TEST REPORT

Report No.:	BCTC2203263658E
Applicant:	SHENZHEN HOBK ElECTRONIC TECHNOLOGY CO., LTD
Product Name:	Remote Control
Model/Type reference:	HBK-R01
Tested Date:	2022-02-19 to 2022-02-23
Issued Date:	2022-03-07

Shenzhen BCTC Testing Co., Ltd.

FCC ID: 2A4H6HBK-R01

Product Name:	Remote Control
Trademark:	UHPPOTE
Model /Type Ref.:	HBK-R01 HBK-R03
Prepared For:	SHENZHEN HOBK ElECTRONIC TECHNOLOGY CO., LTD
Address:	RM12C, BLDG6, North Area of Manhaining, Longping Community, Dalang Subdistrict, Longhua District, Shenzhen
Manufacturer:	SHENZHEN HOBK ElECTRONIC TECHNOLOGY CO., LTD
Address:	RM12C, BLDG6, North Area of Manhaining, Longping Community, Dalang Subdistrict, Longhua District, Shenzhen
Prepared By:	Shenzhen BCTC Testing Co., Ltd.
Address:	1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	2022-02-19
Sample tested Date:	2022-02-19 to 2022-02-23
Issue Date:	2022-03-07
Report No.:	BCTC2202065163E
Test Standards:	FCC Part 15B ANSI C63.4:2014
Test Results:	PASS

Tested by:

Brave Zeng/ Project Handler

Approved by:

Zero Zhou/Reviewer

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

Table Of Content

(Note: N/A Means Not Applicable)

1. Version

Report No.	Issue Date	Description	Approved
BCTC2203263658E	2022-03-07	Original	Valid

2. Test Summary

The Product has been tested according to the following specifications:

Standard	Test Item	Test result
FCC 15.107	Conducted Emission	Pass
FCC 15.109	Radiated Emission	Pass

3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Value (dB)
Conducted Emission (150kHz-30MHz)	3.20
Radiated Emission(30MHz~1GHz)	4.80
Radiated Emission(1GHz~6GHz)	4.90

4. Product Information And Test Setup

4.1 Product Information

Ratings:	DC 12V from Adapter
Model differences：	All models are identical except for the appearance color, the test model is HBK-R01 and the test results are applicable to other tests.
The highest frequency of the internal sources of the EUT is (less than 108)MHz:	☐ less than 1.705 MHz, the measurement shall only be made up to 30 MHz. ☐ between 1.705 MHz and 108 MHz, the measurement shall only be made up to 1 GHz. ☒ between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. ☐ between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz. ☐ above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40GHz, whichever is less.

Cable of Product

No.	Cable Type	Quantity	Provider	Length (m)	Shielded	Note
1	--	--	Applicant	---	Yes/No	With a ferrite ring in mid Detachable
2	--	--	BCTC	--	Yes/No	--

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	Adapter	N/A	BCTC001	N/A	Auxiliary

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer’s requirements and conditions for the intended use.

4.4 Test Mode

Test item	Test Mode	Test Voltage
Radiated emission(30MHz-1GHz) Class B	Working	DC 12V from Adapter
Conducted emissions from the AC mains power ports (150KHz-30MHz) Class B	Working	DC 12V from Adapter

5. Test Facility And Test Instrument Used

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at Shenzhen BCTC Testing Co., Ltd. Address:1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

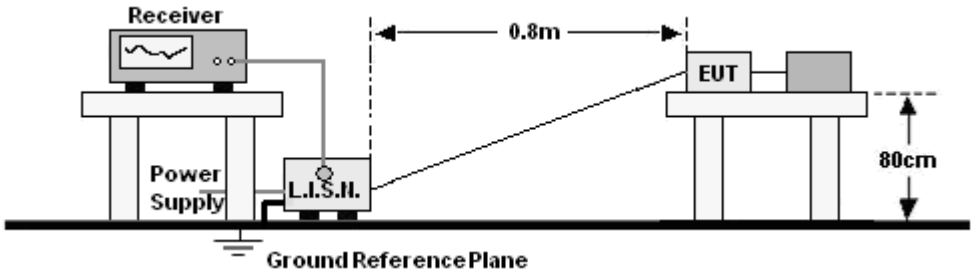
5.2 Test Instrument Used

Radiated Emissions Test (966 Chamber#01)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	Jun. 06. 2020	Jun. 05, 2023
Receiver	R&S	ESRP	101154	May 28, 2021	May 27, 2022
Receiver	R&S	ESR3	102075	May 28, 2021	May 27, 2022
Amplifier	SKET	LAPA_01G18G-45dB	\	May 28, 2021	May 27, 2022
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 28, 2021	May 27, 2022
TRILOG Broadband Antenna	schwarzbeck	VULB9163	942	Jun. 01, 2021	May 31, 2022
Horn Antenna	schwarzbeck	BBHA9120D	1541	Jun. 02, 2021	Jun. 01, 2022
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

6. Conducted Emissions

6.1 Block Diagram Of Test Setup

For mains ports:



6.2 Limit

Limits for Conducted emissions at the mains ports of Class B MME

Frequency range MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56*	56 to 46*
0,50 to 5	56	46
5 to 30	60	50

