TEST REPORT

Report No.:	BCTC2304260323E
Applicant:	Shenzhen Wellturn Technology Co., Ltd
Product Name:	GPS Outdoor Wireless Dog Fence System
Model/Type reference:	F810Plus
Tested Date:	2023-04-19 to 2023-04-28
Issued Date:	2023-04-28

Shenzhen BCTC Testing Co., Ltd.

FCC ID:2ATOXF810PLUS

Product Name:	GPS Outdoor Wireless Dog Fence System
Trademark:	N/A
Model/Type Reference:	F810Plus
Prepared For:	Shenzhen Wellturn Technology Co., Ltd
Address:	A603-604, 6/F, Tower A, Donglian Building, Chuangye Rd, No.23 Baoan District, Shenzhen, China
Manufacturer:	Shenzhen Wellturn Technology Co., Ltd
Address:	A603-604, 6/F, Tower A, Donglian Building, Chuangye Rd, No.23 Baoan District, Shenzhen, China
Prepared By:	Shenzhen BCTC Testing Co., Ltd.
Address:	1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Sample Received Date:	2023-04-19
Sample tested Date:	2023-04-19 to 2023-04-28
Issue Date:	2023-04-28
Report No.:	BCTC2304260323E
Test Standards:	47 CFR FCC Part 15 Subpart B
Test Results:	PASS

Tested by:

Jeff.Fu/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
BCTC2304260323E	2023-04-28	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~18GHz)	4.90

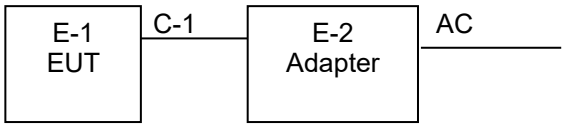
4. Roduct Information And Test Setup

4.1 Product Information

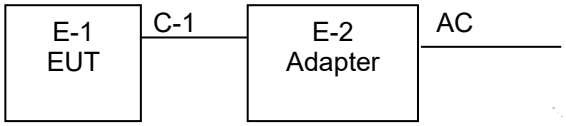
Model/Type reference:	F810Plus
Model differences:	N/A
GPS:	Support (Tts receive only)
Hardware Version:	N/A
Software Version:	N/A
Operation Frequency:	GPS: 1.57542GHz
Antenna Type:	Internal antenna
Ratings:	DC 5V From Adapter, DC 3.7V From Battery

4.2 Test Setup Configuration

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



Radiated Spurious Emission



4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-2	Adapter	N/A	CD122	N/A	Auxiliary

Ite m	Shielded Type	Ferrite Core	Length	Note
C-1	N/A	N/A	0.5M	DC cable unshielded

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
Conducted Emissions	Charging	AC 120V/60Hz
Radiated Emissions	Charging	AC 120V/60Hz
	GPS	DC 3.7V

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, Zhancheng, 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.
FCC Test Firm Registration Number: 712850
FCC Designation Number: CN1212
ISED Registered No.: 23583
ISED CAB identifier: CN0017

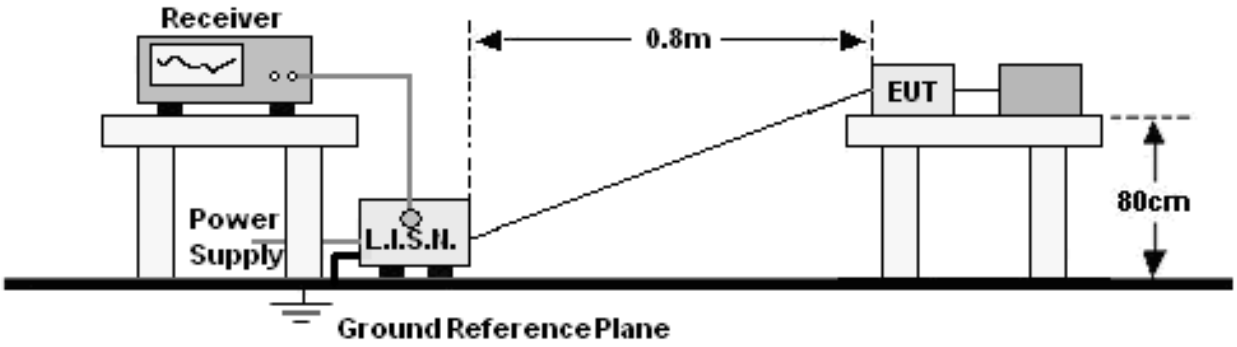
5.2 Test Instrument Used

Conducted Emissions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Receiver	R&S	ESR3	102075	May 24, 2022	May 23, 2023
LISN	R&S	ENV216	101375	May 24, 2022	May 23, 2023
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Attenuator	\	10dB DC-6GHz	1650	May 24, 2022	May 23, 2023

