Shenzhen GUOREN Certification Technology Service Co., Ltd.

101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community, Fenghuang Street, Guangming District, Shenzhen, China

FCC PART 15 SUBPART C TEST REPORT

Report Reference No.....:	**GRCTR210602002-01**	
FCC ID..... :	**2AZ9Z-EY-510**	
Compiled by (position+printed name+signature)..:	Testing Engineer Jimmy Wang	
Supervised by (position+printed name+signature)..:	Project Engineer Kelley Zhang	
Approved by (position+printed name+signature)..:	Manager Sam Wang	
Date of issue.....:	Jun. 16, 2021	
Representative Laboratory Name.:	**Shenzhen GUOREN Certification Technology Service Co., Ltd.**	
Address.....:	101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community, Fenghuang Street, Guangming District, Shenzhen, China	
Applicant's name.....:	**DongGuan IDEAL ENTERPRISE CO.,LTD**	
Address .....:	No. 27, Dawei Dongfu Road, Chiling Village, Houjie Town, Dongguan City, China	
Test specification .....:		
Standard .....:	**FCC Rules and Regulations Part 15 Subpart C (Section 15.209), ANSI C63.10: 2013**	

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Test item description .....:	**embedded desktop wireless charing**
Trade Mark .....:	N/A
Manufacturer .....:	DongGuan IDEAL ENTERPRISE CO.,LTD
Model/Type reference.....:	EY-510
Listed Models .....:	N/A
Modulation Type .....:	ASK
Operation Frequency.....:	From 110KHz~205KHz
Rating .....:	DC 5V/2.1A
Result.....:	**PASS**

TEST REPORT

Test Report No. :	GRCTR210602002-01	Jun. 16, 2021 Date of issue

Equipment under Test	:	embedded desktop wireless charing
Model /Type	:	EY-510
Listed Models	:	N/A
Applicant	:	DongGuan IDEAL ENTERPRISE CO.,LTD
Address	:	No. 27, Dawei Dongfu Road, Chiling Village, Houjie Town, Dongguan City, China
Manufacturer	:	DongGuan IDEAL ENTERPRISE CO.,LTD
Address	:	No. 27, Dawei Dongfu Road, Chiling Village, Houjie Town, Dongguan City, China

Test Result:	**PASS**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1 TEST STANDARDS 4

2 SUMMARY 5

2.1 General Remarks 5
2.2 Product Description 5
2.3 Description of the test mode 5
2.4 Special Accessories 5
2.5 Modifications 6

3 TEST ENVIRONMENT 7

3.1 Address of the test laboratory 7
3.2 Test Facility 7
3.3 Summary of measurement results 7
3.4 Statement of the measurement uncertainty 7
3.5 Equipments Used during the Test 8

4 TEST CONDITIONS AND RESULTS..... 9

4.1 AC Power Conducted Emission 9
4.2 Radiated Emission 12
4.3 Occupied Bandwidth 16
4.4 Antenna Requirement 17

5 TEST SETUP PHOTOS OF THE EUT 18

6 PHOTOS OF THE EUT 19

1 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules and Regulations Part 15 Subpart C (Section 15.207): Conducted limits.
FCC Rules and Regulations Part 15 Subpart C (Section 15.209): Radiated emission limits; general requirements.
ANSI C63.10: 2013: American National Standard for Testing Unlicensed Wireless Devices

2 SUMMARY

2.1 General Remarks

Date of receipt of test sample	:	May 26, 2021
Testing commenced on	:	May 26, 2021
Testing concluded on	:	Jun. 16, 2021

2.2 Product Description

Product Name:	embedded desktop wireless charing
Model/Type reference:	EY-510
Test samples ID:	GRCTR210602002-01-1#
Power supply:	Output:DC 5V 2.1A Output: 5W/7.5W/10W
Adapter information:	Model:GEO101U-050210U Input:100-240V 50/60Hz 0.3A Output:DC 5V 2.1A
Operation frequency:	110KHz - 205KHz
Modulation type:	ASK
Antenna type:	Loop coil antenna

2.3 Description of the test mode

Equipment under test was operated during the measurement under the following conditions:
☒ Charging and communication mode

Test Modes:		
Mode 1	AC/DC Adapter (5V/2A) + EUT + Mobile Phone1 (Battery Status: <1%)	Pre-tested
Mode 2	AC/DC Adapter (5V/2A) + EUT + Mobile Phone1 (Battery Status: <50%)	Pre-tested
Mode 3	AC/DC Adapter (5V/2A) + EUT + Mobile Phone1 (Battery Status: 100%)	Pre-tested
Mode 4	AC/DC Adapter (9V/2A) + EUT + Mobile Phone1 (Battery Status: <1%)	Record
Mode 5	AC/DC Adapter (9V/2A) + EUT + Mobile Phone1 (Battery Status: <50%)	Pre-tested
Mode 6	AC/DC Adapter (9V/2A) + EUT + Mobile Phone1 (Battery Status: 100%)	Pre-tested
Note: All test modes were pre-tested, but we only recorded the worst case in this report.		

2.4 Special Accessories

Follow auxiliary equipment(s) test with EUT that provided by the manufacturer or laboratory is listed as follow:

Description	Manufacturer	Model	Technical Parameters	Certificate	Provided by
Adapter	I.T.E	GEO101U-050210U	Input: 100-240V~, 50/60Hz, 0.3A Output: 5V⎓2A / 9V⎓2A	FCC	laboratory
/	/	/	/	/	/
/	/	/	/	/	/
/	/	/	/	/	/

2.5 Modifications

No modifications were implemented to meet testing criteria.

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Shenzhen GUOREN Certification Technology Service Co., Ltd.
101#, Building K & Building T, The Second Industrial Zone, Jiazitang Community, Fenghuang Street, Guangming District, Shenzhen, China

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 920798 Designation Number: CN1304

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert. No.: 6202.01

Shenzhen GUOREN Certification Technology Service Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010.