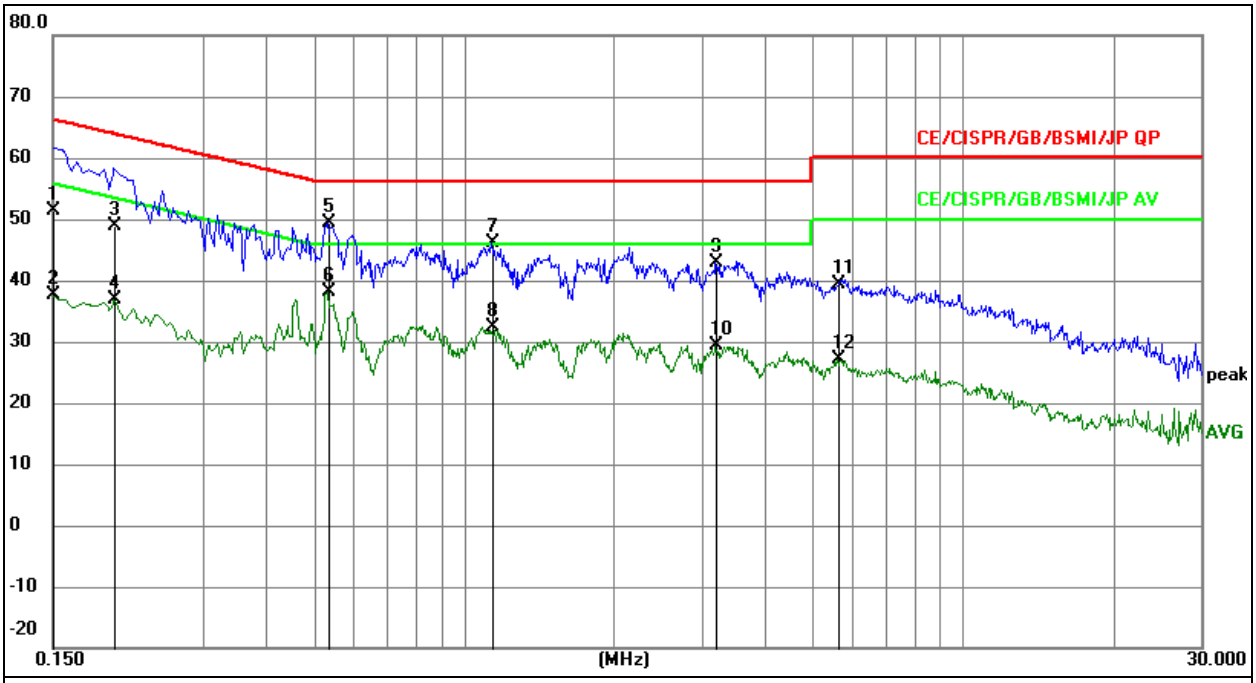
7. Notes: 1. *Decreasing linearly with logarithm of frequency.
8. 2. The lower limit shall apply at the transition frequencies.

6.3 Test procedure

For mains ports:
a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.
9.

6.4 Test Result

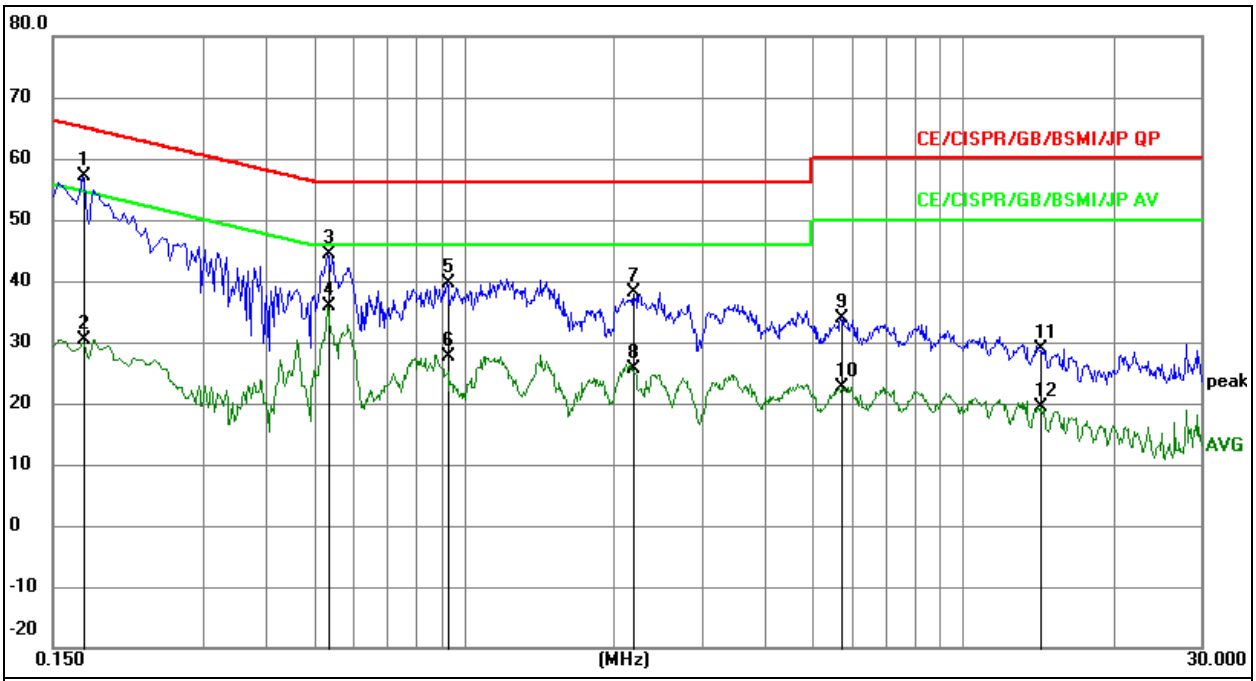
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	L
Test Mode:	Working	Remark:	N/A



Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement = Reading Level + Correct Factor
4. Over = Measurement - Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1		0.1500	31.77	19.61	51.38	66.00	-14.62	QP
2		0.1500	17.95	19.61	37.56	56.00	-18.44	AVG
3		0.1990	29.24	19.61	48.85	63.65	-14.80	QP
4		0.1990	17.20	19.61	36.81	53.65	-16.84	AVG
5	*	0.5325	29.81	19.62	49.43	56.00	-6.57	QP
6		0.5325	18.45	19.62	38.07	46.00	-7.93	AVG
7		1.1400	26.45	19.63	46.08	56.00	-9.92	QP
8		1.1400	12.76	19.63	32.39	46.00	-13.61	AVG
9		3.1965	23.13	19.66	42.79	56.00	-13.21	QP
10		3.1965	9.71	19.66	29.37	46.00	-16.63	AVG
11		5.5949	19.78	19.72	39.50	60.00	-20.50	QP
12		5.5949	7.37	19.72	27.09	50.00	-22.91	AVG