Radiated Emissions Test (966 Chamber01)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	Jun. 06. 2020	Jun. 05, 2023
Receiver	R&S	ESR3	102075	May 24, 2022	May 23, 2023
Receiver	R&S	ESRP	101154	May 24, 2022	May 23, 2023
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 24, 2022	May 23, 2023
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	942	May 26, 2022	May 25, 2023
Loop Antenna(9KHz -30MHz)	Schwarzbeck	FMZB1519B	00014	May 26, 2022	May 25, 2023
Amplifier	SKET	LAPA_01G18G-45dB	\	May 24, 2022	May 23, 2023
Horn Antenna	Schwarzbeck	BBHA9120D	1541	Jun. 06, 2022	Jun. 05, 2023
Amplifier(18GHz-40GHz)	MITEQ	TTA1840-35-HG	2034381	May 26, 2022	May 25, 2023
Horn Antenn(18GHz-40GHz)	Schwarzbeck	BBHA9170	00822	Jun. 06, 2022	Jun. 05, 2023
Spectrum Analyzer9kHz-40GHz	R&S	FSP40	100363	May 24, 2022	May 23, 2023
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

6. Conducted Emissions

6.1 Block Diagram Of Test Setup



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

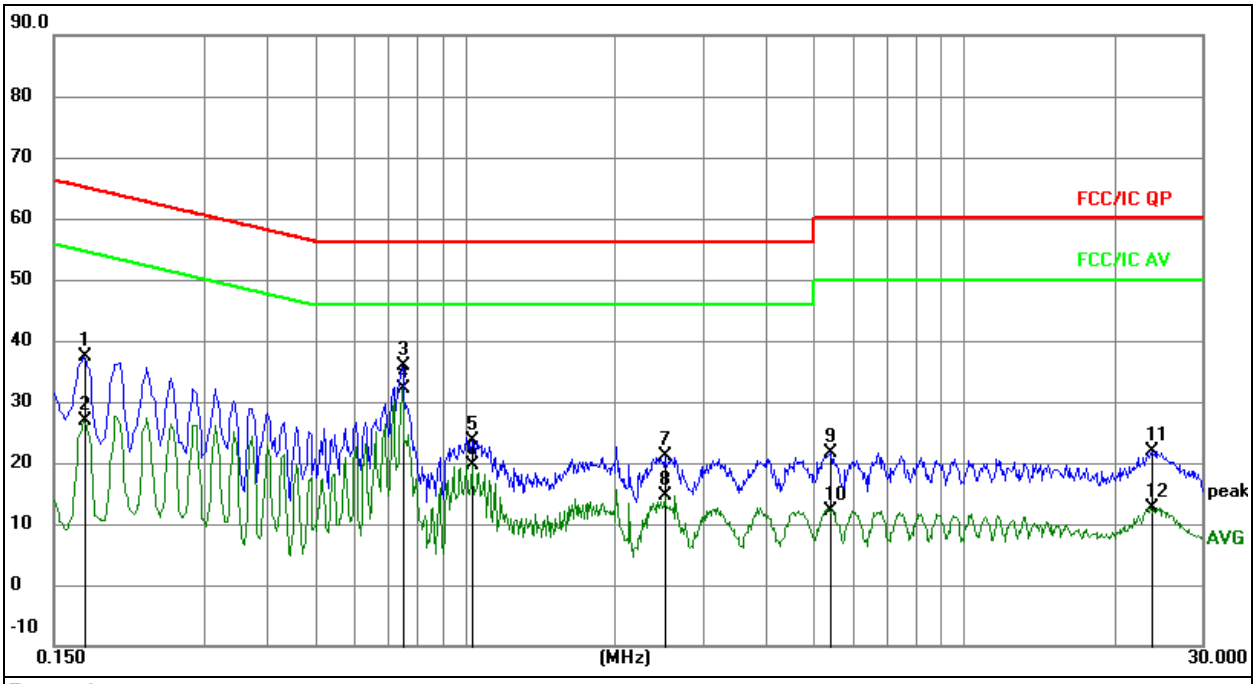
Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

6.3 Test procedure

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.