3.3 Summary of measurement results

DESCRIPTION OF TEST	RESULT
CONDUCTED EMISSIONS TEST	COMPLIANT
RADIATED EMISSION TEST	COMPLIANT
OCCUPIED BANDWIDTH MEASUREMENT	COMPLIANT
ANTENNA REQUIREMENT	COMPLIANT

3.4 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Global Test Service Co.,Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen GTS laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10 dB	(1)
Radiated Emission	1~18GHz	4.32 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.12 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

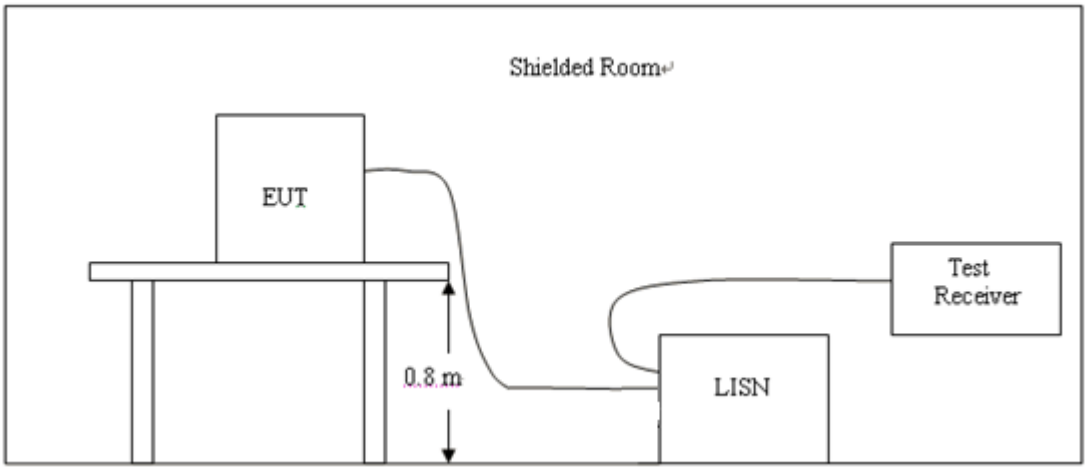
3.5 Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Equipment No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	GRCTEE009	2020/11/3	2021/11/2
LISN	R&S	ENV216	GRCTEE010	2020/11/3	2021/11/2
EMI Test Receiver	R&S	ESPI	GRCTEE017	2020/11/3	2021/11/2
EMI Test Receiver	R&S	ESCI	GRCTEE008	2020/11/3	2021/11/2
Spectrum Analyzer	Agilent	N9020A	GRCTEE002	2020/11/3	2021/11/2
Spectrum Analyzer	R&S	FSP	GRCTEE003	2020/11/19	2021/11/18
Vector Signal generator	Agilent	N5181A	GRCTEE007	2020/11/3	2021/11/2
Analog Signal Generator	R&S	SML03	GRCTEE006	2020/11/3	2021/11/2
Universal Radio Communication	CMW500	R&S	GRCTEE001	2020/11/3	2021/11/2
Climate Chamber	QIYA	LCD-9530	GRCTES016	2020/11/1	2021/10/31
Ultra-Broadband Antenna	Schwarzbeck	VULB9163	GRCTEE018	2020/10/25	2023/10/24
Horn Antenna	Schwarzbeck	BBHA 9120D	GRCTEE019	2020/10/25	2023/10/24
Loop Antenna	Zhinan	ZN30900C	GRCTEE020	2020/10/25	2023/10/24
Horn Antenna	Beijing Hangwei Dayang	OBH100400	GRCTEE049	2021/1/18	2024/1/17
Amplifier	Schwarzbeck	BBV 9745	GRCTEE021	2021/1/18	2022/1/17
Amplifier	Taiwan chengyi	EMC051845B	GRCTEE022	2020/11/19	2021/11/18
Temperature/Humidity Meter	Huaguan	HG-308	GRCTES037	2020/11/1	2021/10/31
Directional coupler	NARDA	4226-10	GRCTEE004	2020/11/3	2021/11/2
High-Pass Filter	XingBo	XBLBQ-GTA18	GRCTEE053	2020/11/3	2021/11/2
High-Pass Filter	XingBo	XBLBQ-GTA27	GRCTEE054	2020/11/3	2021/11/2
Automated filter bank	Tonscend	JS0806-F	GRCTEE055	2020/11/3	2021/11/2
EMI Test Software	ROHDE & SCHWARZ	ESK1-V1.71	GRCTEE060	N/A	N/A
EMI Test Software	Fera	EZ-EMC	GRCTEE061	N/A	N/A

4 TEST CONDITIONS AND RESULTS

4.1 AC Power Conducted Emission

TEST CONFIGURATION



TEST PROCEDURE

1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
2, Support equipment, if needed, was placed as per ANSI C63.10.
3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5, All support equipments received AC power from a second LISN, if any.
6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

AC Power Conducted Emission Limit

For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following：

Frequency range (MHz)	Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
* Decreases with the logarithm of the frequency.		

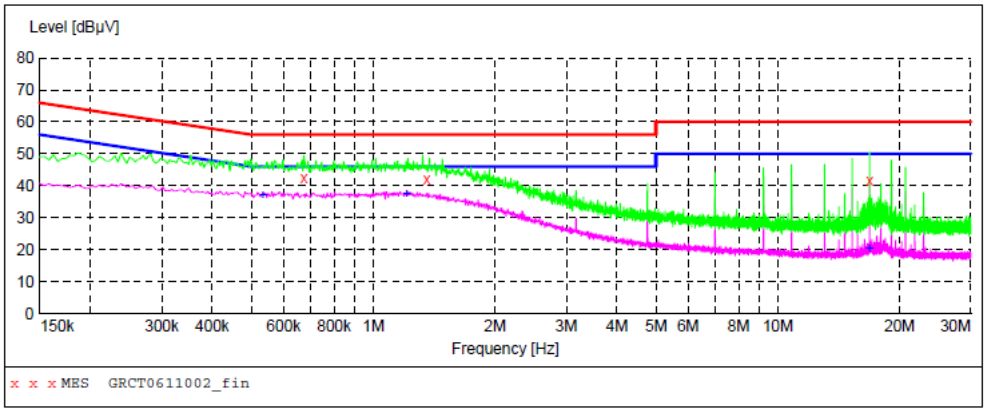
TEST RESULTS

1. Both 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz power supply have been tested, only the worst result of 120 VAC, 60 Hz was reported as below:
2. All test modes descripted in section 2.3 has been tested, only the worst result of Mode 1 is recorted.

