



FCC TEST REPORT

Report Reference No......: ZKT-220314L1670E

Date of issue.....: Mar. 11, 2022

Total number of pages.....: 15

Testing Laboratory.....: **Shenzhen ZKT Technology Co., Ltd.**

Address.....: 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

Applicant's name.....: **Henan Bosean Electronic Technology Co., Ltd.**

Address.....: No.101, Ground floor, Block 10. Yida Technology New Park No. 16 JinZhan Road National High and new Technology Industry Development zone, Zhengzhou, 450007

Test specification:

Standards.....: FCC Part 15 B
ANSI C63.4:2014

Test procedure.....: N/A

Non-standard test method.....: N/A

Test Report Form No.....: --

Test Report Form(s) Originator.....: ZKT Testing

Master TRF.....: Dated: 2017-06

This test report is specially limited to the above client company and product model only. It may not be duplicated without prior written consent of ZKT Test.

Test item description.....: Nuclear radiation detector

Trade Mark.....: N/A

Manufacturer.....: Henan Bosean Electronic Technology Co., Ltd.
No.101, Ground floor, Block 10. Yida Technology New Park No. 16 JinZhan Road National High and new Technology Industry Development zone, Zhengzhou, 450007

Model/Type reference.....: FS-600

Ratings.....: Input: DC 5V

**Testing procedure and testing location:****Testing Laboratory.....: Shenzhen ZKT Technology Co., Ltd.****Address.....: 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China****Date of Test.....: Mar. 03, 2022 - Mar. 11, 2022****Tested by (name + signature).....: Peter Huang****Reviewer (name + signature).....: Felix Ding****Approved (name + signature).....: Awen He**



TABLE OF CONTENT

Test Report Declaration	Page
1. GENERAL INFORMATION.....	4
1.1. Description of Device (EUT).....	4
1.2. Tested System Details.....	4
1.3. Test Uncertainty.....	4
2. TEST INSTRUMENT USED.....	5
3. CONDUCTED EMISSION AT THE MAINS TERMINALS TEST.....	6
3.1. Block Diagram Of Test Setup.....	6
3.2. Test Standard.....	6
3.3. Power Line Conducted Emission Limit.....	6
3.4. EUT Configuration on Test.....	6
3.5. Operating Condition of EUT.....	6
3.6. Test Procedure.....	7
3.7. Test Result.....	7
4. RADIATION EMISSION TEST.....	8
4.1. Block Diagram of Test Setup.....	8
4.2. Test Standard.....	8
4.3. Radiation Limit.....	8
4.4. EUT Configuration on Test.....	8
4.5. Operating Condition of EUT.....	8
4.6. Test Procedure.....	9
4.7. Test Result.....	9
5. EUT PHOTOGRAPHS.....	12
6. PHOTOS OF TEST SETUP.....	15



1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT : Nuclear radiation detector
Trademark : N/A
Model Number : FS-600
Model Difference : N/A
Power Supply : Input: DC 5V

1.2. Tested System Details

None.

1.3. Test Uncertainty

Conducted Emission Uncertainty : ± 1.82 dB

Radiated Emission Uncertainty : ± 2.51 dB



2. TEST INSTRUMENT USED

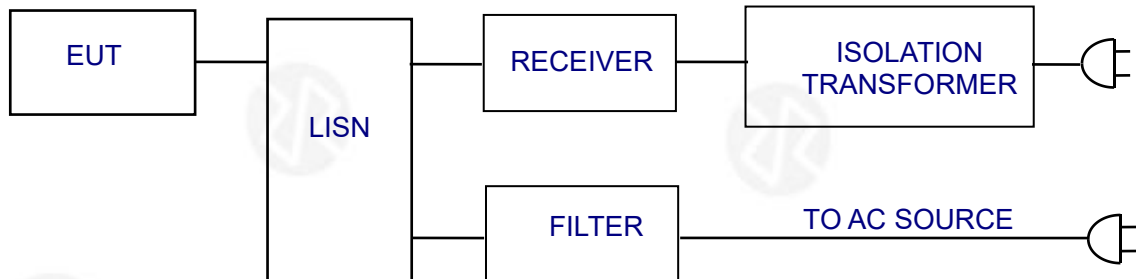
Conducted emissions Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESR	102075	Aug. 14, 2021	Aug. 13, 2022
LISN	R&S	ENV216	101375	Aug. 14, 2021	Aug. 13, 2022
ISN	HPX	ISN T800	S1509001	Aug. 14, 2021	Aug. 13, 2022

