



FCC TEST REPORT

For

Shenzhen Wins Novelty Co.,Ltd.

Product Name:	Head Up Display
Trademark:	N/A
Model Number:	W02
Prepared For :	Shenzhen Wins Novelty Co.,Ltd.
Address :	3F, Gushu No 1 road (NO. 171), Gushu community, Xixiang Street, Bao'an district, Shen zhen, China
Prepared By :	Shenzhen BCTC Technology Co., Ltd.
Address :	A. Floor 3, 44 Building, Tanglang Industrial Park B, Taoyuan Street, Nanshan District, Shenzhen, China
Test Date:	Jul. 10 - Jul. 17, 2015
Date of Report :	Jul. 17, 2015
Report No.:	BCTC-150708200



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TEST REPORT DECLARATION

Applicant : Shenzhen Wins Novelty Co.,Ltd.
Address : 3F, Gushu No 1 road (NO. 171), Gushu community, Xixiang Street,
Bao'an district, Shen zhen, China
EUT Description : **Head Up Display**
Model Number : **W02**
Rating(s) : DC12V=== 400mA

Test Standards:

FCC Part 15 B: 2014

The EUT described above is tested by US to determine the maximum emission levels emanating from the EUT, the maximum emission levels are compared to the FCC Part 15 B Subpart Class B limits.

The measurement results are contained in this test report and Shenzhen BCTC Technology Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these measurements.

Also, this report shows that the EUT is to be technically compliant with the FCC requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen BCTC Technology Co., Ltd.

Date of Test:

Jul. 10 - Jul. 17, 2015

Prepared by(Engineer):

Snow Zeng

Reviewer(Quality Manager):

Sophie Lu

Approved & Authorized Signer(Manager):

Casey Wang





1. GENERAL INFORMATION

1.1. Report information

- 1.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BCTC approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BCTC in any way guarantees the later performance of the product/equipment.
- 1.1.2. The sample/s mentioned in this report is/are supplied by Applicant, BCTC therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.
- 1.1.3. Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BCTC, unless the applicant has authorized BCTC in writing to do so.

1.2. Measurement Uncertainty

Available upon request.

1.3. Test Facility

Site Description	
Name of Firm	: Shenzhen BCTC Technology Co., Ltd.
Site Location	: A. Floor 3, 44 Building, Tanglang Industrial Park B, Taoyuan Street, Nanshan District, Shenzhen, China

1.4. Test Uncertainty

Conducted Emission Uncertainty	=	$\pm 2.66\text{dB}$
Radiated Emission Uncertainty	=	$\pm 4.15\text{dB}$

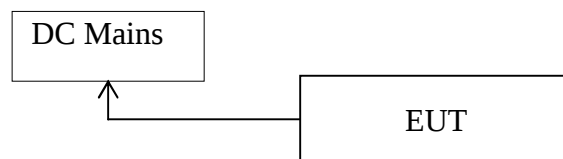


2. PRODUCT DESCRIPTION

2.1.EUT Description

Description : **Head Up Display**
Applicant : **Shenzhen Wins Novelty Co.,Ltd.**
3F, Gushu No 1 road (NO. 171), Gushu community, Xixiang Street, Bao'an district, Shen zhen, China
Manufacturer : **Shenzhen Wins Novelty Co.,Ltd.**
3F, Gushu No 1 road (NO. 171), Gushu community, Xixiang Street, Bao'an district, Shen zhen, China
Model Number : **W02**

2.2.Block Diagram of EUT Configuration



2.3.Test Conditions

Temperature: 23~25℃

Relative Humidity: 55~63 %



3. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Conducted disturbance	N/A
Radiated disturbance	Pass

Remark: "N/A" means "Not applicable."