Temperature	22.8℃	Humidity	56%
Test Engineer	Kelley Zhang	Test mode	TM1

Power supply:	DC 5V from Adapter AC 120V/60Hz	Polarization	L

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "GRCT0611002_fin"

6/11/2021 11:23AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.674000	42.30	19.9	56	13.7	QP	L1	GND
1.358000	42.20	20.0	56	13.8	QP	L1	GND
16.882000	41.80	20.4	60	18.2	QP	L1	GND

MEASUREMENT RESULT: "GRCT0611002_fin2"

6/11/2021 11:23AM

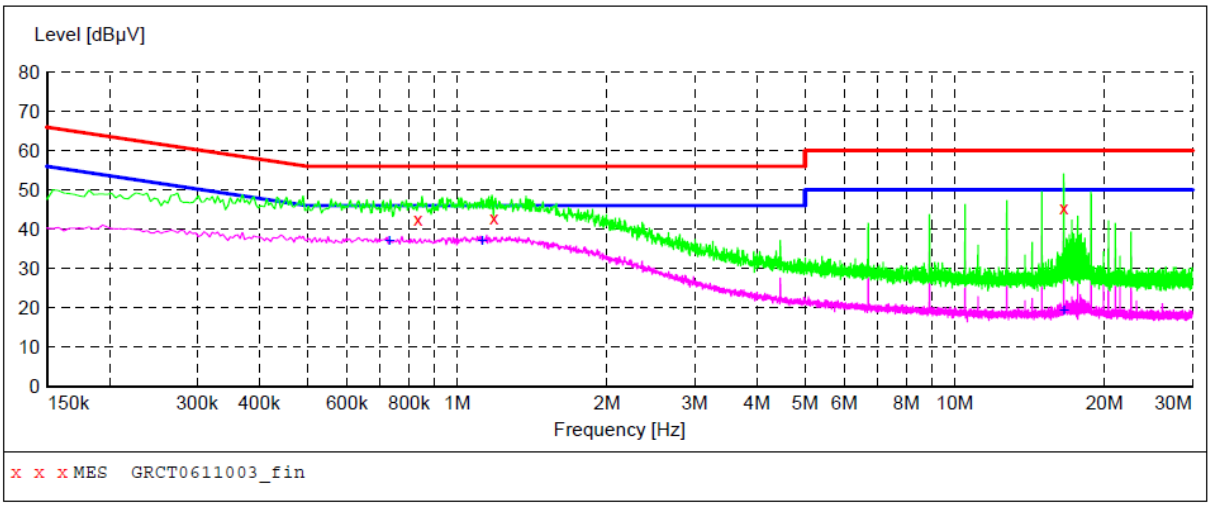
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.534000	37.20	19.9	46	8.8	AV	L1	GND
1.210000	37.30	20.0	46	8.7	AV	L1	GND
16.826000	20.30	20.4	50	29.7	AV	L1	GND

Note:1. Margin=Limit-Level

Power supply:	DC 5V from Adapter AC 120V/60Hz	Polarization	N

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "GRCT0611003_fin"

6/11/2021 11:27AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.834000	42.50	19.9	56	13.5	QP	N	GND
1.186000	42.90	20.0	56	13.1	QP	N	GND
16.566000	45.30	20.4	60	14.7	QP	N	GND

MEASUREMENT RESULT: "GRCT0611003_fin2"

6/11/2021 11:27AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.730000	37.00	19.9	46	9.0	AV	N	GND
1.122000	37.20	20.0	46	8.8	AV	N	GND
16.578000	19.50	20.4	50	30.5	AV	N	GND

Note:1. Margin=Limit-Level

4.2 Radiated Emission

Limit

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission out of authorized band shall not exceed the following table at a 3 meters measurement distance.

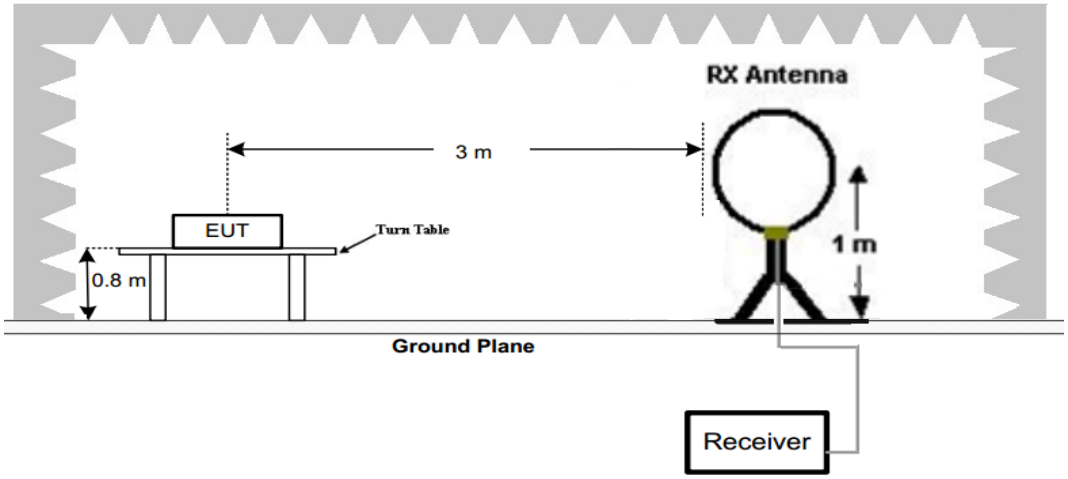
In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a)

