



FCC Test Report

For

Applicant Name: Yifei Shenzhen Electronics Co., Ltd.
Address: The third floor of the 4-2# factory building in Tongfuyu Industrial Zone, Aiqun Road, Shangwu Community, Shiyan Street, Bao'an District, Shenzhen
EUT Name: RF Detector
Brand Name: N/A
Model Number: K19+
Serial Model Number: K19

Issued By

Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.
Address: F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China

Report Number: BTF240802R00301
Test Standards: 47 CFR Part 15, Subpart B

Test Conclusion: Pass
FCC ID: 2BH4F-K19
Sample receipt date: 2024-08-02
Test Date: 2024-08-03 to 2024-08-06
Date of Issue: 2024-08-06

Test By: Xing.Chen
Xing.Chen / Tester

Prepared By: Chris Liu
Chris Liu / Project Engineer

Approved By: Ryan.CJ
Ryan.CJ / EMC Manager



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Revision History		
Version	Issue Date	Revisions Content
R_V0	2024-08-06	Original
<i>Note: Once the revision has been made, then previous versions reports are invalid.</i>		

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1 Introduction

1.1 Identification of Testing Laboratory

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130

1.2 Identification of the Responsible Testing Location

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130
FCC Registration Number:	518915
Designation Number:	CN1330

1.3 Announcement

- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by BTF and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 Product Information

2.1 Application Information

Company Name:	Yifei Shenzhen Electronics Co., Ltd.
Address:	The third floor of the 4-2# factory building in Tongfuyu Industrial Zone, Aiqun Road, Shangwu Community, Shiyan Street, Bao'an District, Shenzhen

2.2 Manufacturer Information

Company Name:	Shenzhen MingShang Industrial Technology Limited
Address:	3/F, building 35, Dalang tongfu industrial zone, Longhua district, Shenzhen

2.3 Factory Information

Company Name:	Shenzhen MingShang Industrial Technology Limited
Address:	3/F, building 35, Dalang tongfu industrial zone, Longhua district, Shenzhen

2.4 General Description of Equipment under Test (EUT)

EUT Name:	RF Detector
Test Model Number:	K19+
Serial model Number:	K19
Model difference description	Only the model name is different, everything else is the same.

2.5 Technical Information

Power Supply:	DC 5V 1A from type C or DC 3.7V from battery
Power Adaptor:	N/A
Frequency range	100MHz-8GHz

3 Summary of Test Results

3.1 Test Standards

The tests were performed according to following standards:
47 CFR Part 15, Subpart B: Unintentional Radiators

3.2 Uncertainty of Test

Item	Measurement Uncertainty
Conducted Emission (150 kHz-30 MHz)	±2.64dB
Radiated Emissions (30M - 1GHz)	±4.12dB
Radiated Emissions (above 1GHz)	1-6GHz: ±3.94dB 6-18GHz: ±4.16dB

The following measurement uncertainty levels have been estimated for tests performed on the EUT 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.

3.3 Summary of Test Result

Item	Standard	Requirement	Result
Conducted emissions on AC mains	47 CFR Part 15, Subpart B	15.107, Class B	Pass
Radiated emissions (Below 1GHz)	47 CFR Part 15, Subpart B	15.109, Class B	Pass
Radiated emissions (Above 1GHz)	47 CFR Part 15, Subpart B	15.109, Class B	Pass

4 Test Configuration

4.1 Test Equipment List

Conducted emissions on AC mains					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Pulse Limiter	SCHWARZBECK	VTSD 9561-F	00953	/	/
Coaxial Switcher	SCHWARZBECK	CX210	CX210	/	/
V-LISN	SCHWARZBECK	NSLK 8127	01073	2023-11-16	2024-11-15
LISN	AFJ	LS16/110VAC	16010020076	2023-11-16	2024-11-15
EMI Receiver	ROHDE&SCHWARZ	ESCI3	101422	2023-11-16	2024-11-15

Radiated emissions (Below 1GHz)					
Radiated emissions (Above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	/	/
Preamplifier	SCHWARZBECK	BBV9744	00246	/	/
RE Cable	REBES Talent	UF1-SMASMAM-10m	21101566	/	/
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	/	/
RE Cable	REBES Talent	UF1-SMASMAM-1m	21101568	/	/
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	/	/
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2023-11-16	2024-11-15
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI7	101032	2023-11-16	2024-11-15
SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ40	100010	2023-11-16	2024-11-15
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplifier	SCHWARZBECK	BBV9718D	00008	2023-11-16	2024-11-15
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2023-11-16	2024-11-15
EZ EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2023-11-16	2024-11-15

4.2 Test Auxiliary Equipment

Title	Manufacturer	Model No.	Serial No.
Adapter	Huawei	HW-059200CHQ	/

4.3 Test Modes

No.	Test Modes	Description
1	mode_1	Charging +RF detection + vibration + laser scanning
2	mode_2	Charging +GS detection + vibration + laser scanning