6.4 Test Result

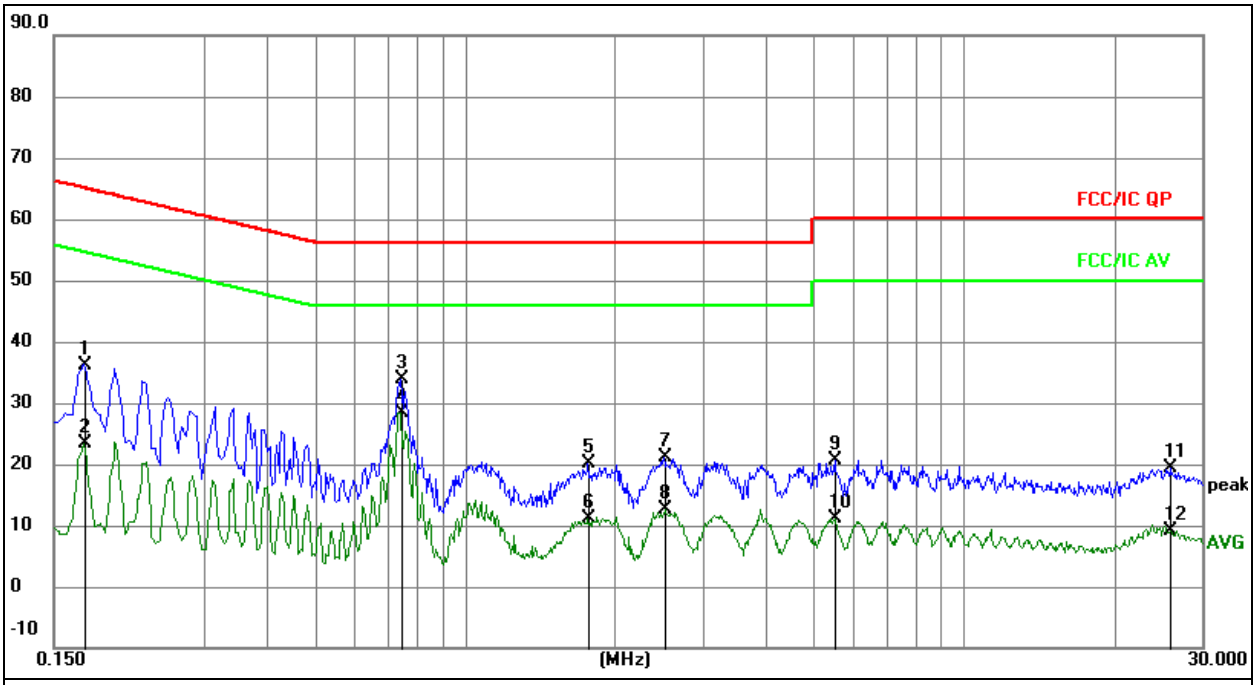
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Line
Test Mode:	Charging	Test Voltage:	AC 120V/60Hz



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		0.1722	17.60	19.73	37.33	64.85	-27.52	QP
2		0.1722	7.20	19.73	26.93	54.85	-27.92	AVG
3		0.7470	16.11	19.74	35.85	56.00	-20.15	QP
4	*	0.7470	12.50	19.74	32.24	46.00	-13.76	AVG
5		1.0320	3.94	19.76	23.70	56.00	-32.30	QP
6		1.0320	-0.14	19.76	19.62	46.00	-26.38	AVG
7		2.5133	1.29	19.94	21.23	56.00	-34.77	QP
8		2.5133	-5.43	19.94	14.51	46.00	-31.49	AVG
9		5.4186	1.58	20.14	21.72	60.00	-38.28	QP
10		5.4186	-8.00	20.14	12.14	50.00	-37.86	AVG
11		23.8878	1.39	20.52	21.91	60.00	-38.09	QP
12		23.8878	-7.78	20.52	12.74	50.00	-37.26	AVG

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Neutral
Test Mode:	Charging	Test Voltage:	AC 120V/60Hz



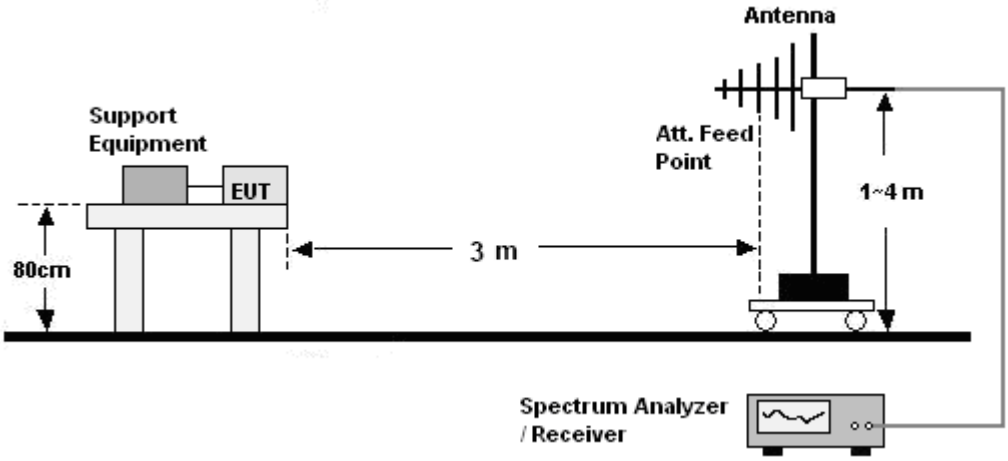
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement=Reading Level+ Correct Factor
4. Over=Measurement-Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz		dB	dBuV	dBuV	dB	Detector
1		0.1725	16.52	19.73	36.25	64.84	-28.59	QP
2		0.1725	3.53	19.73	23.26	54.84	-31.58	AVG
3		0.7440	14.04	19.74	33.78	56.00	-22.22	QP
4	*	0.7440	8.63	19.74	28.37	46.00	-17.63	AVG
5		1.7655	0.37	19.85	20.22	56.00	-35.78	QP
6		1.7655	-8.73	19.85	11.12	46.00	-34.88	AVG
7		2.5080	1.10	19.94	21.04	56.00	-34.96	QP
8		2.5080	-7.36	19.94	12.58	46.00	-33.42	AVG
9		5.5275	0.53	20.14	20.67	60.00	-39.33	QP
10		5.5275	-9.01	20.14	11.13	50.00	-38.87	AVG
11		25.9980	-1.08	20.52	19.44	60.00	-40.56	QP
12		25.9980	-11.27	20.52	9.25	50.00	-40.75	AVG