Radiated emission limits

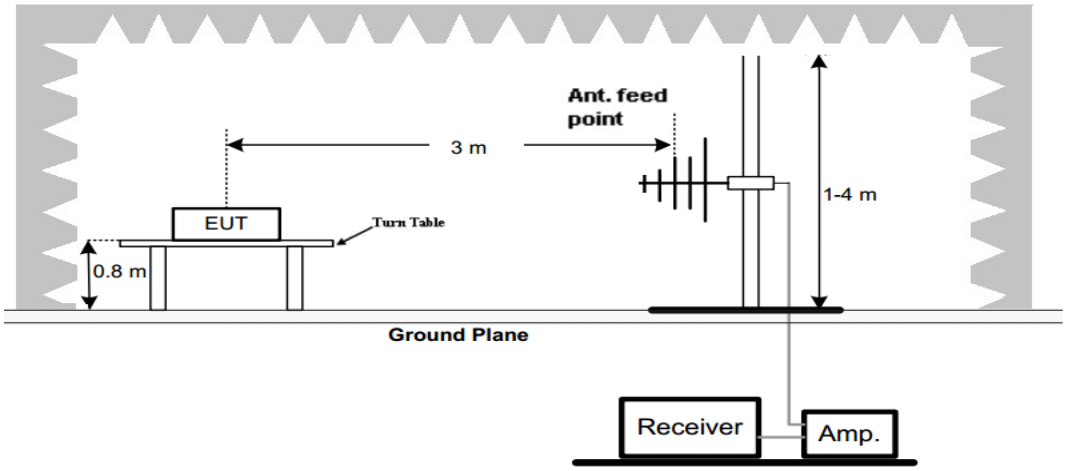
Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	3	20log(2400/F(KHz))+40log(300/3)	2400/F(KHz)
0.49-1.705	3	20log(24000/F(KHz))+ 40log(30/3)	24000/F(KHz)
1.705-30	3	20log(30)+ 40log(30/3)	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST CONFIGURATION

1. Radiated Emission Test Set-Up, Frequency Below 30MHz



2. Radiated Emission Test Set-Up, Frequency below 1000MHz



Test Procedure

1. Below 1GHz measurement the EUT is placed on a turntable which is 0.8m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. Radiated emission test frequency band from 9KHz to 1000MHz.
6. The distance between test antenna and EUT as following table states:

Test Frequency range	Test Antenna Type	Test Distance
9KHz-30MHz	Active Loop Antenna	3
30MHz-1GHz	Bilog Antenna	3

7. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
9KHz-150KHz	RBW=200Hz/VBW=3KHz,Sweep time=Auto	QP
150KHz-30MHz	RBW=9KHz/VBW=100KHz,Sweep time=Auto	QP
30MHz-1GHz	RBW=120KHz/VBW=1000KHz,Sweep time=Auto	QP

TEST RESULTS

Temperature	22.8℃	Humidity	56%
Test Engineer	Kelley Zhang	Test mode	TM1

For 9 KHz-30MHz

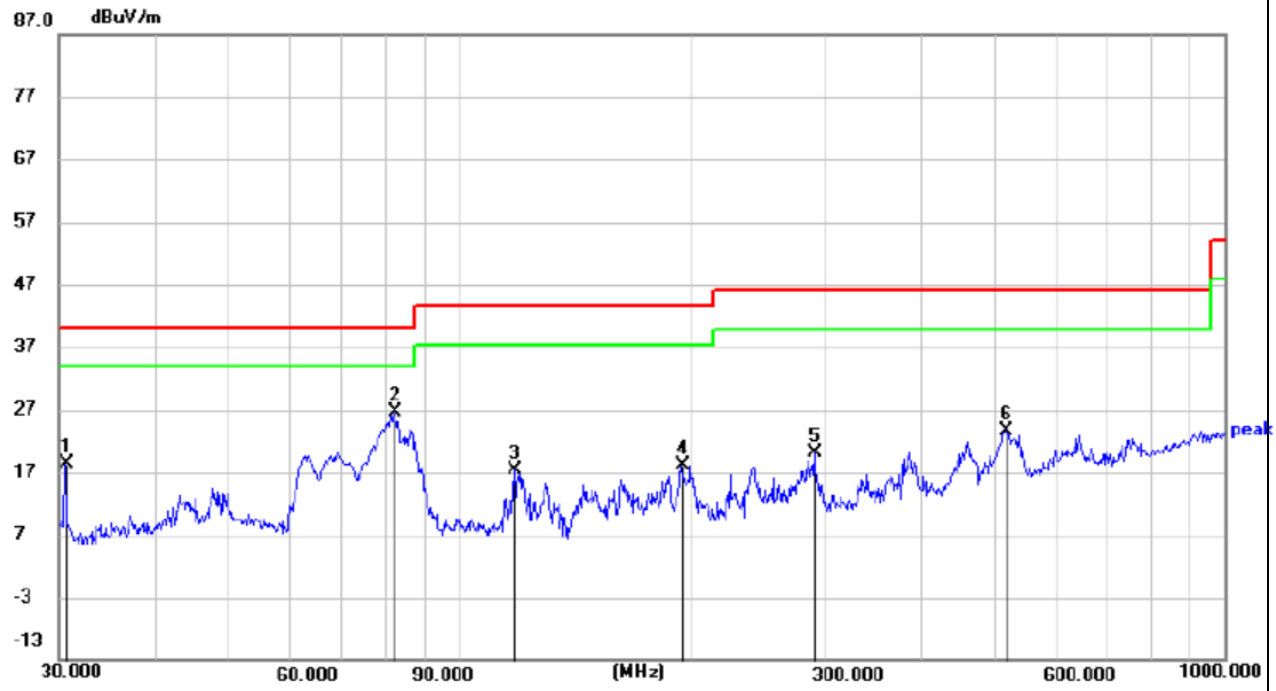
WORST-CASE RADIATED EMISSION BELOW 30 MHz