Radiated emissions Test (966 chamber)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	Aug. 14, 2021	Aug. 13, 2022
Receiver	R&S	ESRP	101154	Aug. 14, 2021	Aug. 13, 2022
Amplifier	Schwarzbeck	BBV9718	9718-309	Aug. 14, 2021	Aug. 13, 2022
Amplifier	Schwarzbeck	BBV9744	9744-0037	Aug. 14, 2021	Aug. 13, 2022
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	VULB9163-9 42	Aug. 14, 2021	Aug. 13, 2022
Horn Antenna	SCHWARZBEC K	BBHA9120D	1201	Aug. 14, 2021	Aug. 13, 2022



3. CONDUCTED EMISSION AT THE MAINS TERMINALS TEST

3.1. Block Diagram Of Test Setup



3.2. Test Standard

FCC PART 15 B

3.3. Power Line Conducted Emission Limit

Frequency MHz	Limits dB(μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet FCC PART 15 B requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

3.5. Operating Condition of EUT

3.5.1 Setup the EUT and simulators as shown in Section 3.1.

3.5.2 Turn on the power of all equipments.

3.5.3 Let the EUT work in test modes and test it.



3.6. Test Procedure

The EUT is put on the ground and connected to the AC mains through a Artificial Mains Network (AMN). This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **FCC PART 15 B** regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESCI) is set at 10KHz.

The frequency range from 150 KHz to 30 MHz is investigated.

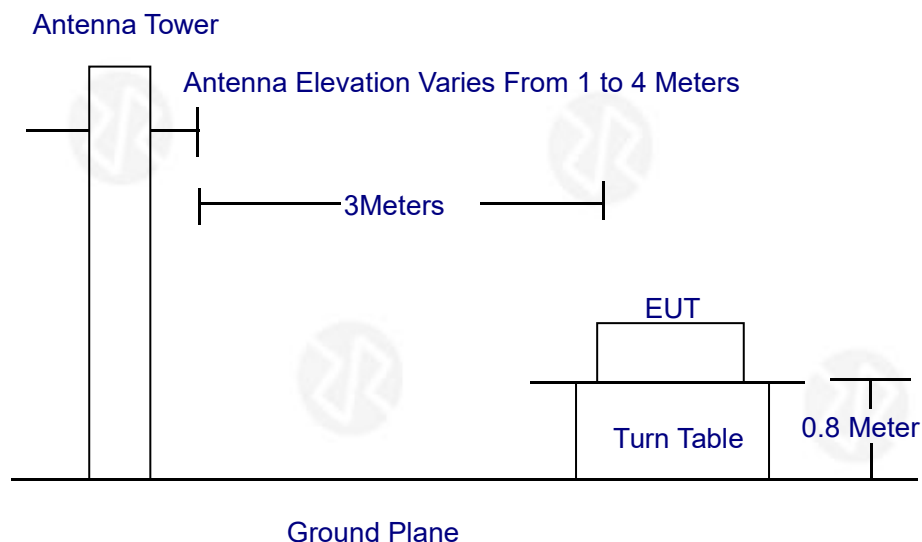
3.7. Test Result

The EUT is powered by the DC only, the test item is not applicable.



4. RADIATION EMISSION TEST

4.1. Block Diagram of Test Setup



4.2. Test Standard

FCC PART 15 B

4.3. Radiation Limit

FREQUENCY (MHz)	DISTANCE (Meters)	FIELD STRENGTHS LIMITS (dB μ V/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0

4.4. EUT Configuration on Test

The FCC PART 15 B regulations test method must be used to find the maximum emission during radiated emission test.

The configuration of EUT is the same as used in conducted emission test. Please refer to Section 2.2.

4.5. Operating Condition of EUT

Same as conducted emission test, which is listed in Section 2.2 except the test set up replaced as Section 4.1.



4.6. Test Procedure

The EUT and its simulators are placed on a turned table that is 0.8 meter above the ground. The turned table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna that is mounted on the antenna tower. The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated biconical and log periodical antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on test. In order to find the maximum emission levels, the interface cable must be manipulated according to FCC PART 15 B on radiated emission test.