5 Emission Test Results (EMI)

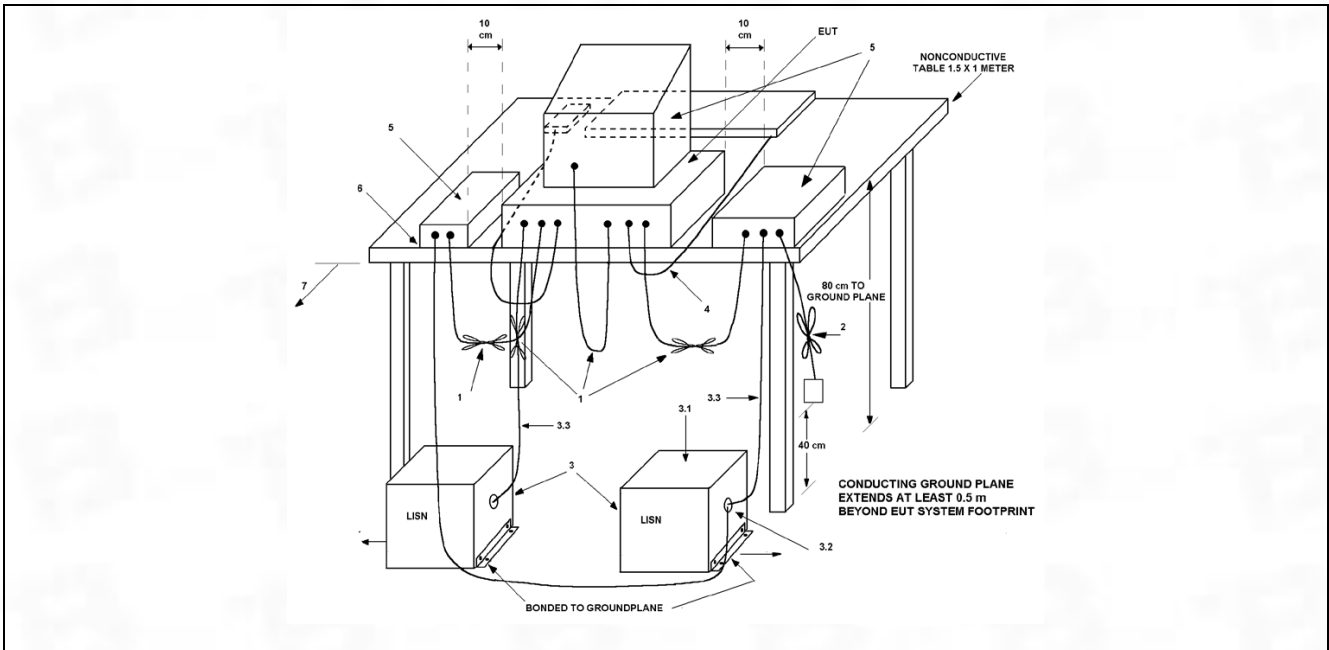
5.1 Conducted emissions on AC mains

Test Requirement:	15.107, Class B		
Test Method:	ANSI C63.4-2014		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dBμV)	
		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.		
Procedure:	An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected. Remark: Level= Read Level+ Cable Loss+ LISN Factor		

5.1.1 E.U.T. Operation:

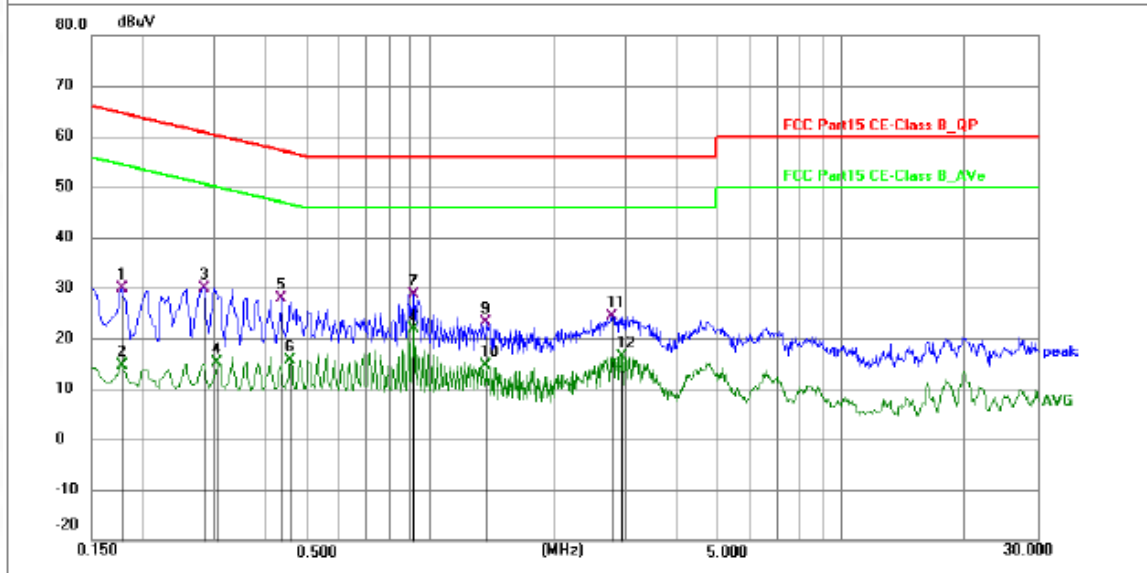
Operating Environment:	
Temperature:	22.7 °C
Humidity:	52.3 %
Atmospheric Pressure:	1010 mbar