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	N
Test Mode:	Working	Remark:	N/A



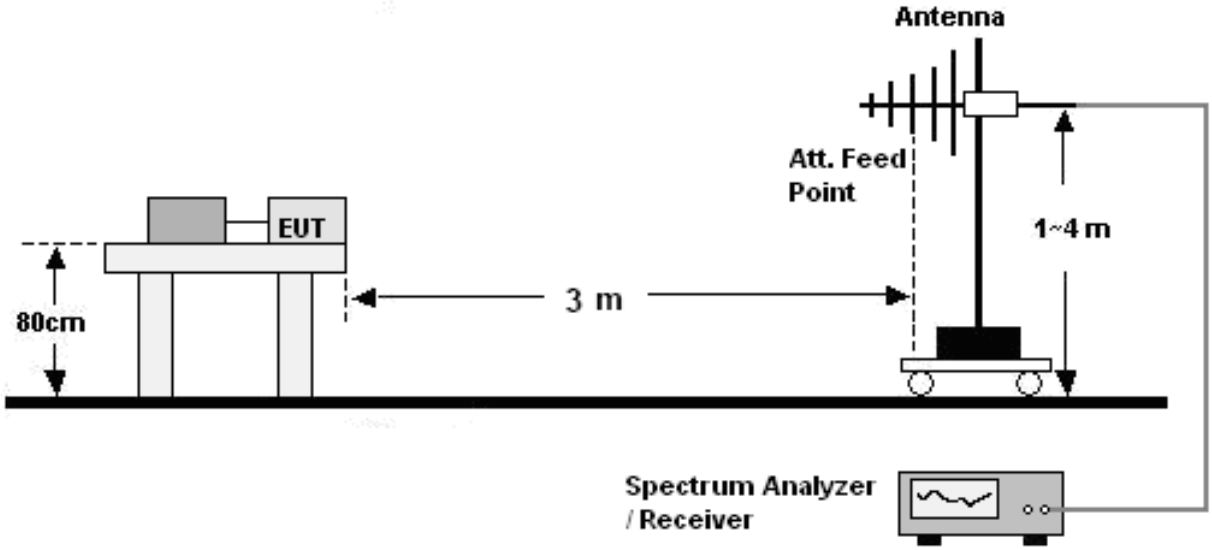
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement = Reading Level + Correct Factor
4. Over = Measurement - Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1	*	0.1725	37.50	19.61	57.11	64.84	-7.73	QP
2		0.1725	10.72	19.61	30.33	54.84	-24.51	AVG
3		0.5325	24.81	19.62	44.43	56.00	-11.57	QP
4		0.5325	16.33	19.62	35.95	46.00	-10.05	AVG
5		0.9240	20.01	19.62	39.63	56.00	-16.37	QP
6		0.9240	8.03	19.62	27.65	46.00	-18.35	AVG
7		2.1885	18.45	19.63	38.08	56.00	-17.92	QP
8		2.1885	5.90	19.63	25.53	46.00	-20.47	AVG
9		5.6984	14.12	19.72	33.84	60.00	-26.16	QP
10		5.6984	3.01	19.72	22.73	50.00	-27.27	AVG
11		14.2890	9.16	19.78	28.94	60.00	-31.06	QP
12		14.2890	-0.35	19.78	19.43	50.00	-30.57	AVG

7. Radiation Emission Test

7.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



7.2 Limit

Limits for Class B devices

Frequency (MHz)	limits at 3m dB(μV/m)		
	QP Detector	PK Detector	AV Detector
30-88	40.0	--	--
88-216	43.5	--	--
216-960	46.0	--	--
960 to 1000	54.0	--	--
Above 1000	--	74.0	54.0

Note: The lower limit shall apply at the transition frequencies.

7.3 Test Procedure

30MHz ~ 1GHz:

a. The Product was placed on the nonconductive turntable 0.8 m above the ground at a chamber.

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

Above 1GHz:

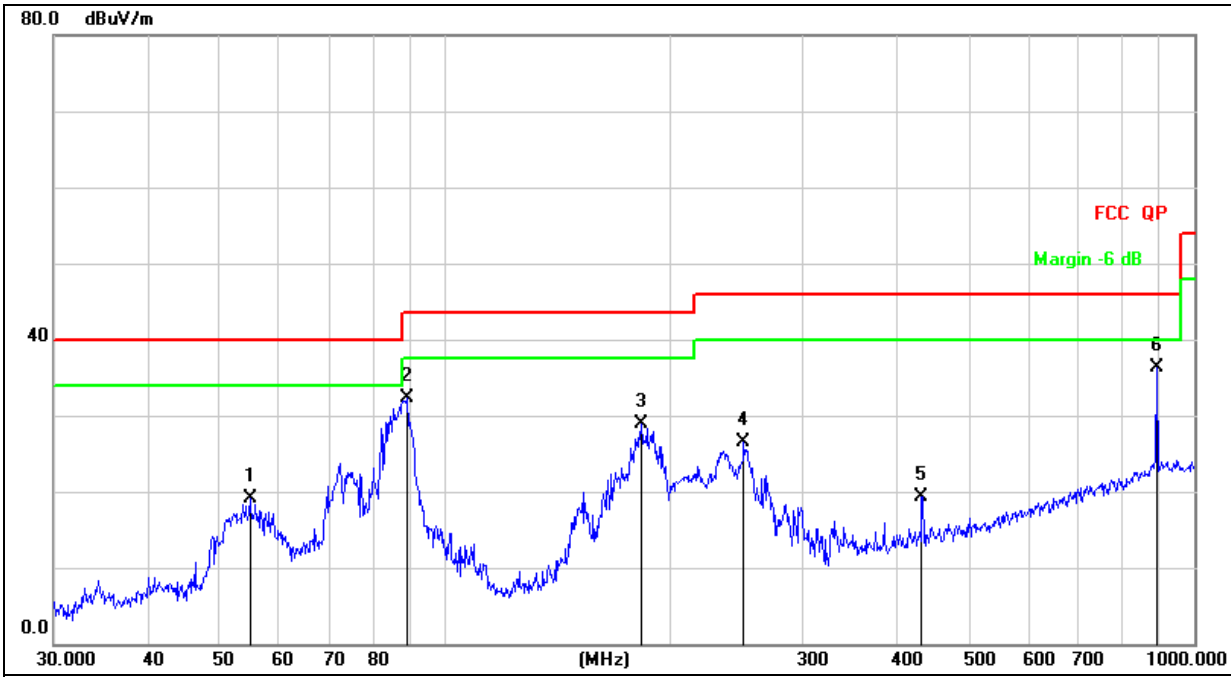
a. The Product was placed on the non-conductive turntable 0.8 m above the ground in a full anechoic chamber..