The bandwidth setting on the field strength meter (R&S Test Receiver ESCI) is set at 120KHz below 1GHz, set at 1MHz above 1GHz

The frequency range from 30MHz to 1000MHz is checked.

The highest frequency of the internal sources of the EUT was below 108MHz, so the measurement was only made up to 1GHz.

4.7. Test Result

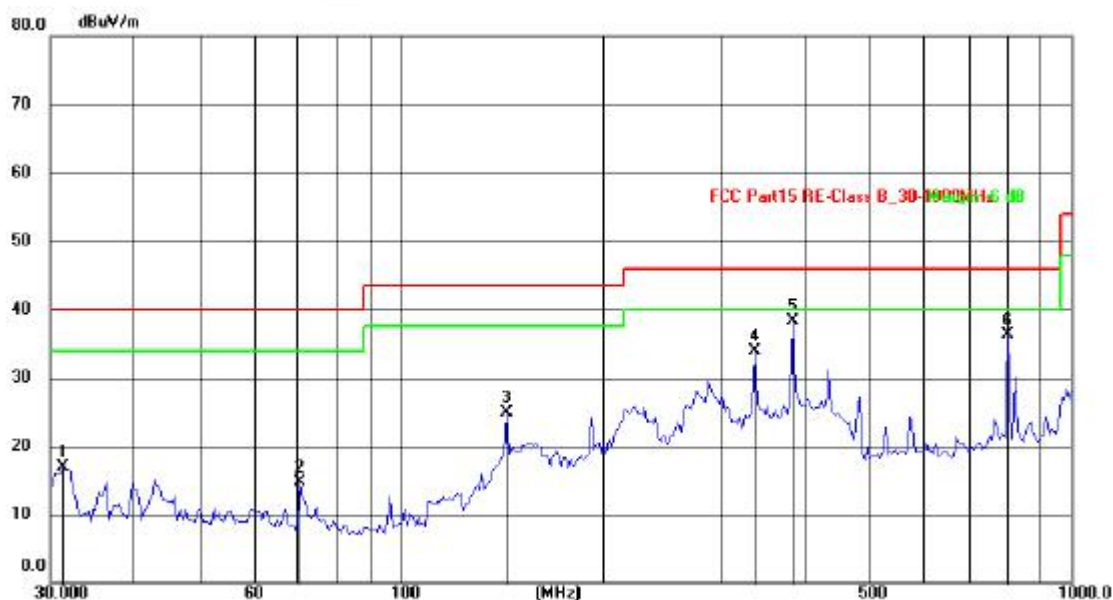
PASS

Please refer to the following page.



Radiation Emission Test Data

Temperature:	25.4 °C	Relative Humidity:	56%
Pressure:	1010hPa	Phase :	Horizontal
Test Voltage :	DC 5V	Test Mode:	Normal mode