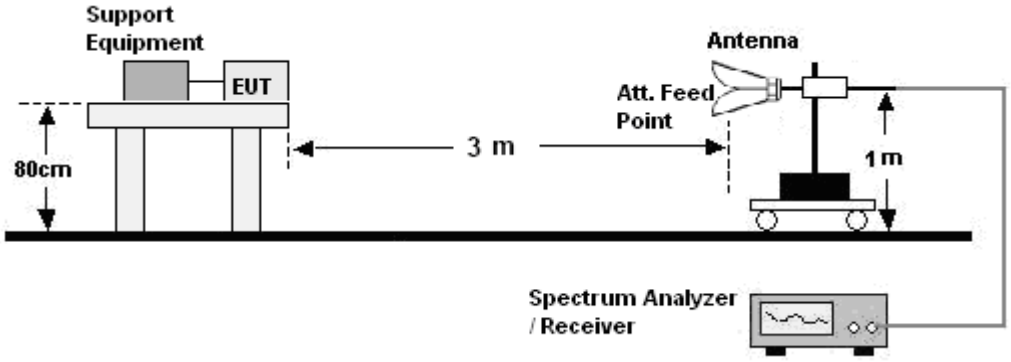
7. Radiation Emission Test

7.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



Above 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.

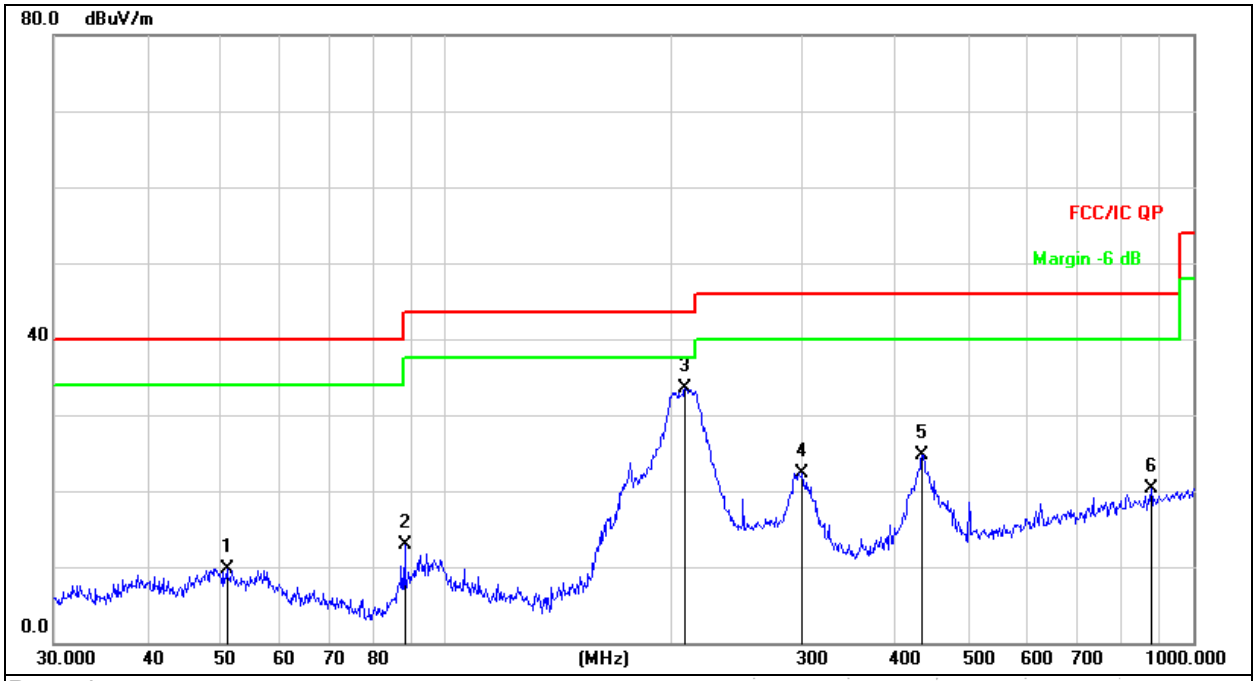
Above 1GHz:
a. The Product was placed on the non-conductive turntable 0.8m above the ground at a chamber.
b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both 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.