b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.

c. For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

7.4 Test Result

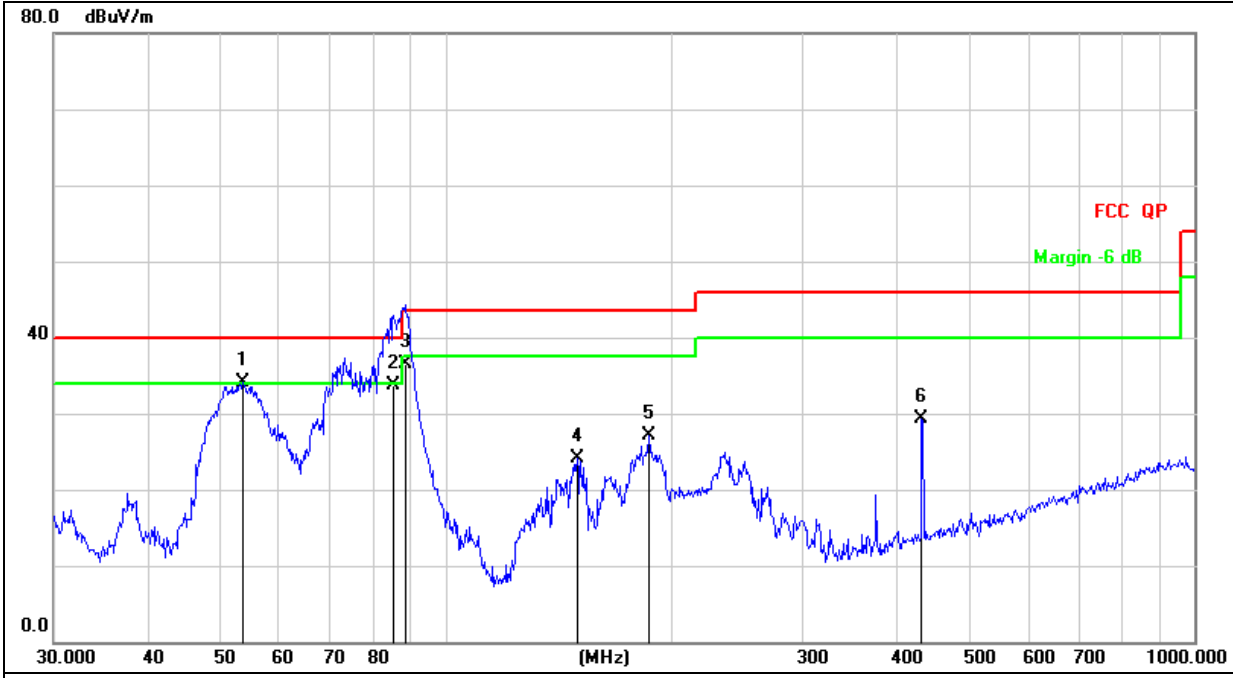
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Voltage :	DC 12V from Adapter	Test Mode:	Working



Remark:
1.Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement=Reading Level+ Correct Factor
3. Over+ Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		54.8348	34.87	-15.71	19.16	40.00	-20.84	QP
2		88.9639	51.16	-18.91	32.25	43.50	-11.25	QP
3		182.5592	45.77	-16.86	28.91	43.50	-14.59	QP
4		250.3012	41.14	-14.64	26.50	46.00	-19.50	QP
5		432.5457	29.40	-10.02	19.38	46.00	-26.62	QP
6	*	890.7278	36.06	0.23	36.29	46.00	-9.71	QP

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Voltage :	DC 12V from Adapter	Test Mode:	Working