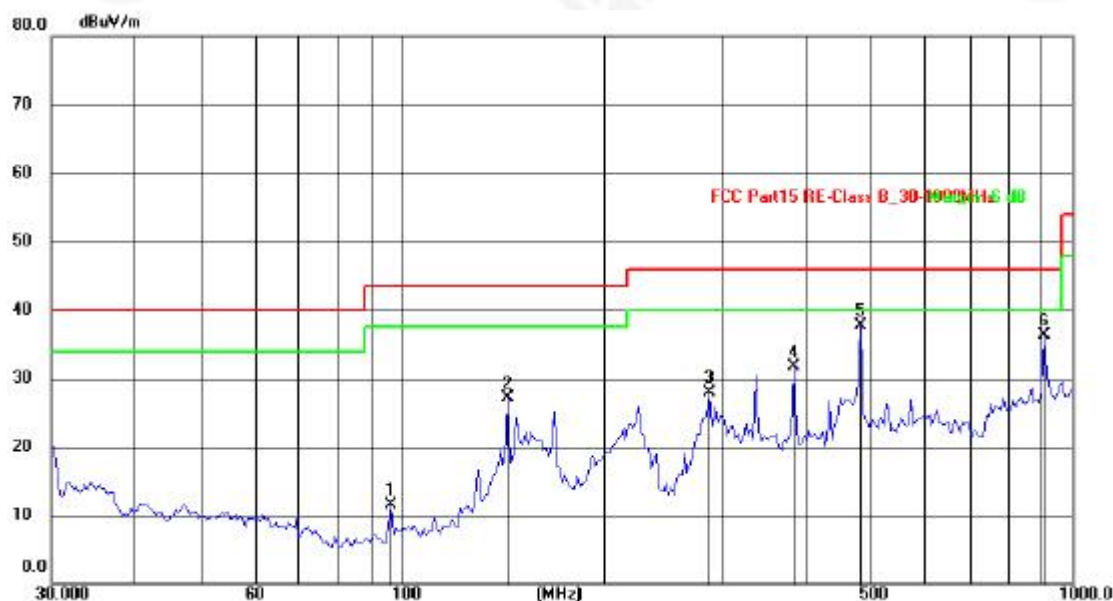


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	31.3442	31.44	-14.44	17.00	40.00	-23.00	peak				
2	70.8315	31.87	-17.10	14.77	40.00	-25.23	peak				
3	144.0817	42.06	-17.23	24.83	43.50	-18.67	peak				
4	337.2155	52.80	-18.83	33.97	46.00	-12.03	peak				
5	384.6055	56.87	-18.63	38.24	46.00	-7.76	peak				
6	803.1933	45.34	-8.95	36.39	46.00	-9.61	peak				



Radiation Emission Test Data

Temperature:	25.4 °C	Relative Humidity:	56%
Pressure:	1010hPa	Phase :	Vertical
Test Voltage :	DC 5V	Test Mode:	Normal mode

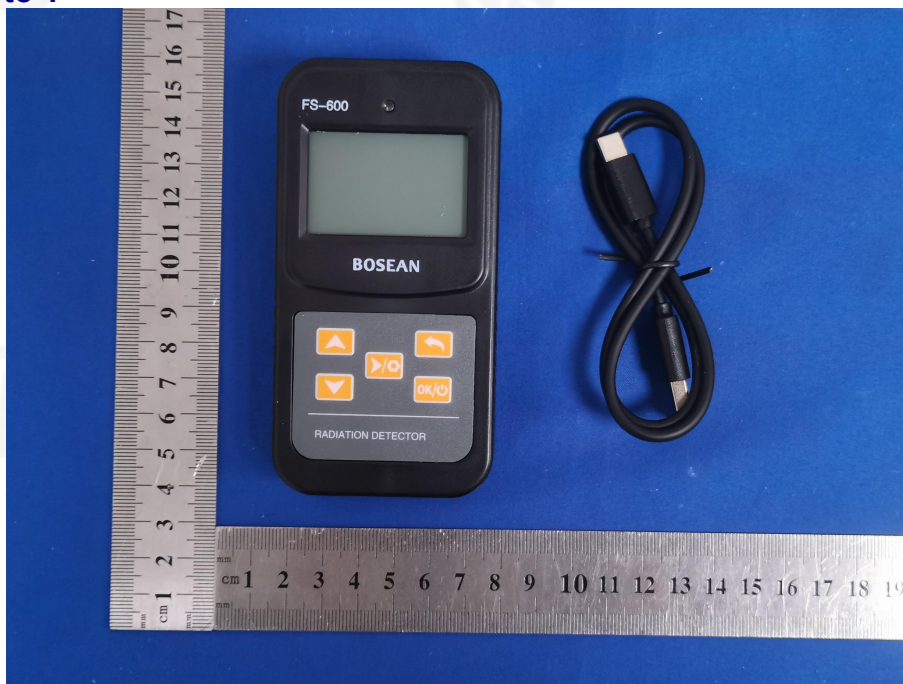


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	96.2672	32.91	-21.32	11.59	43.50	-31.91	peak				
2	144.0817	48.40	-21.23	27.17	43.50	-16.33	peak				
3	287.9904	48.49	-20.58	27.91	46.00	-18.09	peak				
4	384.6055	49.21	-17.54	31.67	46.00	-14.33	peak				
5	483.0615	51.88	-14.16	37.72	46.00	-8.28	peak				
6	908.0729	39.02	-2.70	36.32	46.00	-9.68	peak				