4. TEST EQUIPMENT USED

4.1. For Conducted Emission Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Test Receiver	Rohde & Schwarz	ESHS30	828985/018	Aug. 25, 14	1 Year
2	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	Aug. 25, 14	1 Year
3	L.I.S.N.	Rohde & Schwarz	ESH2-Z5	834549/005	Aug. 25, 14	1 Year
4	Conical	Emtek	N/A	N/A	N/A	N/A
5	Voltage Probe	Schwarzbeck	TK9416	N/A	Aug. 25, 14	1 Year
6	Coaxial Switch	Anritsu	MP59B	6100214550	Aug. 25, 14	1 Year

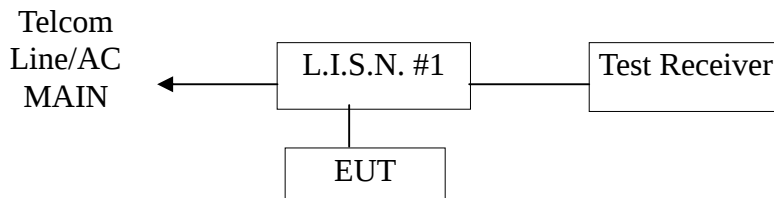
4.2. For Radiated Emission Measurement

Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum Analyzer	ANRITSU	MS2661C	6200140915	Aug. 25, 14	1 Year
2	Test Receiver	Rohde&Schwarz	ESHS30	828985/018	Aug. 25, 14	1 Year
3	Bilog Antenna	Schwarzbeck	VULB9163	142	Aug. 25, 14	1 Year
4	50 Coaxial Switch	Anritsu Corp	MP59B	6100237248	Aug. 25, 14	1 Year
5	Cable	Schwarzbeck	AK9513	ACRX1	Aug. 25, 14	1 Year
6	Cable	Rosenberger	N/A	FR2RX2	Aug. 25, 14	1 Year
7	Cable	Schwarzbeck	AK9513	CRRX2	Aug. 25, 14	1 Year
8	Cable	Schwarzbeck	AK9513	CRRX2	Aug. 25, 14	1 Year
9	Single Phase Power Line Filter	MPE	23332C	N/A	Aug. 25, 14	1 Year
10	Single Phase Power Line Filter	MPE	23333C	N/A	Aug. 25, 14	1 Year
11	Signal Generator	HP	864A	3625U00573	Aug. 25, 14	1 Year

5. CONDUCTED EMISSION TEST

5.1. Block Diagram of Test Setup



(EUT: **Head Up Display**)

5.2. Test Standard

FCC Part 15 B: 2013

5.3. Conducted Emission Limit (Class B)

Frequency MHz	Limits dB(μV)	
	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.

5.4. EUT Configuration on Test

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

5.4.1. Head Up Display

Model Number: **W02**

5.5. Operating Condition of EUT

5.5.1. Setup the EUT and simulators as shown in Section 5.1.

5.5.2. Turn on the power of all equipments.

5.5.3. Let the EUT work in test modes (EUT Working) and test it.



5.6. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESHS30) is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

The bandwidth of the test receiver (R&S Test Receiver ESHS30) is set at 10KHz.