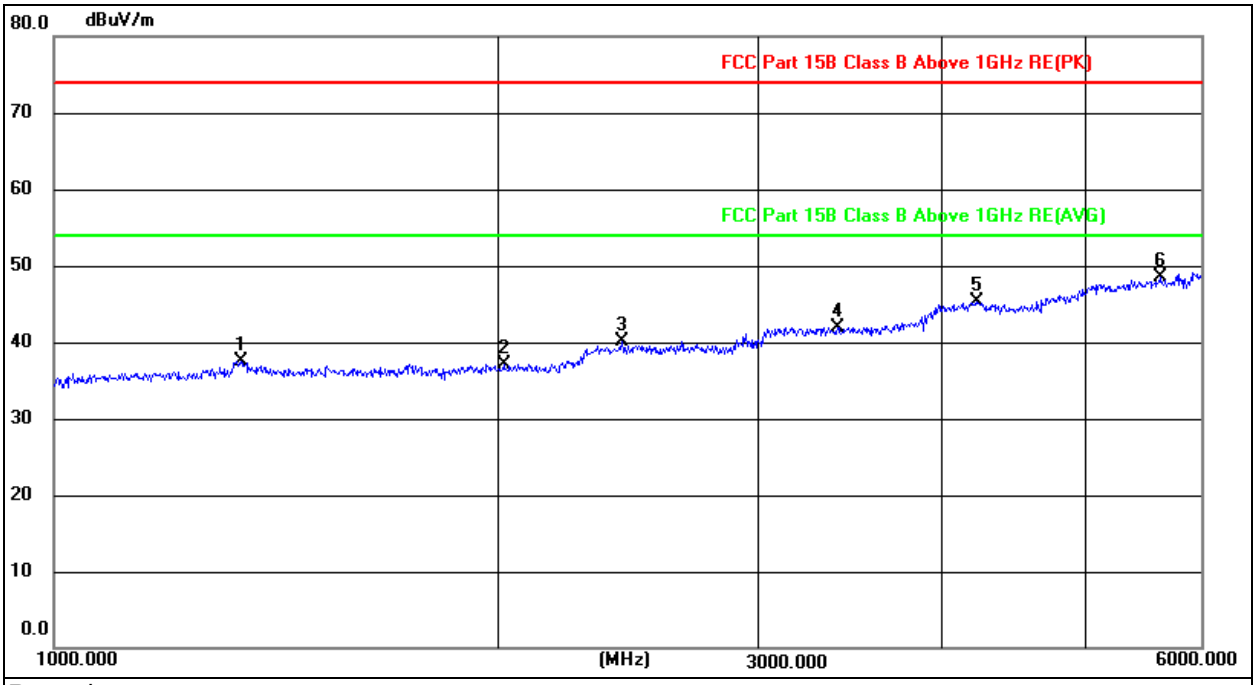


Remark:
1.Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement=Reading Level+ Correct Factor
3. Over+ Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	53.6932	49.73	-15.64	34.09	40.00	-5.91	QP
2		85.2980	53.20	-19.50	33.70	40.00	-6.30	QP
3		88.5621	55.50	-18.97	36.53	43.50	-6.97	QP
4		150.0108	43.57	-19.49	24.08	43.50	-19.42	QP
5		187.0958	43.62	-16.49	27.13	43.50	-16.37	QP
6		432.5457	39.34	-10.02	29.32	46.00	-16.68	QP

Above 1GHz

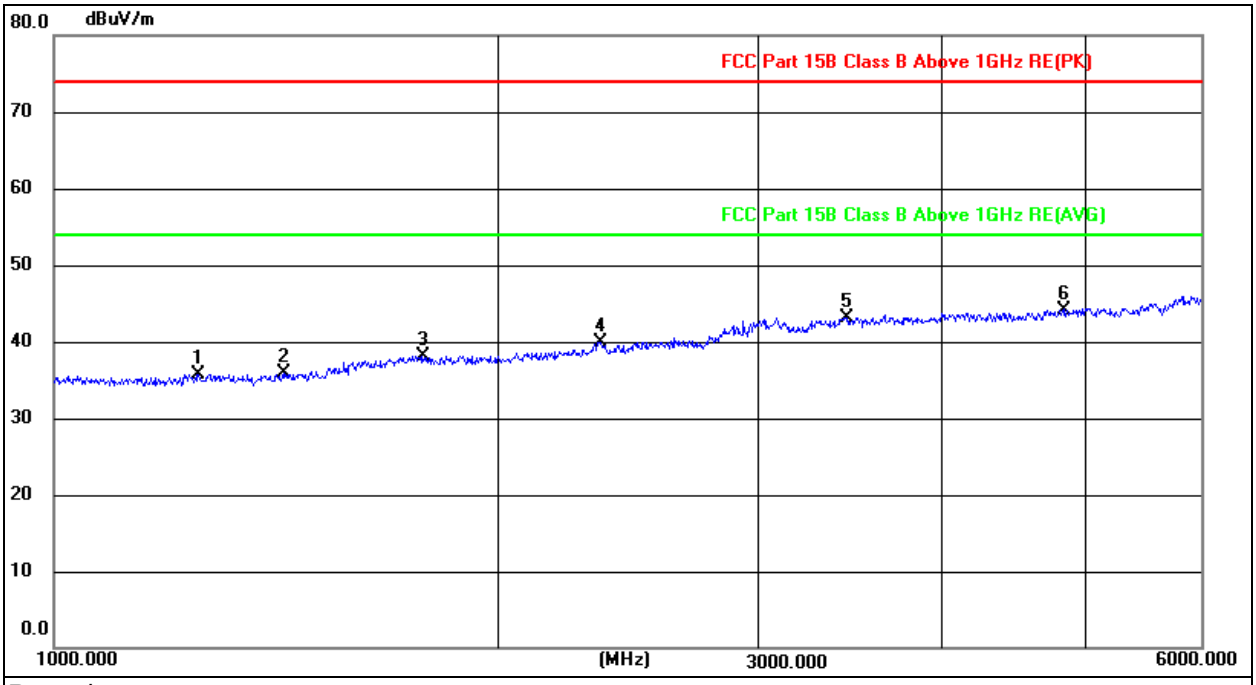
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Mode:	Working	Remark:	N/A



Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement = Reading Level + Correct Factor
3. Over = Measurement - Limit

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1339.179	49.37	-11.85	37.52	74.00	-36.48	peak
2	2018.530	48.68	-11.53	37.15	74.00	-36.85	peak
3	2427.643	49.79	-9.69	40.10	74.00	-33.90	peak
4	3399.987	50.19	-8.29	41.90	74.00	-32.10	peak
5	4223.122	47.80	-2.49	45.31	74.00	-28.69	peak
6 *	5625.198	47.61	0.80	48.41	74.00	-25.59	peak

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Mode:	Working	Remark:	N/A



Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement = Reading Level + Correct Factor
3. Over = Measurement - Limit

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1253.277	47.76	-12.07	35.69	74.00	-38.31	peak
2	1430.969	47.58	-11.72	35.86	74.00	-38.14	peak
3	1777.406	50.23	-12.20	38.03	74.00	-35.97	peak
4	2346.389	49.92	-10.05	39.87	74.00	-34.13	peak
5	3442.900	51.36	-8.19	43.17	74.00	-30.83	peak
6 *	4839.195	45.86	-1.66	44.20	74.00	-29.80	peak