Remark:
The highest frequency of the internal sources of the EUT is 8GHz, so the measurement shall to 40 GHz.

7.4 Test Result

30MHz ~ 1GHz

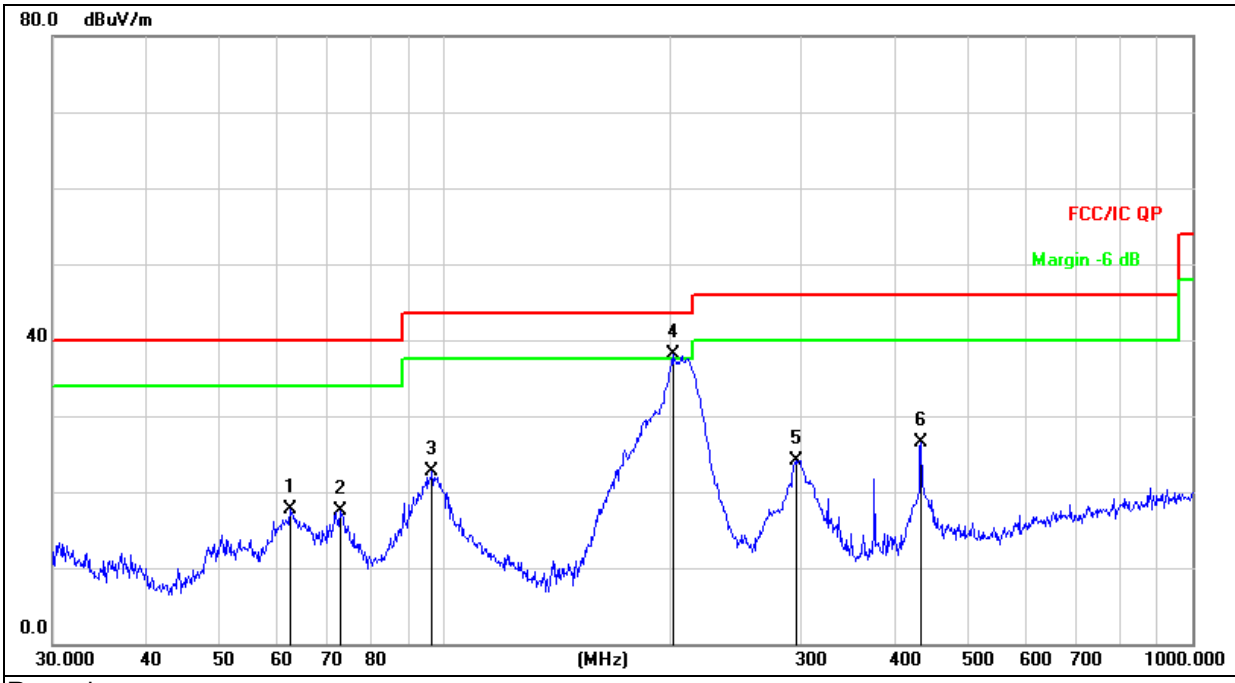
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Mode:	Charging	Test Voltage:	AC 120V/60Hz



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		51.1209	25.48	-15.76	9.72	40.00	-30.28	QP
2		88.3421	32.54	-19.62	12.92	43.50	-30.58	QP
3	*	209.3129	50.54	-17.08	33.46	43.50	-10.04	QP
4		300.3672	36.91	-14.57	22.34	46.00	-23.66	QP
5		434.0651	36.46	-11.72	24.74	46.00	-21.26	QP
6		878.3214	25.14	-4.83	20.31	46.00	-25.69	QP