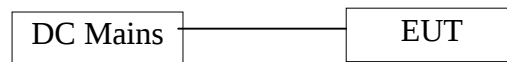
5.7. Test Result

N/A

6. RADIATED EMISSION MEASUREMENT

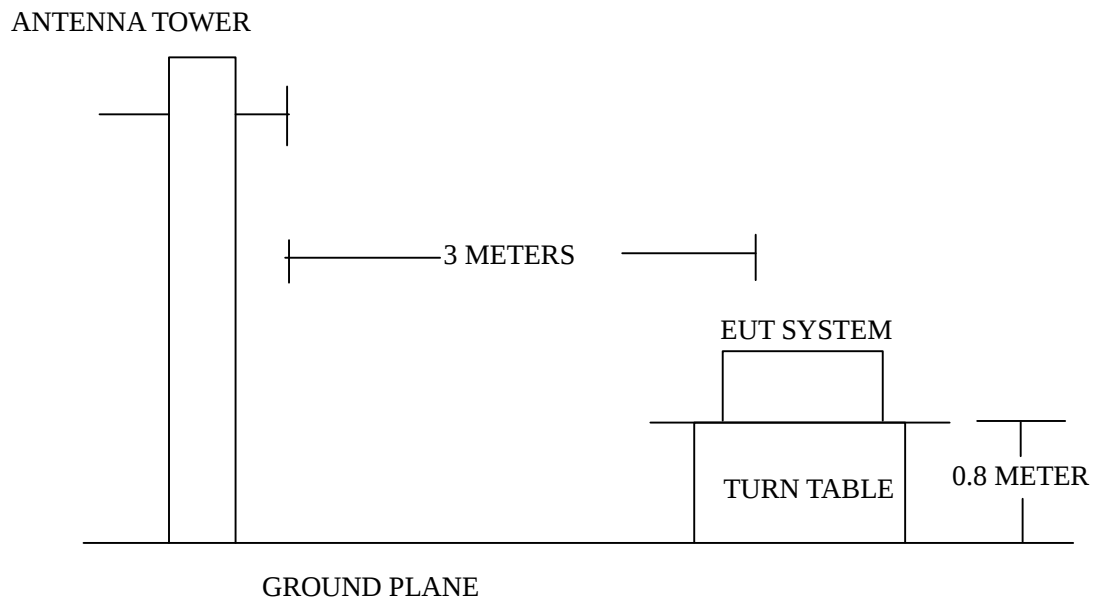
6.1. Block Diagram of Test Setup

6.1.1. Block Diagram of connection between the EUT and the simulators



(EUT: Head Up Display)

6.1.2. Anechoic Chamber Test Setup Diagram



6.2. Test Standard

FCC Part 15 B: 2013

6.3. Radiated Emission Limit(Class B)

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

Note:(1) The smaller limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT or system.



6.4.EUT Configuration on Test

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize Its emission characteristics in normal application.

Operating Condition of EUT

6.4.1.Setup the EUT as shown on Section 6.1

6.4.2.Turn on the power of all equipments.

6.4.3.Let the EUT work in test mode(EUT working) and measure it.

6.5.Test Procedure

The EUT is placed on a turn table which is 0.8 meter above ground. The turn 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 which is mounted on a antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna (calibrated by dipole antenna) are used as a receiving antenna. Both horizontal and vertical polarization of the antenna are set on measurement.

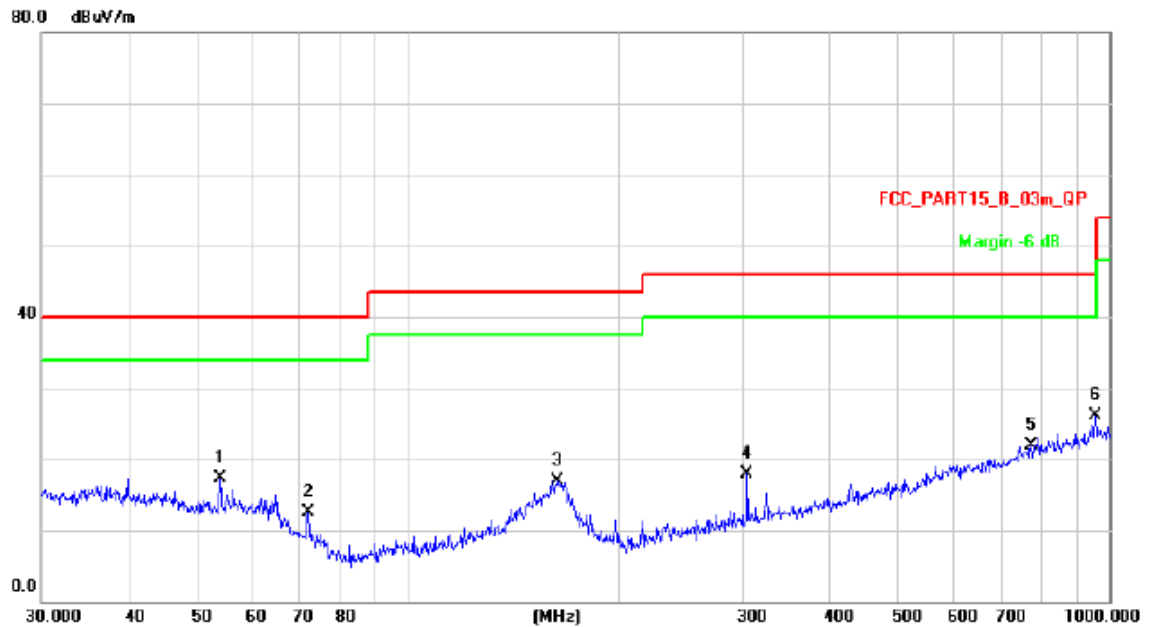
The bandwidth setting on the test receiver is 120 KHz.