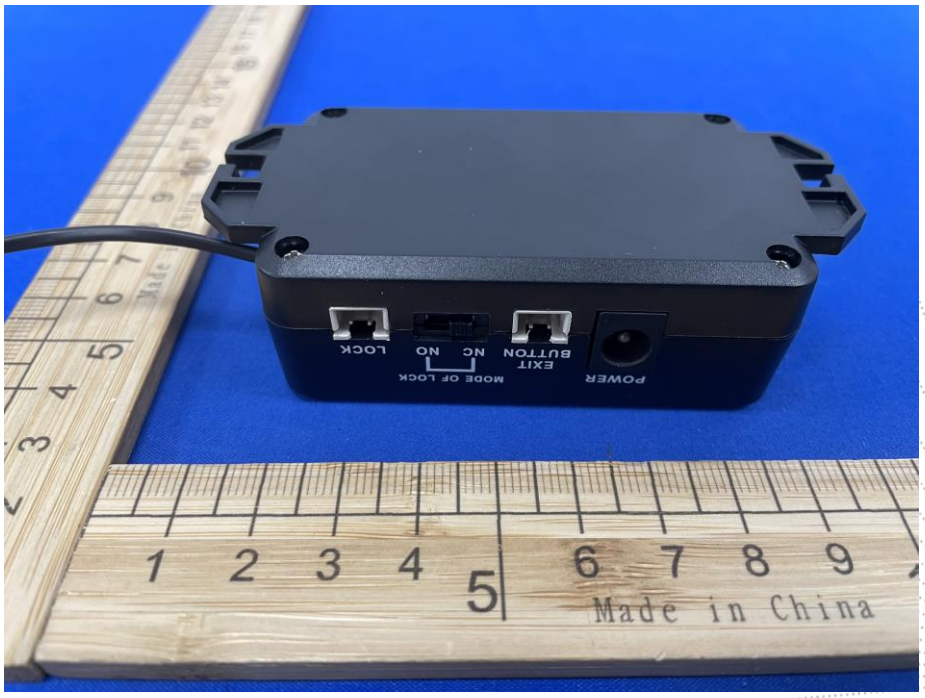
8. EUT Photographs

EUT Photo 1

EUT Photo 2

EUT Photo 3

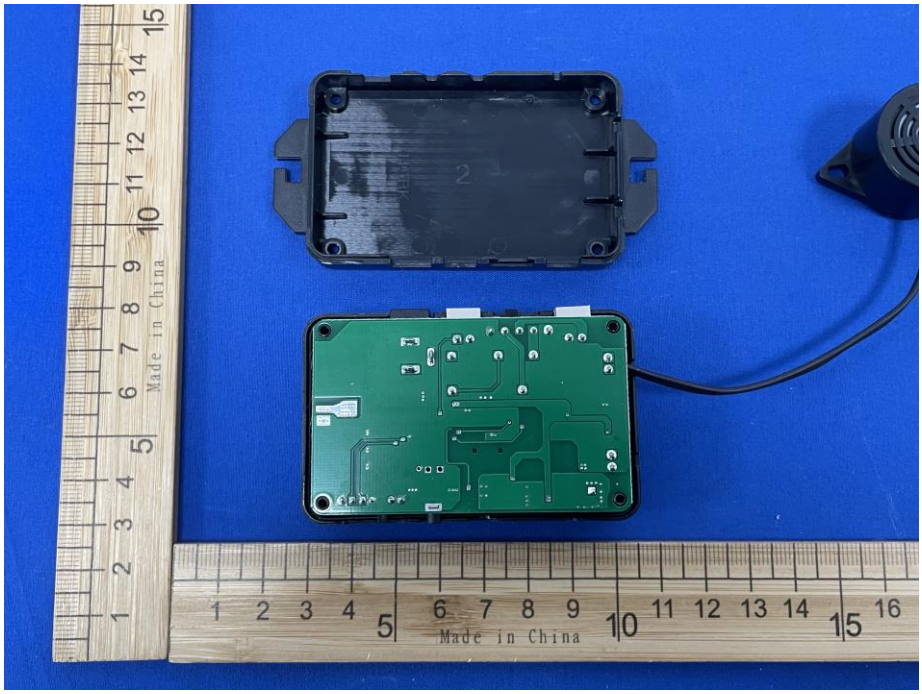
EUT Photo 4



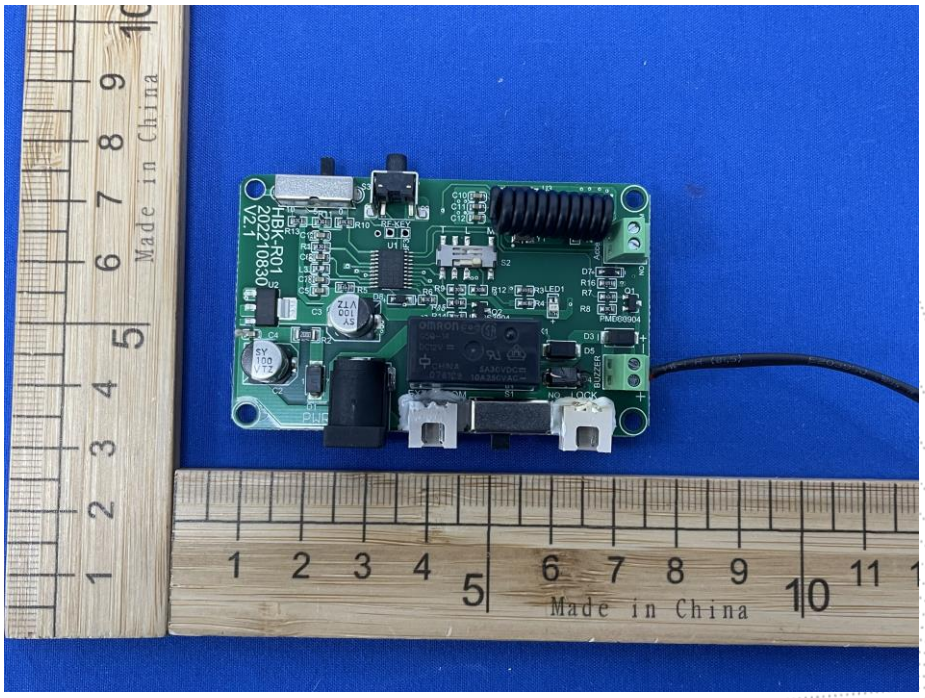
EUT Photo 5

EUT Photo 6

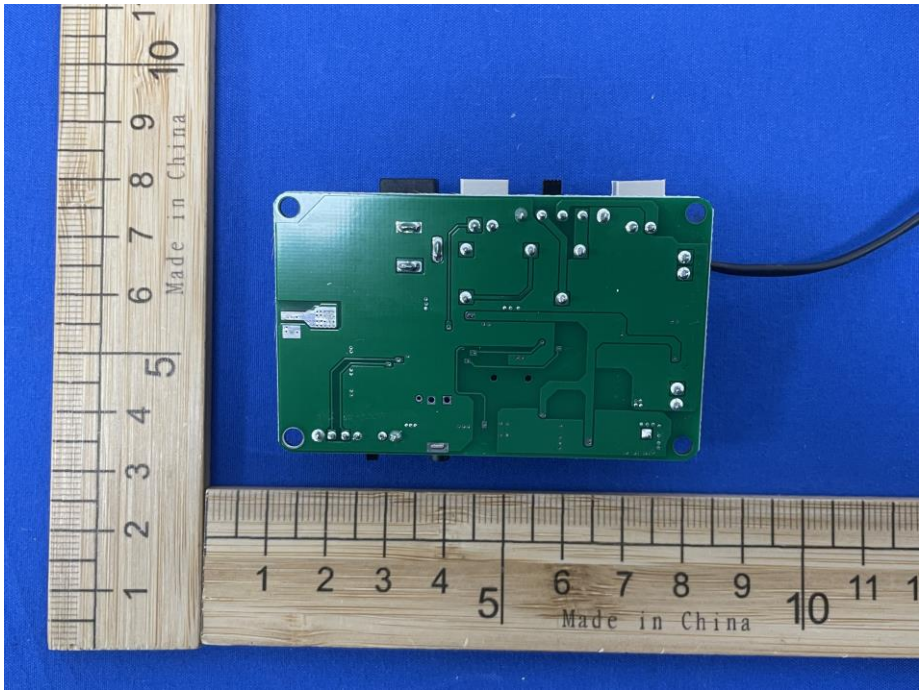
EUT Photo 7



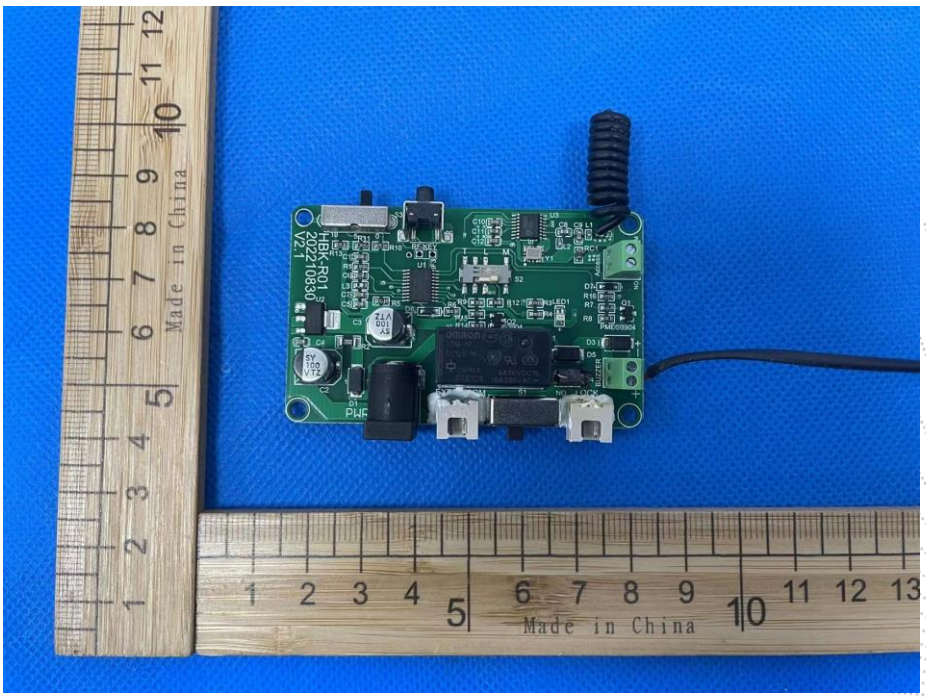
EUT Photo 8



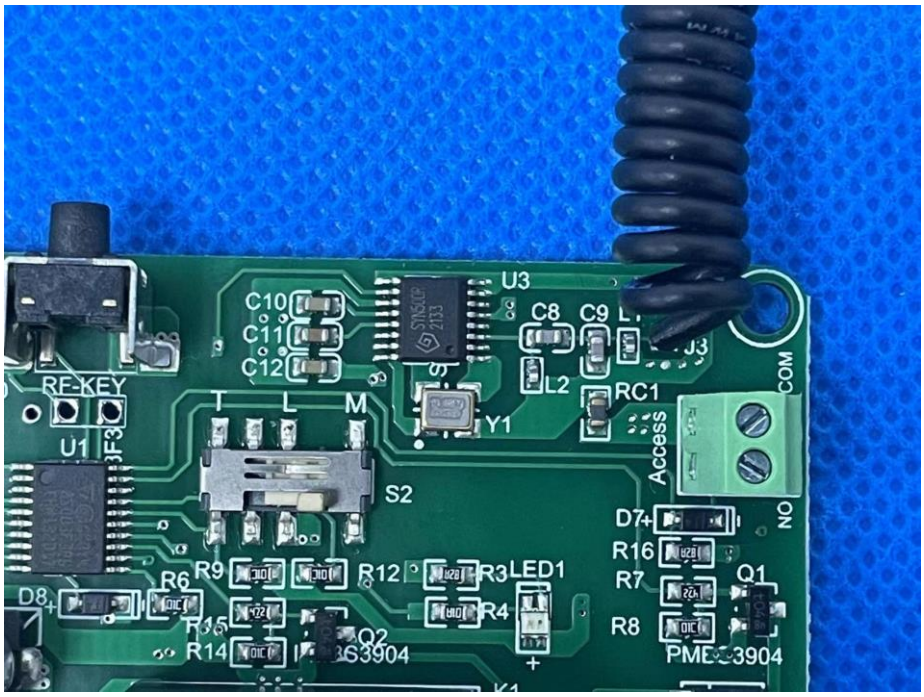
EUT Photo 9



EUT Photo 10



EUT Photo 11


U3
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C12
C8
C9