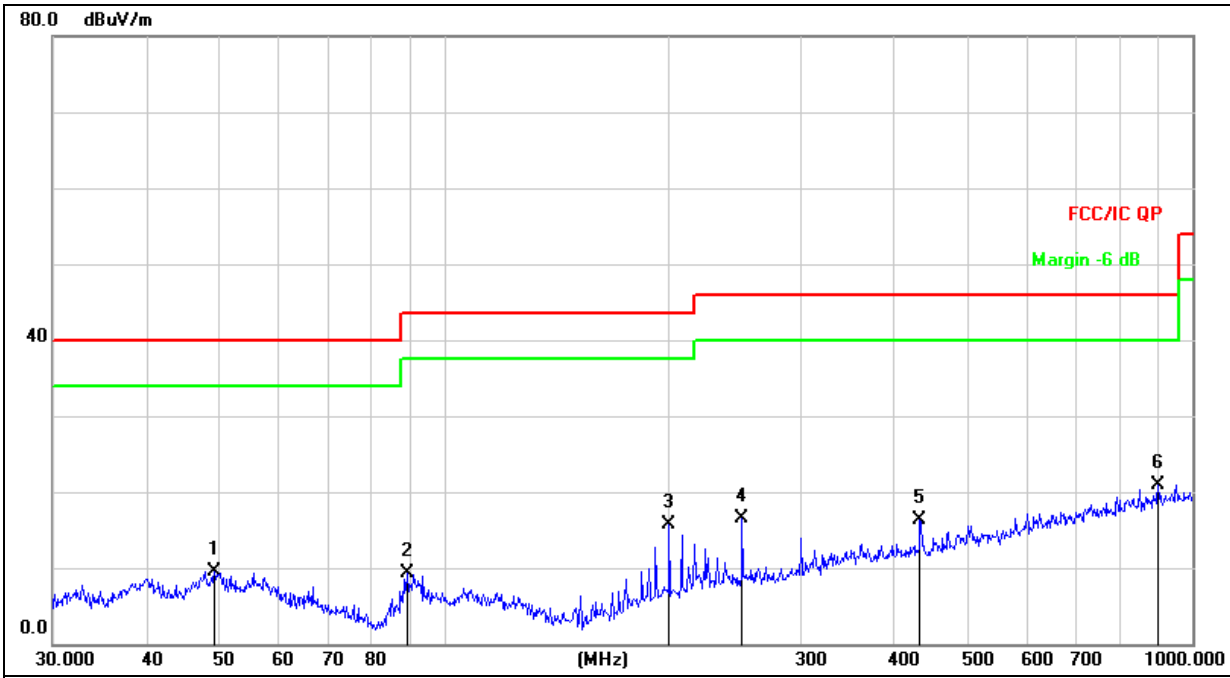
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Mode:	Charging	Test Voltage:	AC 120V/60Hz



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		62.2128	35.34	-17.72	17.62	40.00	-22.38	QP
2		72.5916	37.91	-20.37	17.54	40.00	-22.46	QP
3		96.4362	41.01	-18.28	22.73	43.50	-20.77	QP
4	*	202.1005	55.38	-17.31	38.07	43.50	-5.43	QP
5		295.1469	38.88	-14.70	24.18	46.00	-21.82	QP
6		434.0651	38.30	-11.72	26.58	46.00	-19.42	QP

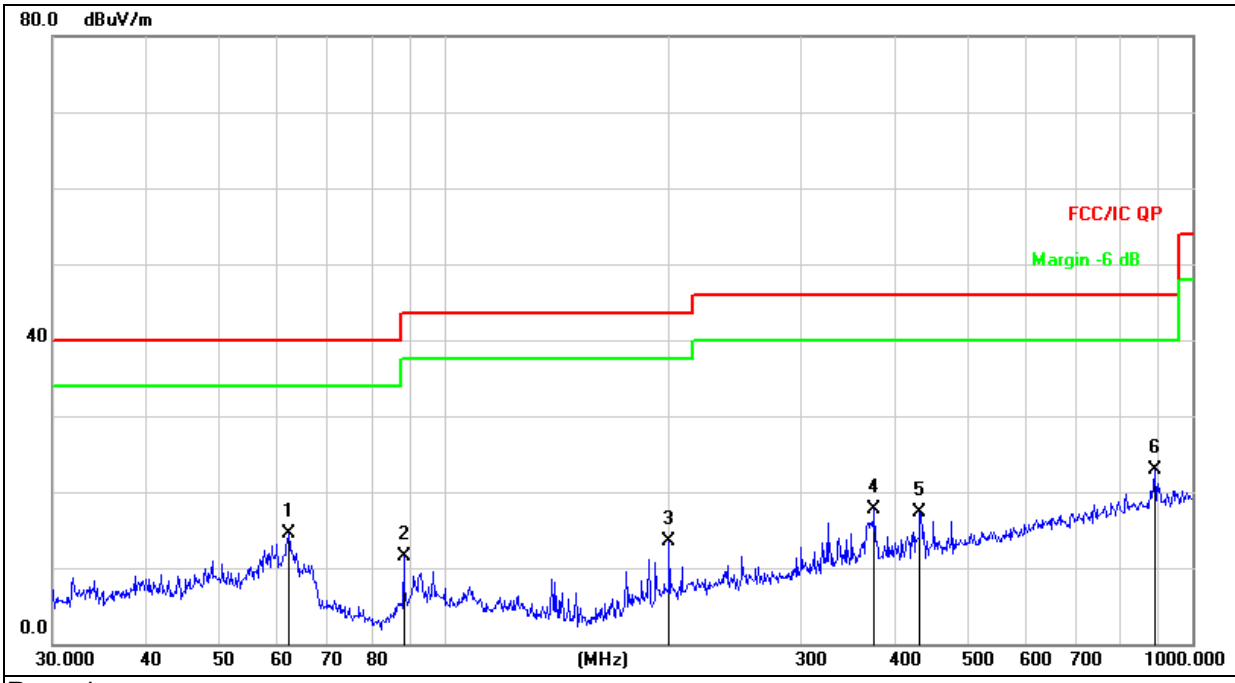
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Mode:	GPS	Test Voltage:	DC 3.7V