Frequency	Reading	Polar	Antenna Factor	Cable Loss	Emission Levels	Limits at 3m	Margin	Detector Mode
(MHz)	(dBμV/m)	Loop	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
0.122(F)	65.88	Loop	23.64	0.01	89.53	105.88	16.35	PK
0.122(F)	57.72	Loop	23.64	0.01	81.37	85.88	4.51	AV
0.110	33.76	Loop	23.55	0.01	57.32	106.78	49.46	PK
0.110	29.91	Loop	23.55	0.01	53.47	86.78	33.31	AV
0.675	21.66	Loop	25.07	-0.17	46.56	71.02	24.46	QP
1.355	26.42	Loop	27.12	-0.25	53.29	64.97	11.68	QP
2.95	29.22	Loop	23.91	-0.24	52.89	69.54	16.65	QP
––	––	––	––	––	––	––		––

Remark:
1. Data of measurement within this frequency range shown “-- in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits and not recorded.
2. The test limit distance is 3m limit.
3. PK means Peak Value, QP means Quasi Peak Value, AV means Average Value.
4. F means Fundamental Frequency.
5. Emission level (dBuV/m) =Reading + Antenna Factor + Cable Loss.
6. Margin value = Limit value- Emission level.

For 30MHz-1GHz

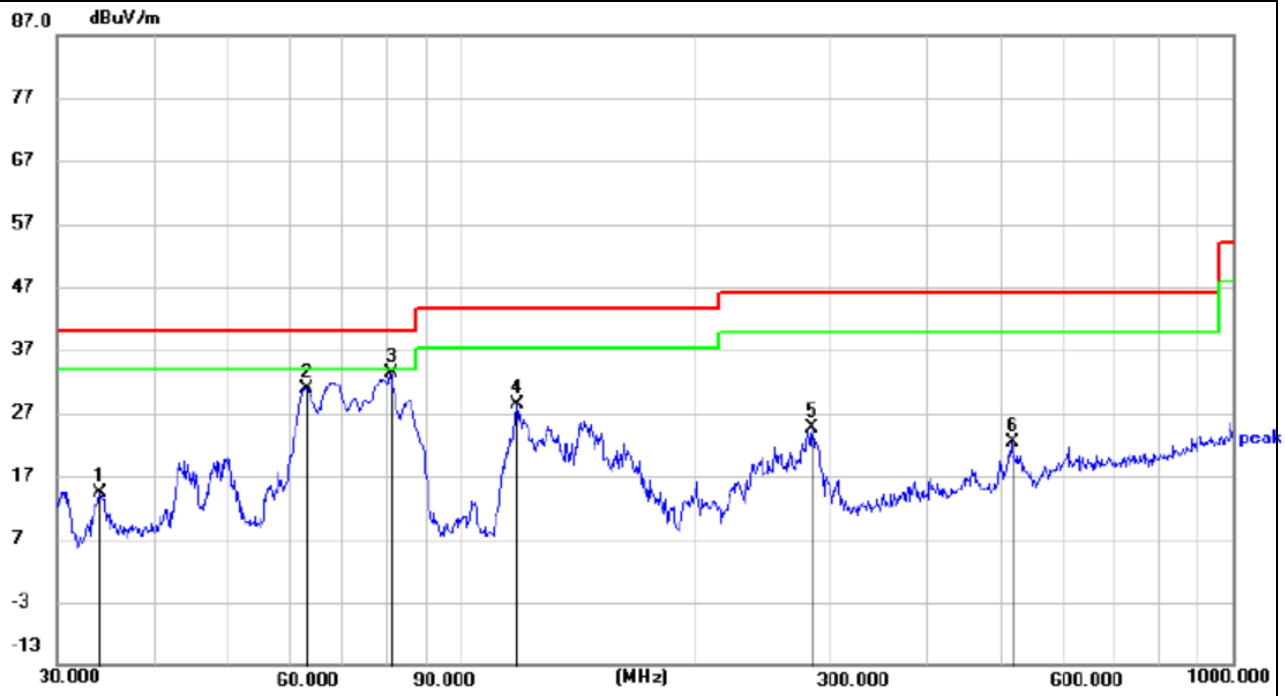
Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F
1	30.6379	38.41	-20.07	18.34	40.00	21.66	peak	199	10	P
2 *	82.0706	48.92	-22.37	26.55	40.00	13.45	peak	199	204	P
3	118.1862	37.24	-19.79	17.45	43.50	26.05	peak	199	80	P
4	195.1365	37.47	-19.36	18.11	43.50	25.39	peak	199	281	P
5	291.0360	37.46	-17.21	20.25	46.00	25.75	peak	100	285	P
6	517.2480	37.34	-13.60	23.74	46.00	22.26	peak	100	291	P

Level(dBuv/m)=Reading(dBuV)+Factor(dB/m)
Margin(dB)=limit(dBuV/m)- Level(dBuv/m)

Vertical

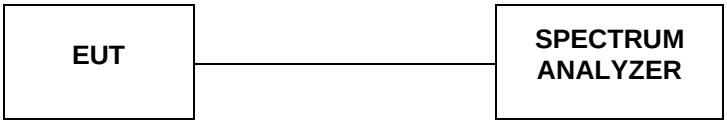


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F
1	34.0365	34.37	-19.91	14.46	40.00	25.54	peak	100	315	P
2	63.0916	50.83	-19.90	30.93	40.00	9.07	peak	100	315	P
3 *	80.9275	55.96	-22.58	33.38	40.00	6.62	peak	100	267	P
4	118.1862	48.14	-19.79	28.35	43.50	15.15	peak	100	69	P
5	284.9767	41.92	-17.37	24.55	46.00	21.45	peak	100	2	P
6	515.4374	35.99	-13.60	22.39	46.00	23.61	peak	100	100	P

Level(dBuv/m)=Reading(dBuV)+Factor(dB/m)
Margin(dB)=limit(dBuV/m)- Level(dBuv/m)

4.3 Occupied Bandwidth

TEST CONFIGURATION



TEST PROCEDURE

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that 20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equip compliance with the 20dB attenuation specification may base on measurement at the intentional radiator's antenna output terminal unless the intentional radiator uses a permanently attached antenna, in which case compliance shall be.deomonstrated by measuring the radiated emissions.