The EUT is tested in Anechoic Chamber. The frequency range from 30MHz to 1000MHz is checked. All the test results are listed in Section 6.6.

6.6.Test Result

PASS

Please refer to the following pages.



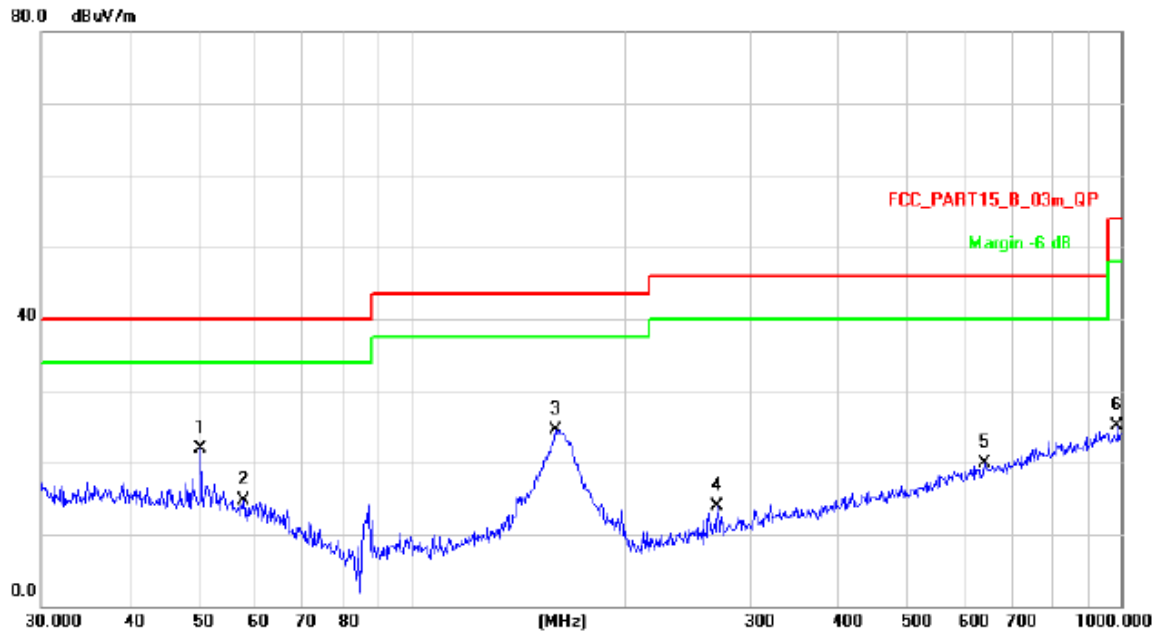
Site 966 BCTC Chamber #1

Polarization: *Horizontal*

Temperature: 26

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		53.8818	28.26	-10.93	17.33	40.00	-22.67	QP		
2		72.0843	27.84	-15.28	12.56	40.00	-27.44	QP		
3		163.1818	30.03	-13.05	16.98	43.50	-26.52	QP		
4		304.6099	30.28	-12.47	17.81	46.00	-28.19	QP		
5		774.1584	24.85	-2.92	21.93	46.00	-24.07	QP		
6	*	955.4381	26.53	-0.45	26.08	46.00	-19.92	QP		

*:Maximum data x:Over limit !:over margin



Site 966 BCTC Chamber #1

Polarization: *Vertical*

Temperature: 26

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	*	50.2324	32.15	-10.33	21.82	40.00	-18.18	QP		
2		57.7962	25.98	-11.34	14.64	40.00	-25.36	QP		
3		159.2251	37.36	-12.87	24.49	43.50	-19.01	QP		
4		269.4284	27.44	-13.53	13.91	46.00	-32.09	QP		
5		642.8613	25.15	-5.21	19.94	46.00	-26.06	QP		
6		989.5355	25.36	-0.32	25.04	54.00	-28.96	QP		