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		49.3594	25.11	-15.66	9.45	40.00	-30.55	QP
2		89.2764	28.71	-19.40	9.31	43.50	-34.19	QP
3		199.9856	33.14	-17.37	15.77	43.50	-27.73	QP
4		250.3012	32.37	-15.82	16.55	46.00	-29.45	QP
5		432.5457	28.13	-11.74	16.39	46.00	-29.61	QP
6	*	900.1474	25.57	-4.59	20.98	46.00	-25.02	QP

Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Mode:	GPS	Test Voltage:	DC 3.7V



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		61.9951	32.15	-17.66	14.49	40.00	-25.51	QP
2		88.3421	31.16	-19.62	11.54	43.50	-31.96	QP
3		199.9856	30.83	-17.37	13.46	43.50	-30.04	QP
4		375.9385	30.20	-12.49	17.71	46.00	-28.29	QP
5		432.5457	29.08	-11.74	17.34	46.00	-28.66	QP
6	*	890.7278	27.62	-4.69	22.93	46.00	-23.07	QP

Above 1GHz:

Polar (H/V)	Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Over	Detector Type
	(GHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	1.122	60.23	-14.94	45.29	74	-28.71	PK
V	1.193	59.80	-14.86	44.94	74	-29.06	PK
V	1.231	57.66	-14.59	43.07	74	-30.93	PK
V	2.562	59.52	-13.83	45.69	74	-28.31	PK
V	3.872	61.91	-10.17	51.74	74	-22.26	PK
V	5.282	52.26	-6.10	46.16	74	-27.84	PK
H	1.062	61.16	-14.97	46.19	74	-27.81	PK
H	1.331	60.23	-14.26	45.97	74	-28.03	PK
H	1.732	62.91	-12.85	50.06	74	-23.94	PK
H	2.343	60.72	-13.04	47.68	74	-26.32	PK
H	4.565	61.35	-7.16	54.19	74	-19.81	PK
H	6.861	53.55	-2.08	51.47	74	-22.53	PK

1. Emission Level = Meter Reading + Factor,
Factor = Antenna Factor + Cable Loss – Pre-amplifier.
Over= Emission Level - Limit
2. Note: PK value is lower than the Average value limit, So average didn't record.
The amplitude of emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