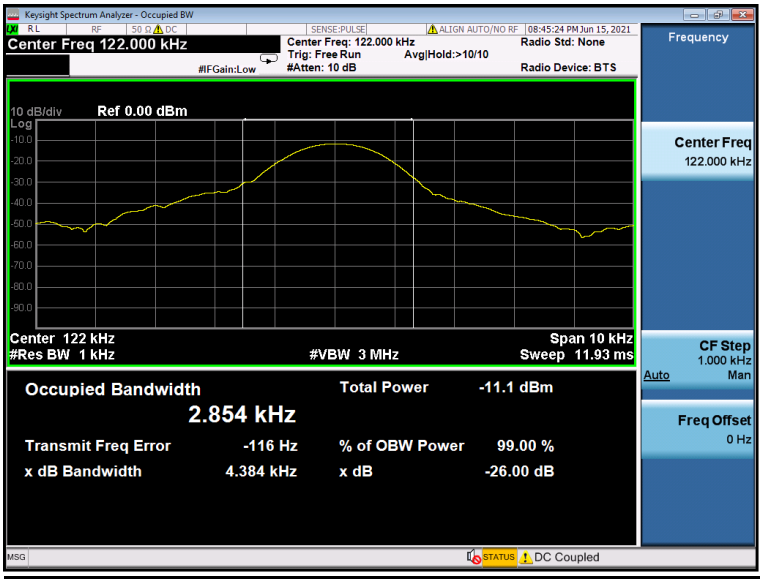
LIMIT

The 20dB bandwidth shall be less than 80% of the permitted frequency band.

TEST RESULTS

Temperature	22.8℃	Humidity	56%
Test Engineer	Kelley Zhang	Test mode	TM1

Mode	Freq (KHz)	20dB Bandwidth (KHz)	Conclusion
Tx Mode	122.00	4.384	PASS



4.4 Antenna Requirement

Standard Applicable

Standard Applicable

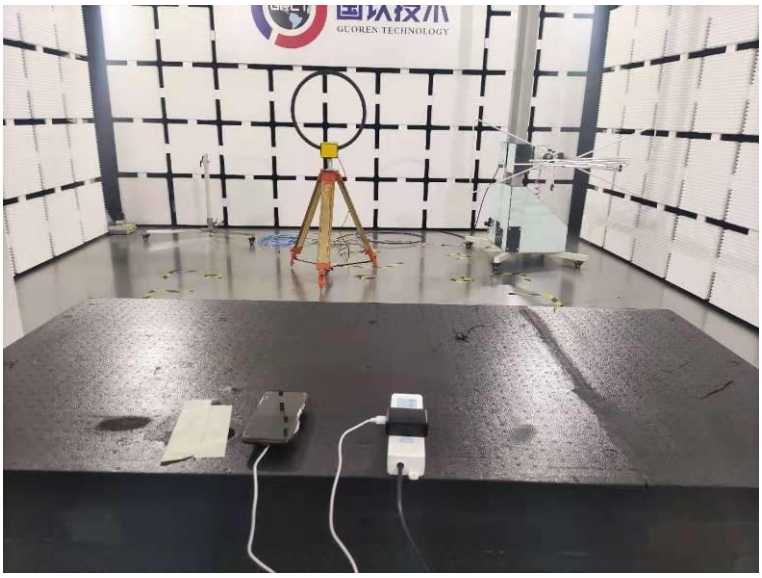
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

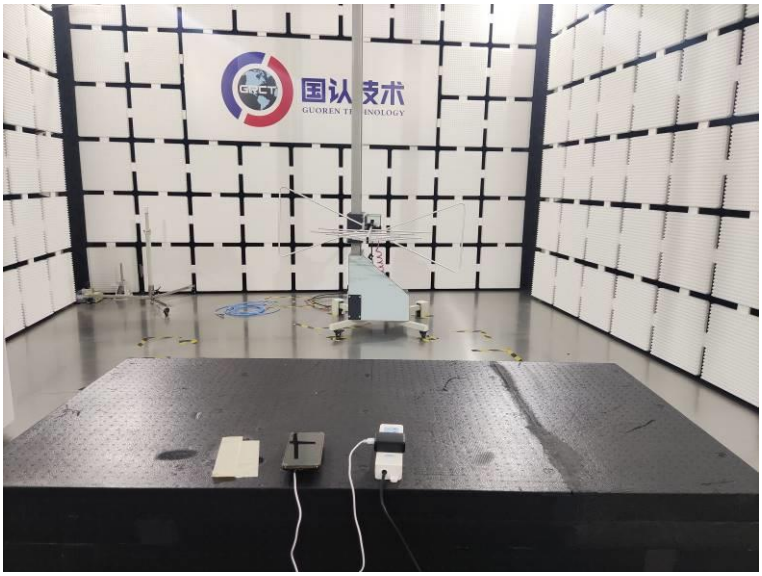
And according to FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Antenna Information

