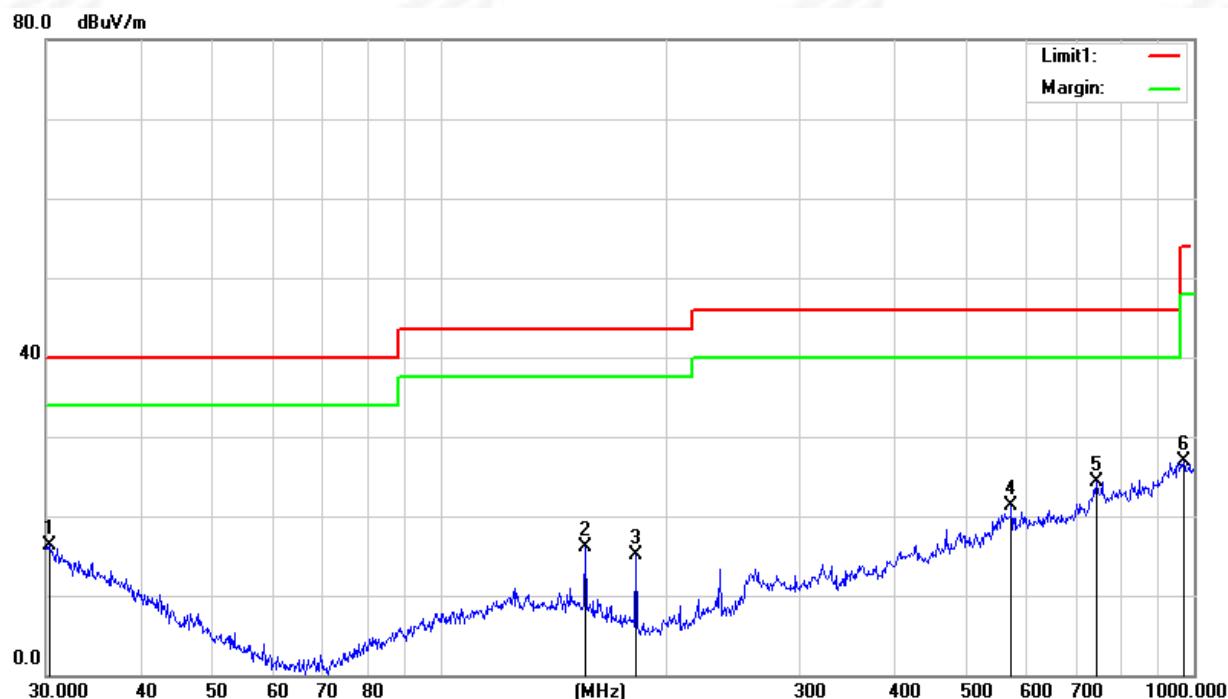
### 3.2.6 TEST RESULTS

Temperature:	26.1°C	Relative Humidity:	53%
Phase:	Horizontal	Test Mode:	Mode 1
Test Voltage:	DC 3V from battery	Test Date:	2025.01.07

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.3172	27.48	-11.21	16.27	40.00	-23.73	QP
2	155.9100	34.58	-18.42	16.16	43.50	-27.34	QP
3	181.9201	36.06	-20.98	15.08	43.50	-28.42	QP
4	572.6144	29.79	-8.52	21.27	46.00	-24.73	QP
5	742.2586	28.83	-4.47	24.36	46.00	-21.64	QP
6	968.9338	28.79	-1.98	26.81	54.00	-27.19	QP

#### Remark:

1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor )–Limit.
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain.