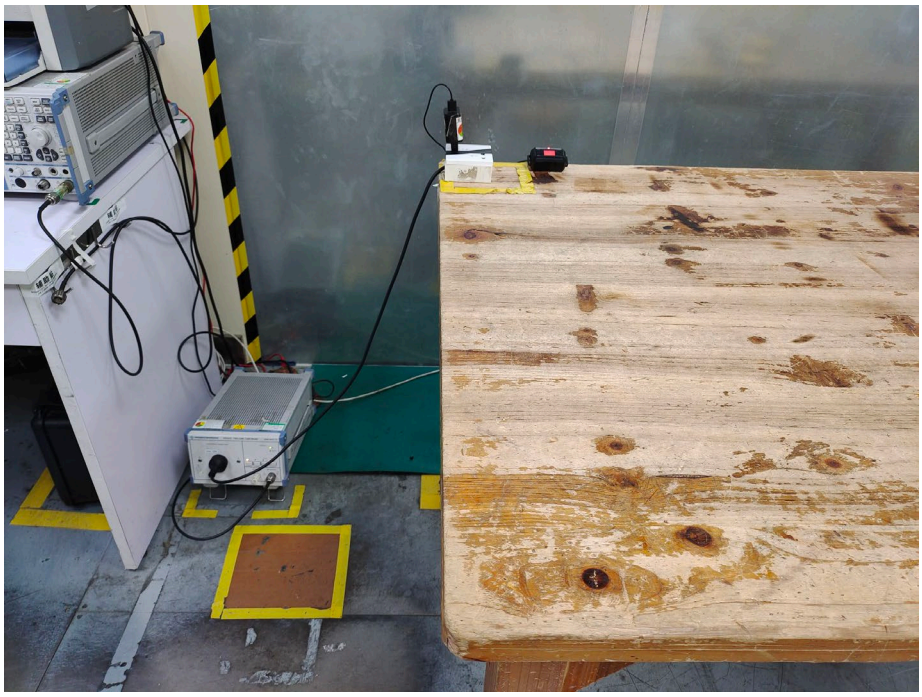
8. EUT Photographs

EUT Photo

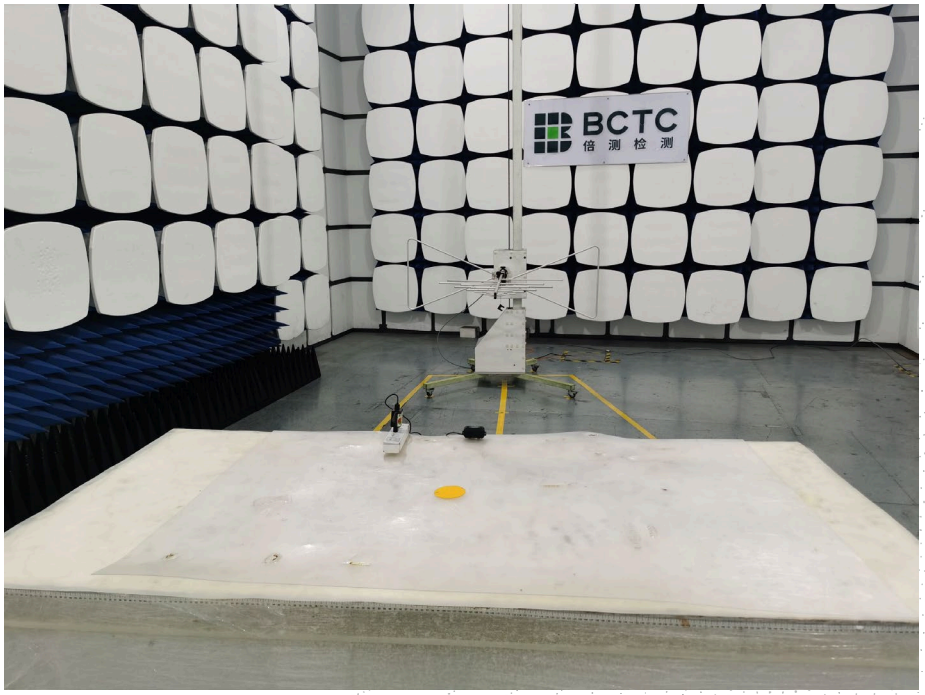
NOTE: Appendix-Photographs Of EUT Constructional Details

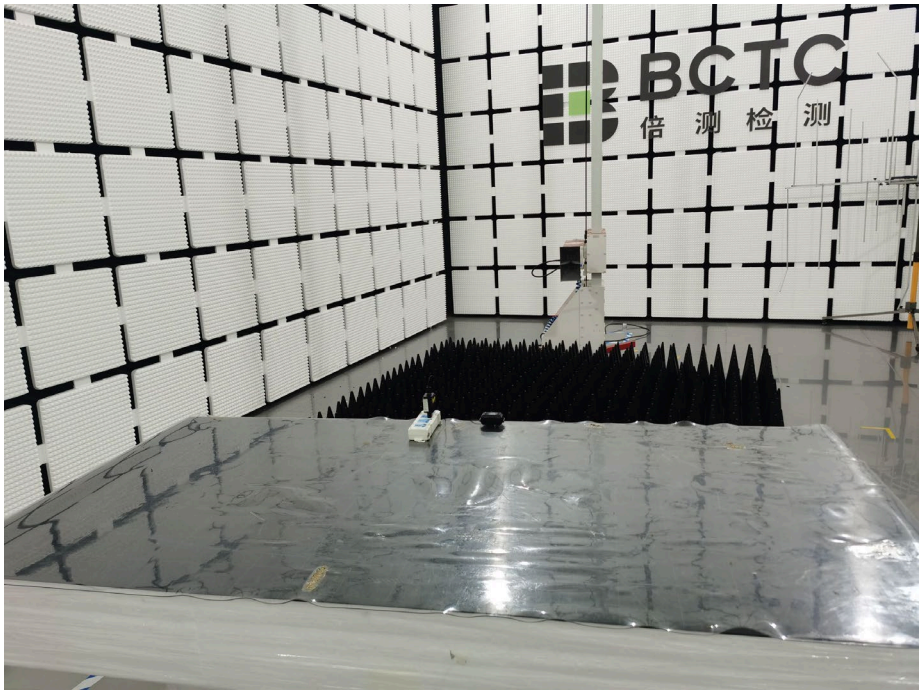
9. EUT Test Setup Photographs

Conducted emissions



Radiated emission

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STATEMENT

1. The equipment lists are traceable to the national reference standards.

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

3. The test report is invalid without the "special seal for inspection and testing".

4. The test report is invalid without the signature of the approver.

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

6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.

7. The test report without CMA mark is only used for scientific research, teaching, enterprise product development and internal quality control purposes.

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

9. If there is any objection to this test 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, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

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P.C.: 518103

FAX：0755-33229357

Website：http://www.chnbctc.com

E-Mail：bctc@bctc-lab.com.cn

※※※※※ **END** ※※※※※