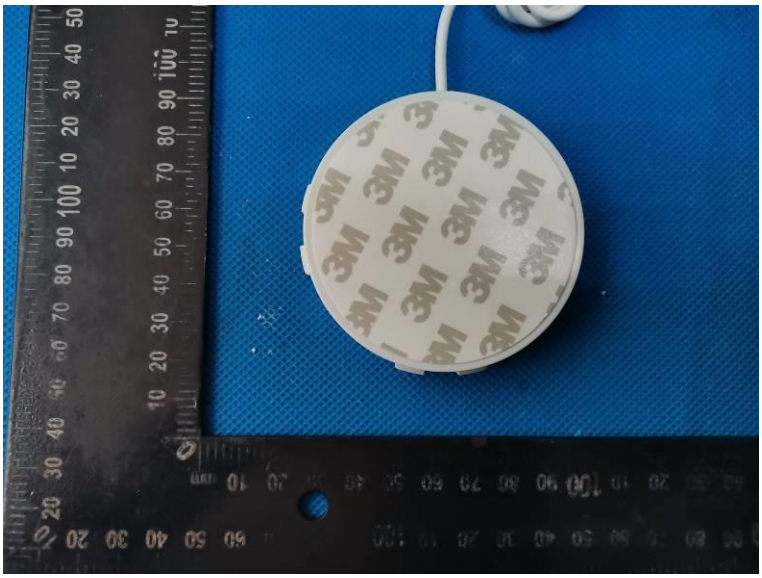
The antenna used in this product is a Coil Antenna, The directional gains of antenna used for transmitting is 0dBi.