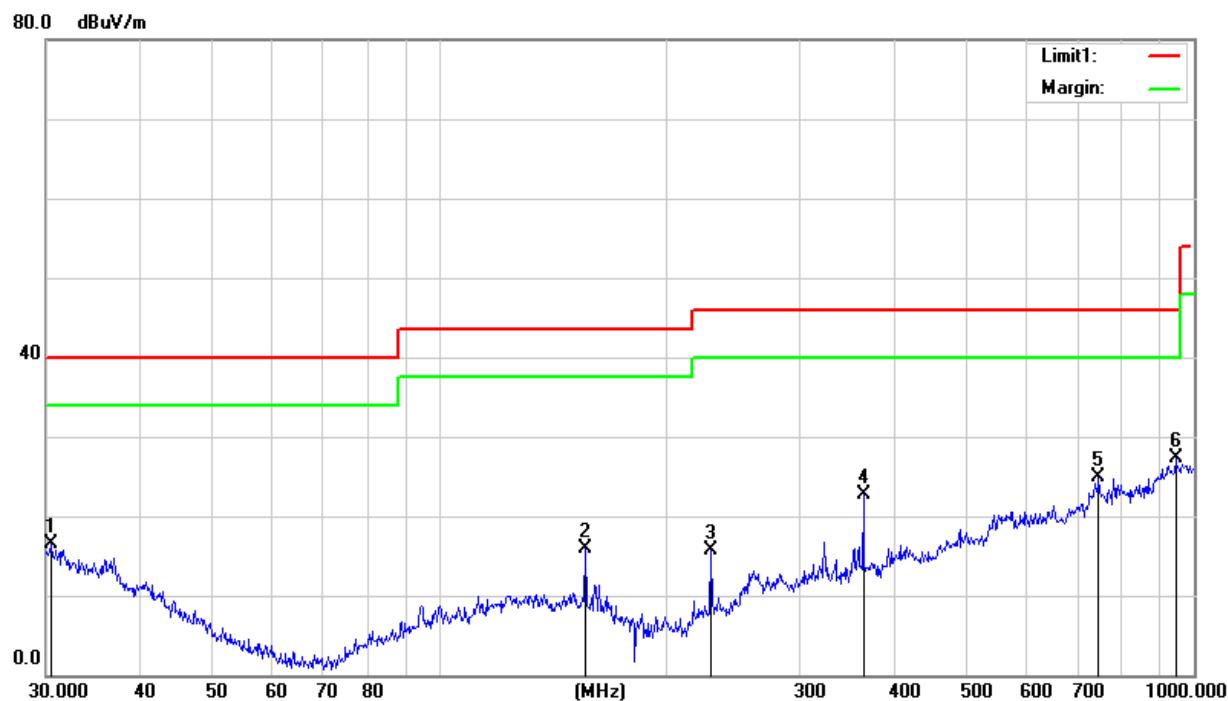


Temperature:	26.1°C	Relative Humidity:	53%
Phase:	Vertical	Test Mode:	Mode 1
Test Voltage:	DC 3V from battery	Test Date:	2025.01.07

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.4237	27.72	-11.26	16.46	40.00	-23.54	QP
2	155.9100	34.38	-18.42	15.96	43.50	-27.54	QP
3	228.4903	34.43	-18.82	15.61	46.00	-30.39	QP
4	364.2595	37.00	-14.29	22.71	46.00	-23.29	QP
5	747.4825	29.70	-4.79	24.91	46.00	-21.09	QP
6	945.4398	29.55	-2.27	27.28	46.00	-18.72	QP

## Remark:

1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor )-Limit.
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain.