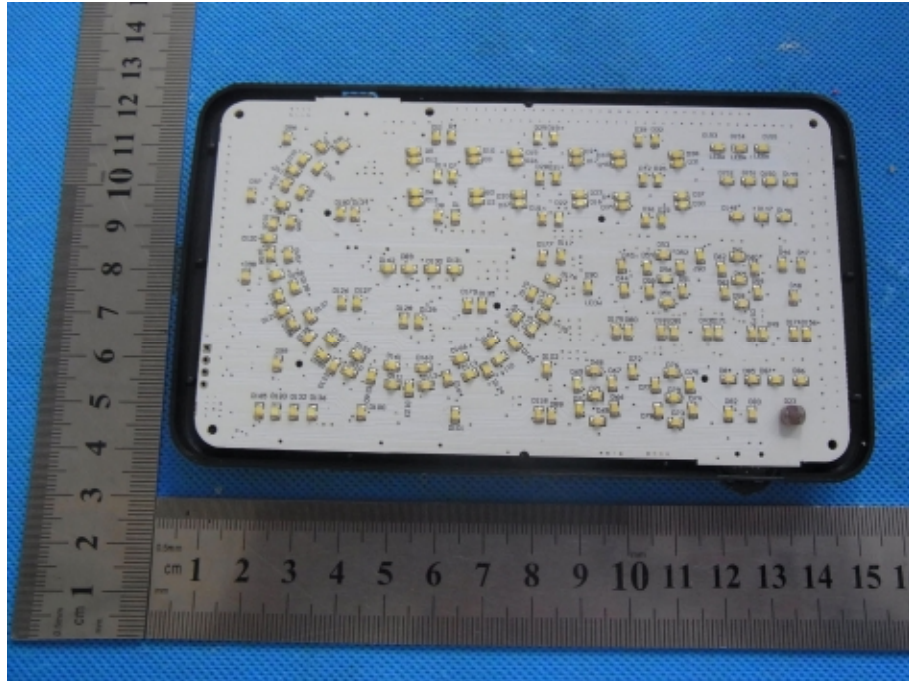
*:Maximum data x:Over limit !:over margin



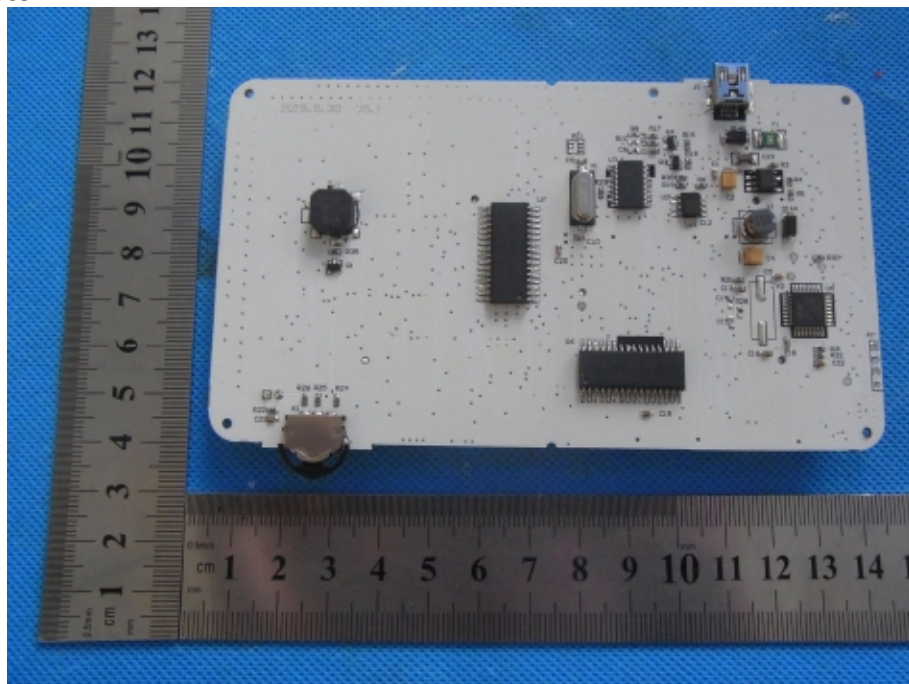
APPENDIX I (PHOTOS OF THE EUT)