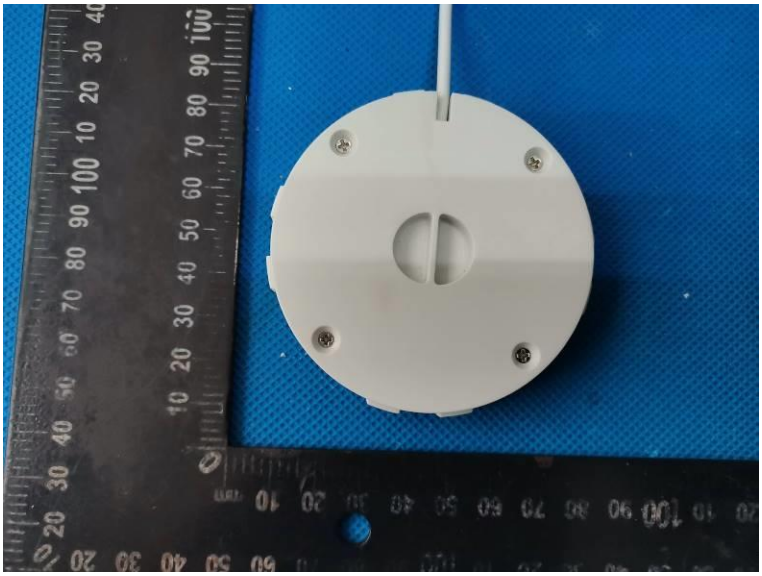
5 Test Setup Photos of the EUT

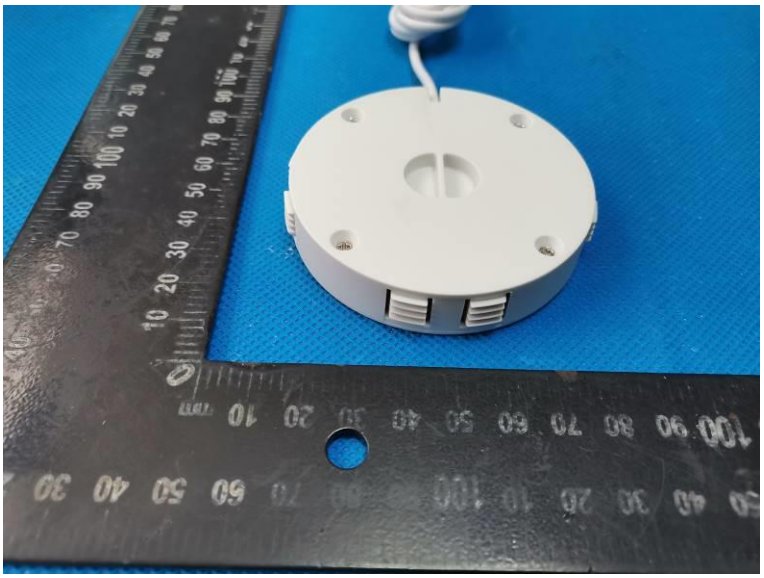


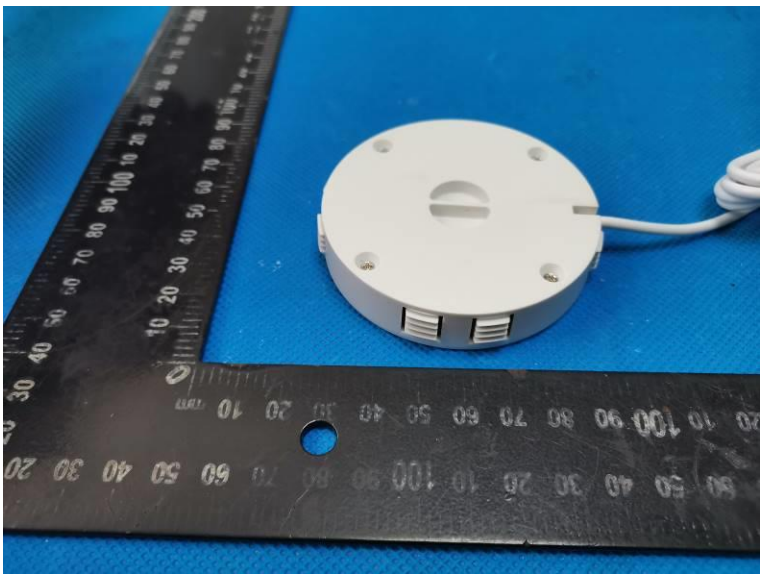


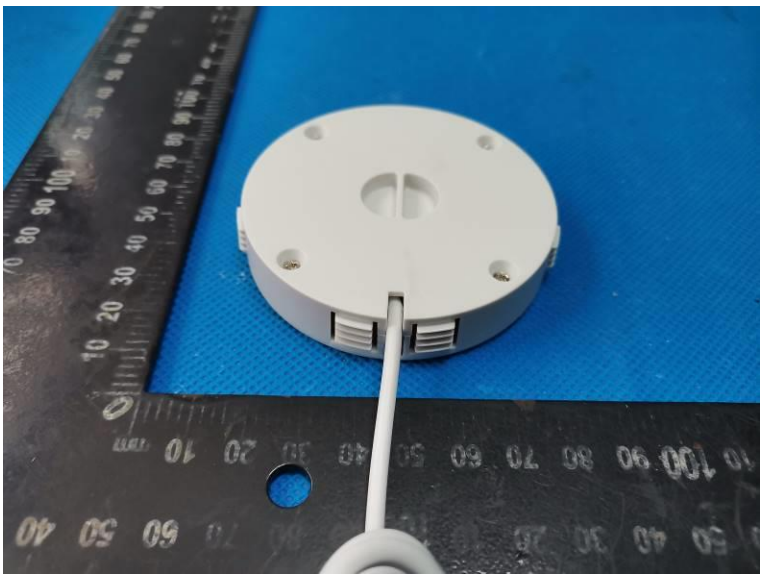
6 PHOTOS OF THE EUT

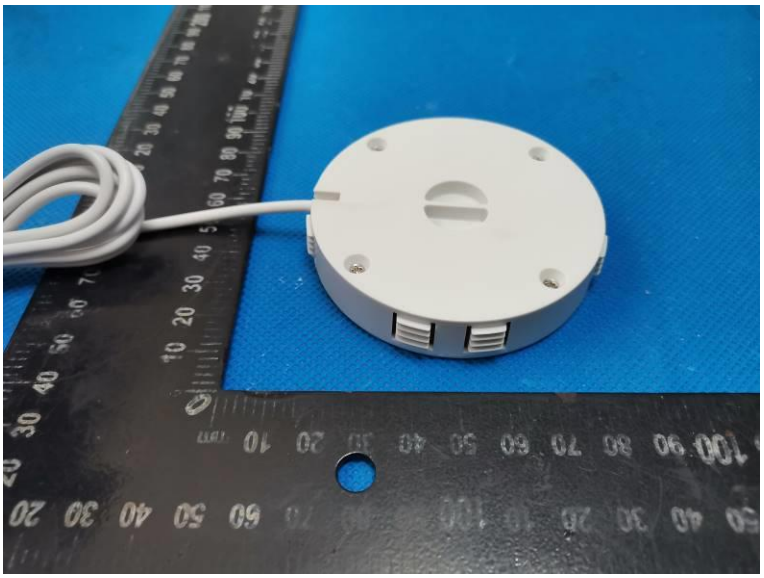


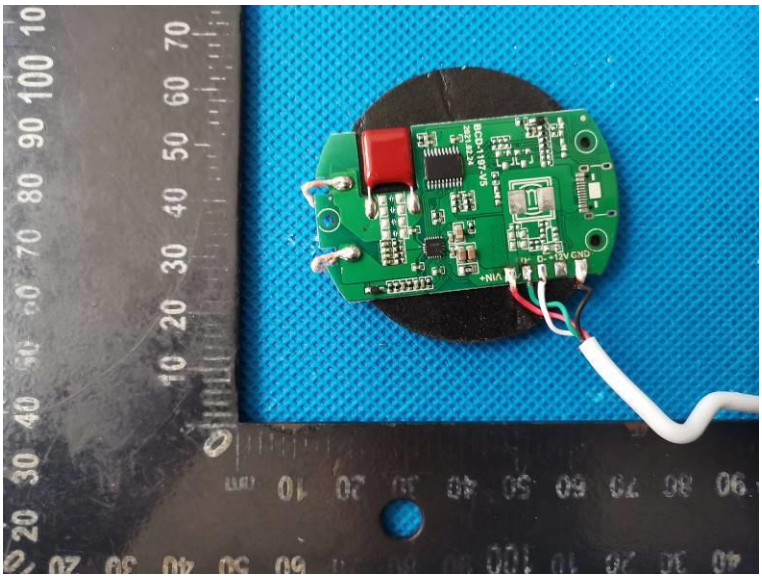


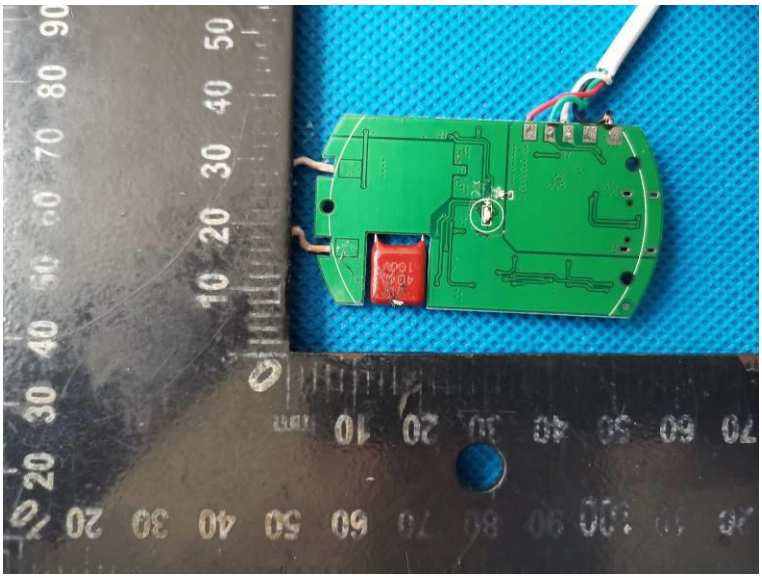












********** End of Report **********