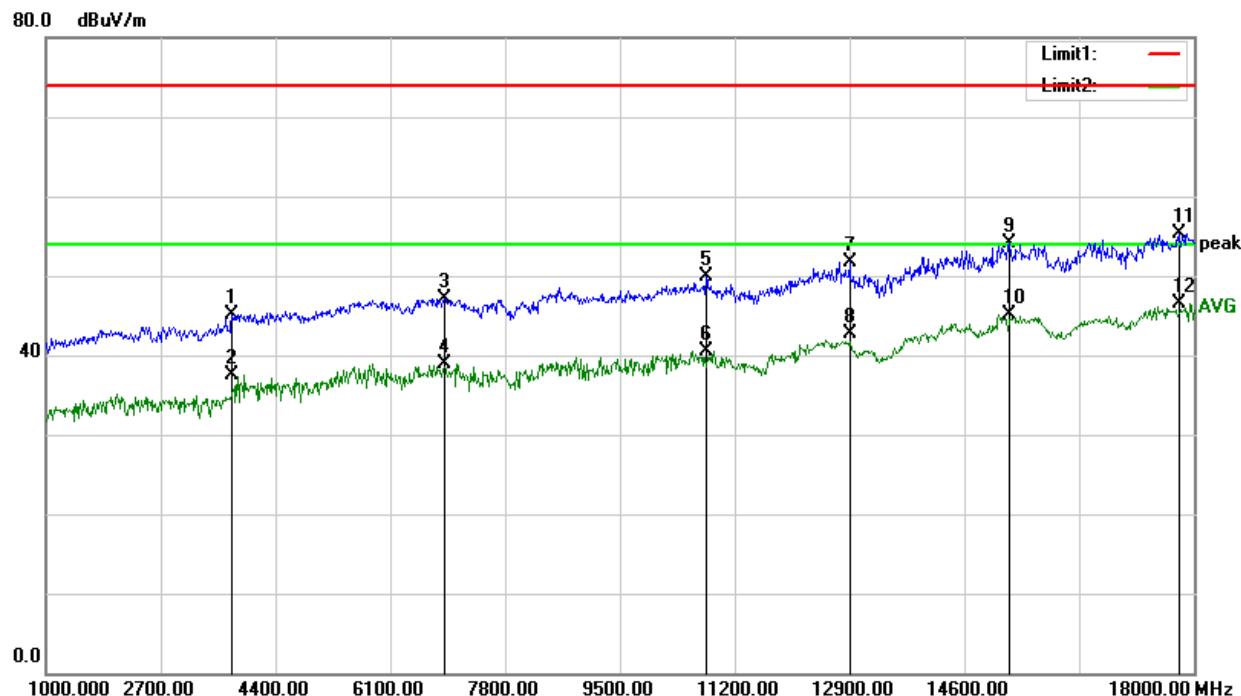
**3.2.7 TEST RESULT(1000-18000 MHz)**

Temperature:	25.3°C	Relative Humidity:	43%
Phase:	Horizontal	Test Mode:	Mode 1
Test Voltage:	DC 3V form battery	Test Date:	2024.01.07

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	3762.500	41.45	3.74	45.19	74.00	-28.81	peak
2	3762.500	33.78	3.74	37.52	54.00	-16.48	AVG
3	6907.500	36.51	10.57	47.08	74.00	-26.92	peak
4	6907.500	28.32	10.57	38.89	54.00	-15.11	AVG
5	10775.000	35.83	14.03	49.86	74.00	-24.14	peak
6	10775.000	26.44	14.03	40.47	54.00	-13.53	AVG
7	12900.000	36.40	15.37	51.77	74.00	-22.23	peak
8	12900.000	27.34	15.37	42.71	54.00	-11.29	AVG
9	15271.500	36.41	17.60	54.01	74.00	-19.99	peak
10	15271.500	27.46	17.60	45.06	54.00	-8.94	AVG
11	17787.500	31.14	24.24	55.38	74.00	-18.62	peak
12	17787.500	22.18	24.24	46.42	54.00	-7.58	AVG

## Remark:

1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor )-Limit.
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain.





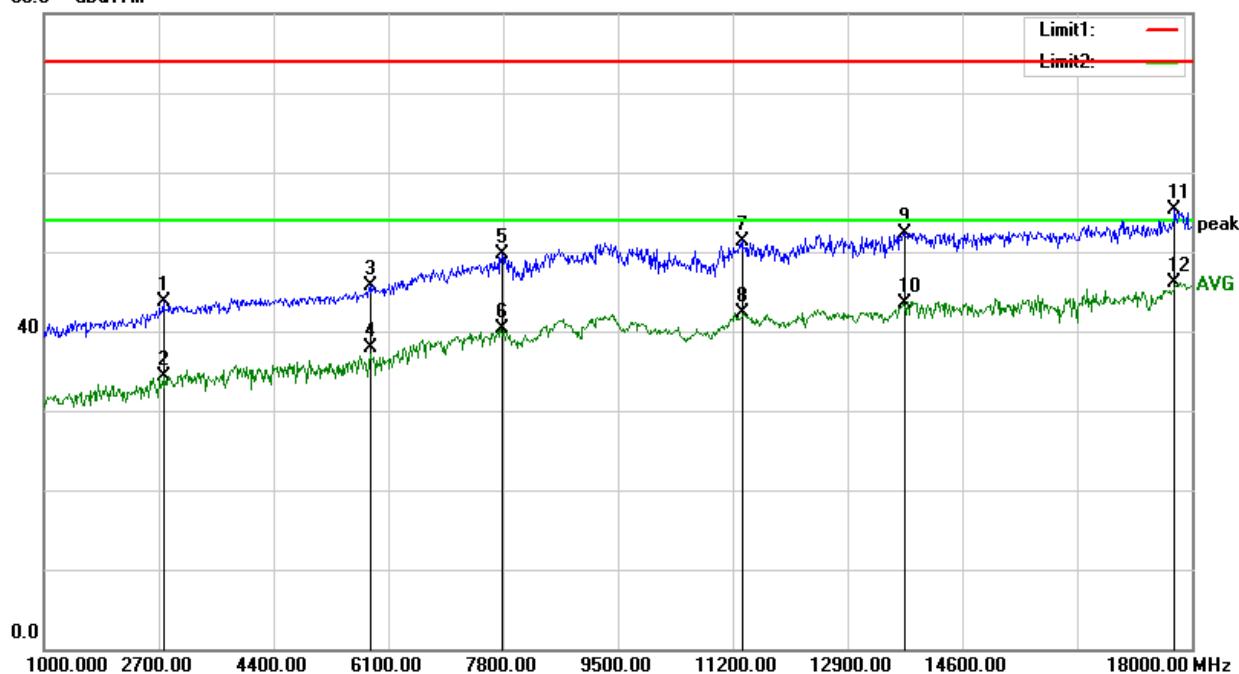
Temperature:	25.3°C	Relative Humidity:	43%
Phase:	Vertical	Test Mode:	Mode 1
Test Voltage:	DC 3V form battery	Test Date:	2024.01.07