5. EUT PHOTOGRAPHS

EUT Photo 1

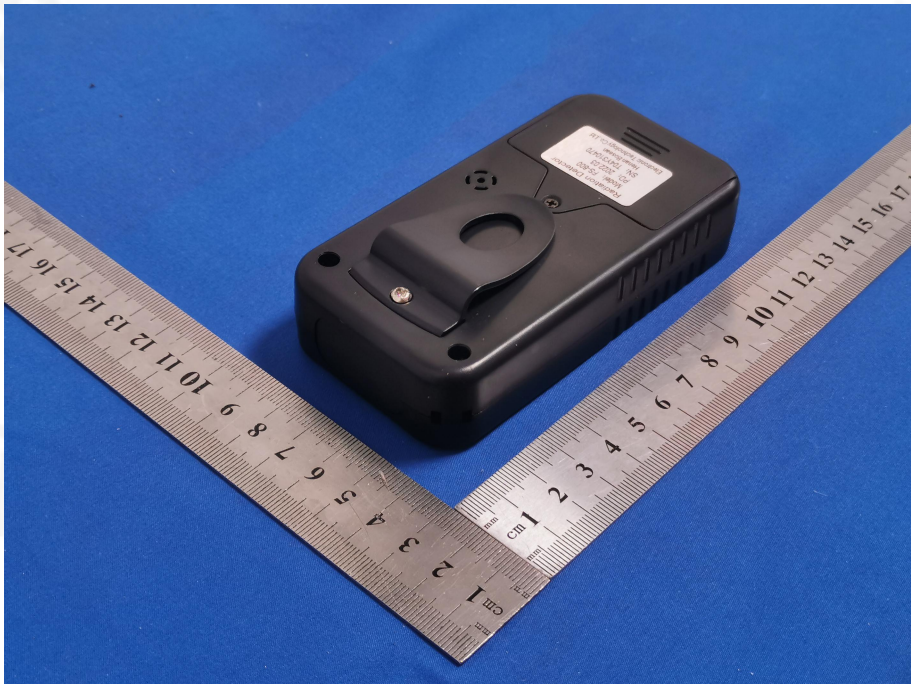


EUT Photo 2





EUT Photo 3

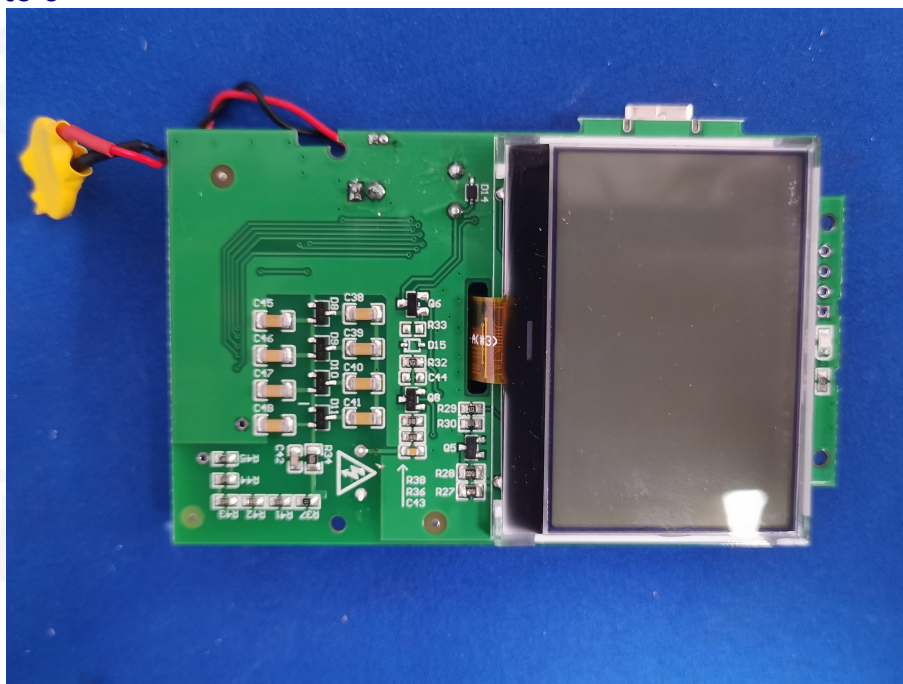


EUT Photo 4