EUT Photo 1**EUT Photo 2**

EUT Photo 3

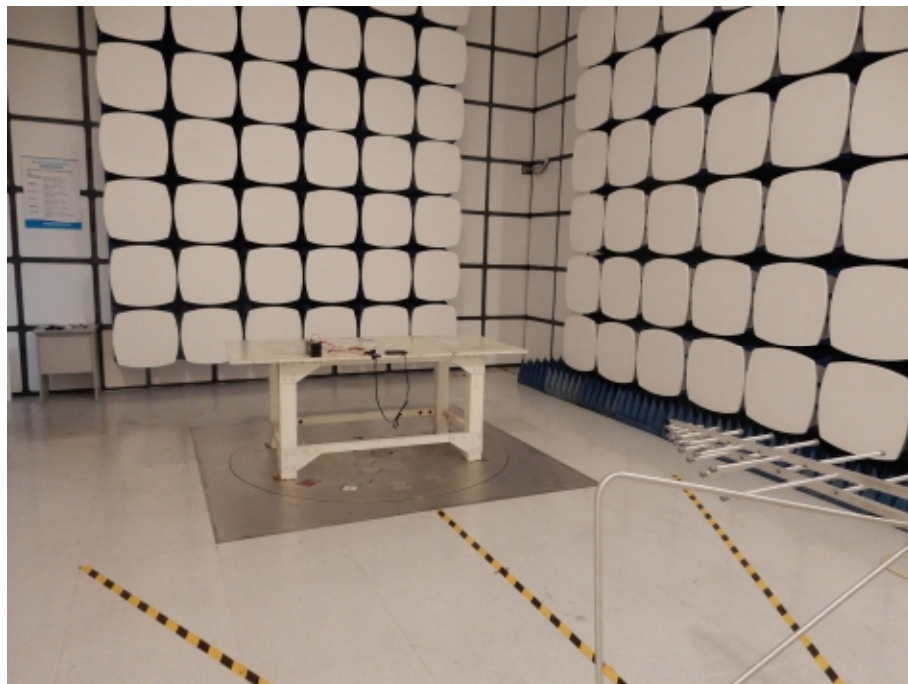
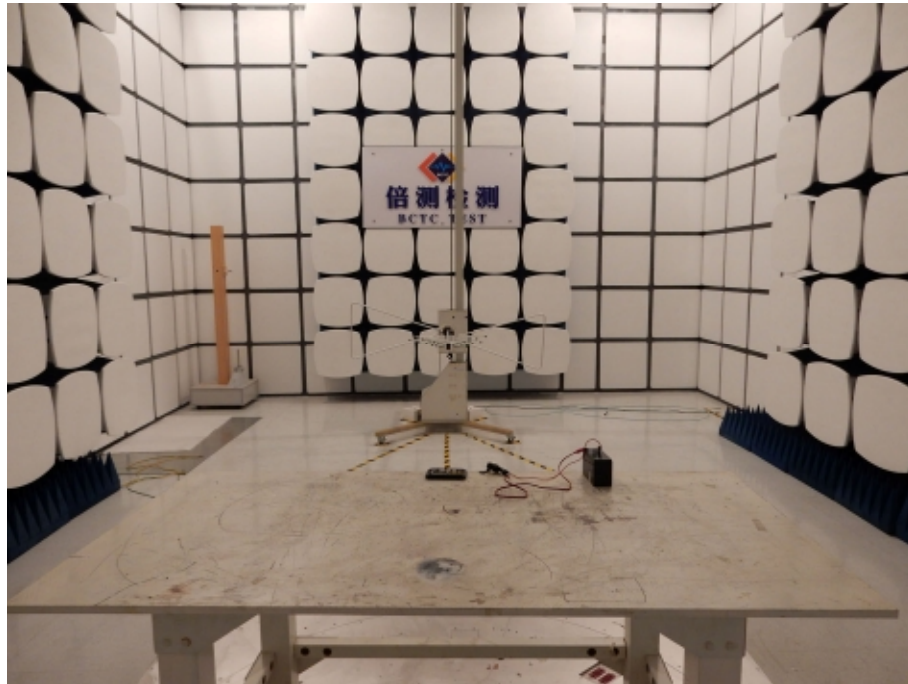


EUT Photo 4





APPENDIX II (TEST PHOTOS OF THE EUT)



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