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	2768.000	42.65	1.05	43.70	74.00	-30.30	peak
2	2768.000	33.30	1.05	34.35	54.00	-19.65	AVG
3	5853.500	38.27	7.50	45.77	74.00	-28.23	peak
4	5853.500	30.42	7.50	37.92	54.00	-16.08	AVG
5	7783.000	38.64	11.11	49.75	74.00	-24.25	peak
6	7783.000	29.22	11.11	40.33	54.00	-13.67	AVG
7	11336.000	37.00	14.40	51.40	74.00	-22.60	peak
8	11336.000	27.96	14.40	42.36	54.00	-11.64	AVG
9	13758.500	35.93	16.47	52.40	74.00	-21.60	peak
10	13758.500	27.08	16.47	43.55	54.00	-10.45	AVG
11	17753.500	31.72	23.68	55.40	74.00	-18.60	peak
12	17753.500	22.48	23.68	46.16	54.00	-7.84	AVG

**Remark:**

1. All readings are Quasi-Peak.
2. Margin = Result (Result =Reading + Factor )-Limit.
3. Factor= Cable Loss +Antenna Factor-Amplifier Gain.

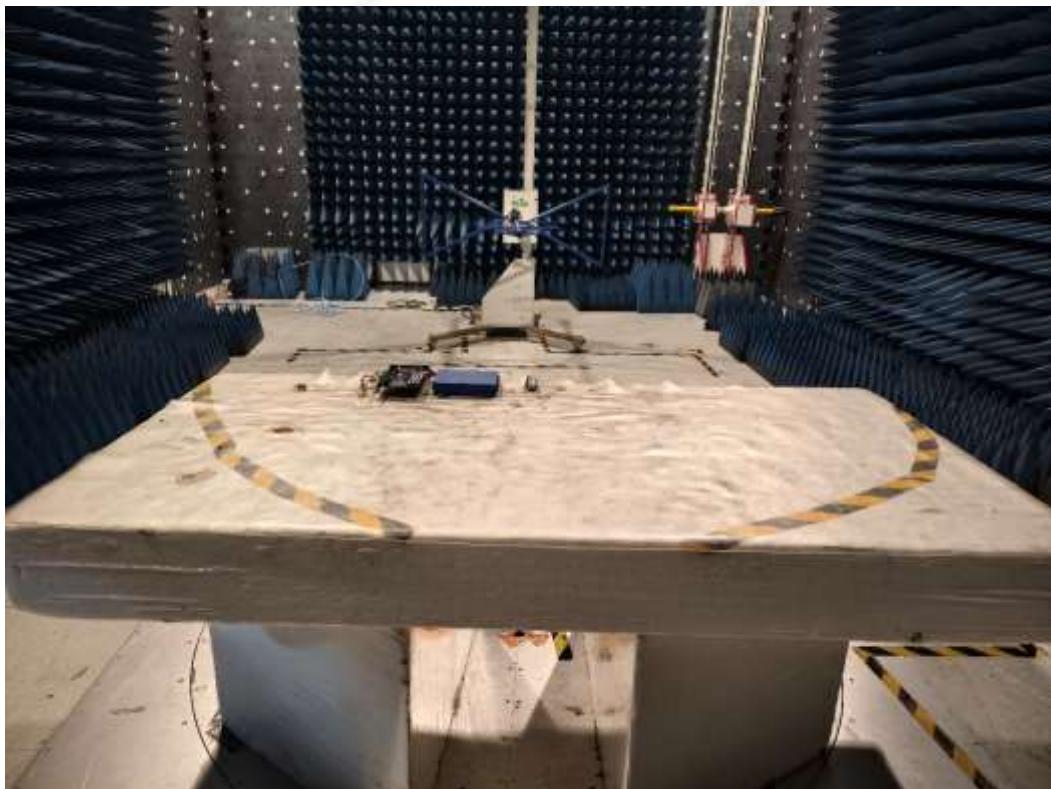
80.0 dBuV/m

**Notes:**

1. Measuring frequencies from 1 GHz to 18GHz
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak and average detector mode of the emission shown in Actual FS column.
3. The frequency emission of 18-25GHz is at least 20dB lower than the limit, and the frequency emission mainly comes from environmental noise.

## APPENDIX 1-PHOTO TEST OF EUT

RE (Below 1GHz)



RE (Above 1GHz)



\*\*\*\*\*END OF THE REPORT\*\*\*\*\*