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COM
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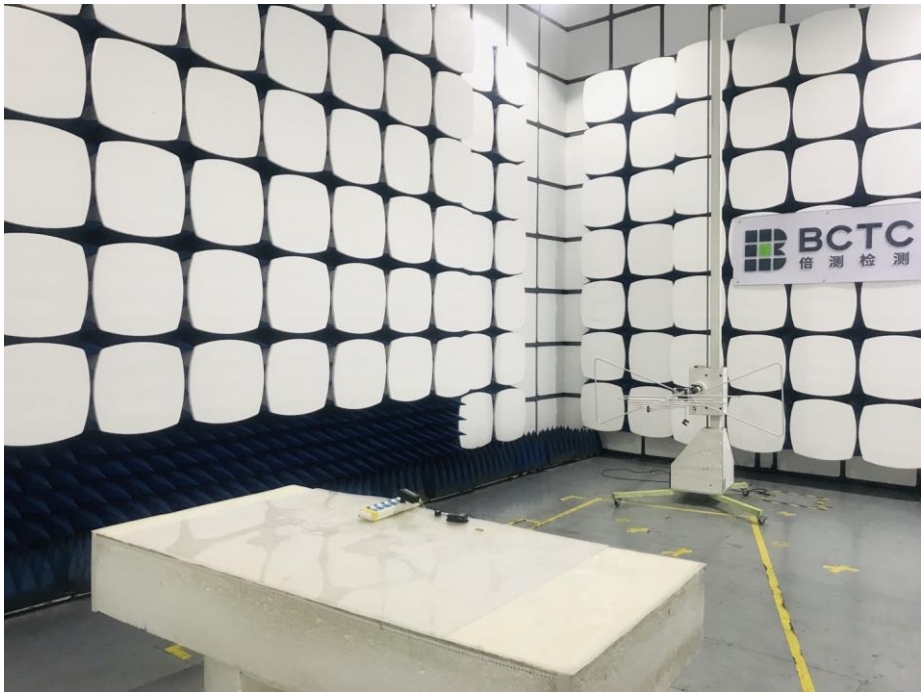
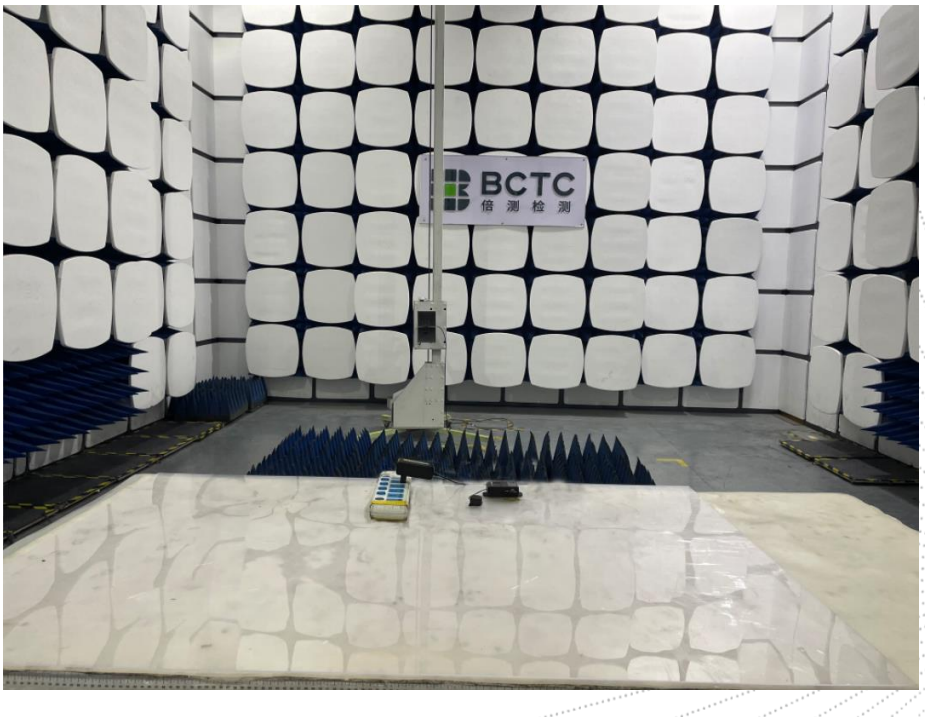
D7
R16
R7
Q1
R8
R9
R6
R12
R3
LED1
R4
D8
R14
Q2
PME3904

9. EUT Test Setup Photographs

Radiated emissions





Conducted emissions

STATEMENT

The equipment lists are traceable to the national reference standards.

The test report can not be partially copied unless prior written approval is issued from our lab.

The test report is invalid without stamp of laboratory.

The test report is invalid without signature of person(s) testing and authorizing.

The test process and test result is only related to the Unit Under Test.

The quality system of our laboratory is in accordance with ISO/IEC17025.

If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:
1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL：400-788-9558

P.C.: 518103

FAX：0755-33229357

Website：http://www.chnbctc.com

E-Mail：bctc@bctc-lab.com.cn

※※※※※ **END** ※※※※※