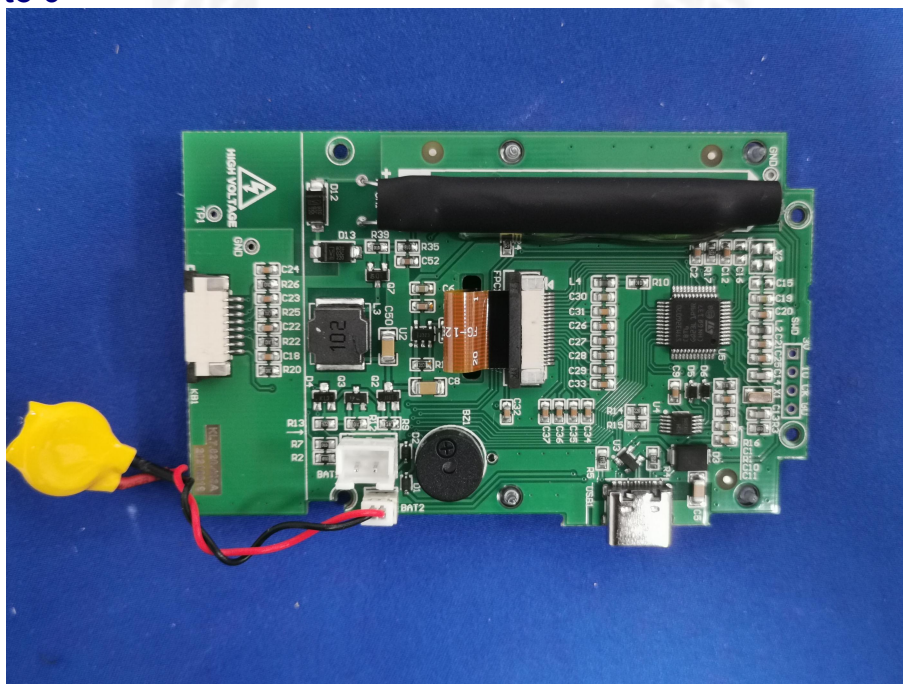




EUT Photo 5



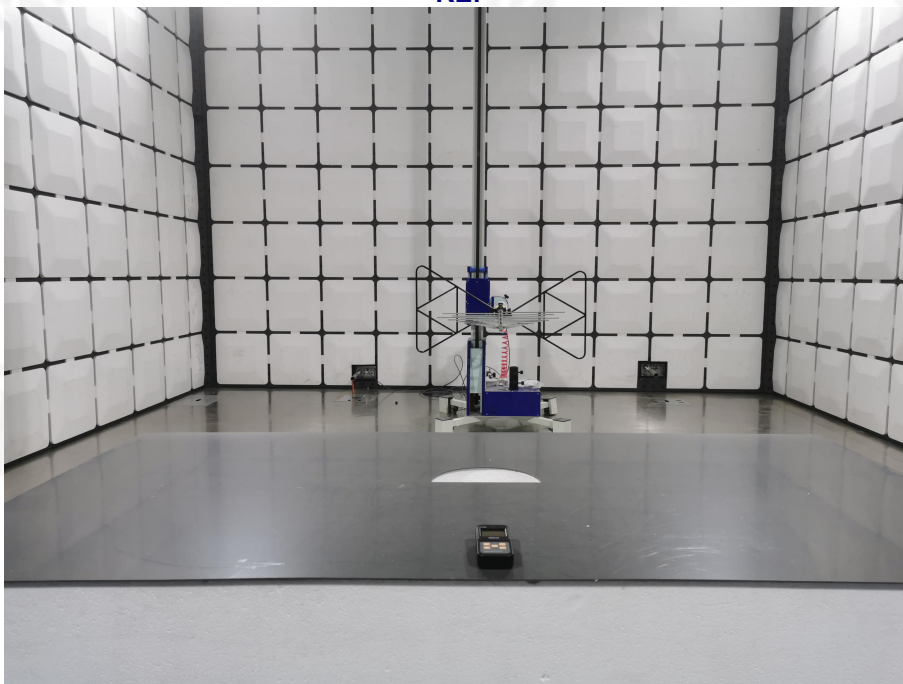
EUT Photo 6





6. PHOTOS OF TEST SETUP

RE:



***** END OF REPORT *****