5.1.2 Test Setup Diagram:



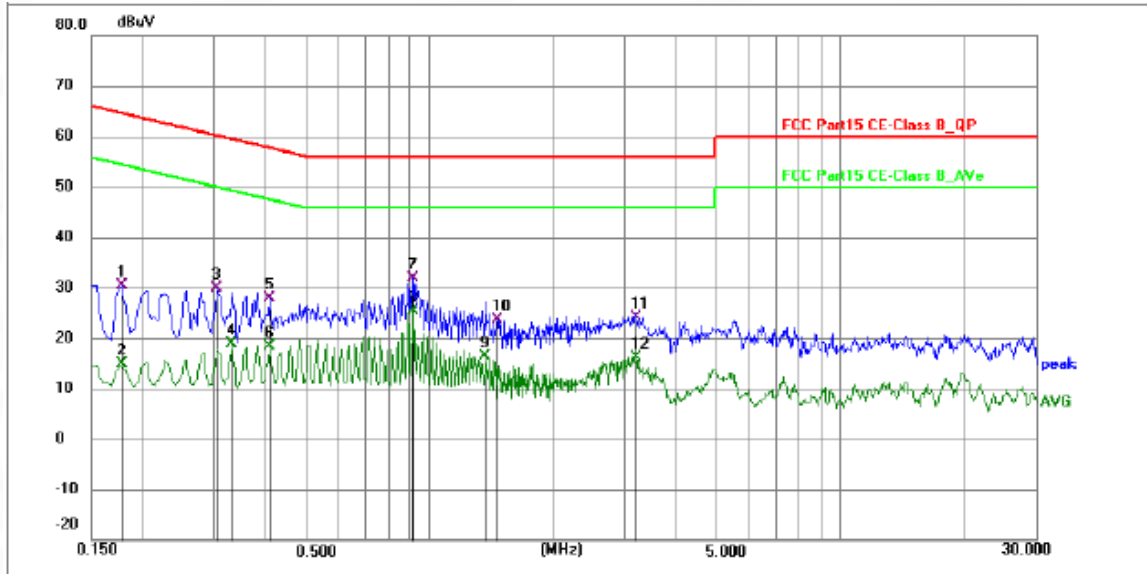
5.1.3 Test Data:

TM1 / Line: Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1770	19.40	10.51	29.91	64.63	-34.72	QP	P	
2	0.1770	4.00	10.51	14.51	54.63	-40.12	AVG	P	
3	0.2805	19.41	10.56	29.97	60.80	-30.83	QP	P	
4	0.3030	4.68	10.57	15.25	50.16	-34.91	AVG	P	
5	0.4334	17.28	10.57	27.85	57.19	-29.34	QP	P	
6	0.4560	5.03	10.57	15.60	46.77	-31.17	AVG	P	
7	0.9150	17.94	10.67	28.61	56.00	-27.39	QP	P	
8 *	0.9150	11.11	10.67	21.78	46.00	-24.22	AVG	P	
9	1.3693	12.53	10.66	23.19	56.00	-32.81	QP	P	
10	1.3693	4.04	10.66	14.70	46.00	-31.30	AVG	P	
11	2.7690	13.76	10.68	24.44	56.00	-31.56	QP	P	
12	2.9445	5.74	10.68	16.42	46.00	-29.58	AVG	P	

TM1 / Line: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1770	19.81	10.51	30.32	64.63	-34.31	QP	P	
2	0.1770	4.26	10.51	14.77	54.63	-39.86	AVG	P	
3	0.3030	19.30	10.57	29.87	60.16	-30.29	QP	P	
4	0.3300	8.39	10.57	18.96	49.45	-30.49	AVG	P	
5	0.4063	17.43	10.57	28.00	57.72	-29.72	QP	P	
6	0.4063	7.91	10.57	18.48	47.72	-29.24	AVG	P	
7	0.9150	21.12	10.67	31.79	56.00	-24.21	QP	P	
8 *	0.9150	14.76	10.67	25.43	46.00	-20.57	AVG	P	
9	1.3693	5.69	10.66	16.35	46.00	-29.65	AVG	P	
10	1.4683	12.94	10.66	23.60	56.00	-32.40	QP	P	
11	3.1964	13.43	10.66	24.09	56.00	-31.91	QP	P	
12	3.1964	5.51	10.66	16.17	46.00	-29.83	AVG	P	

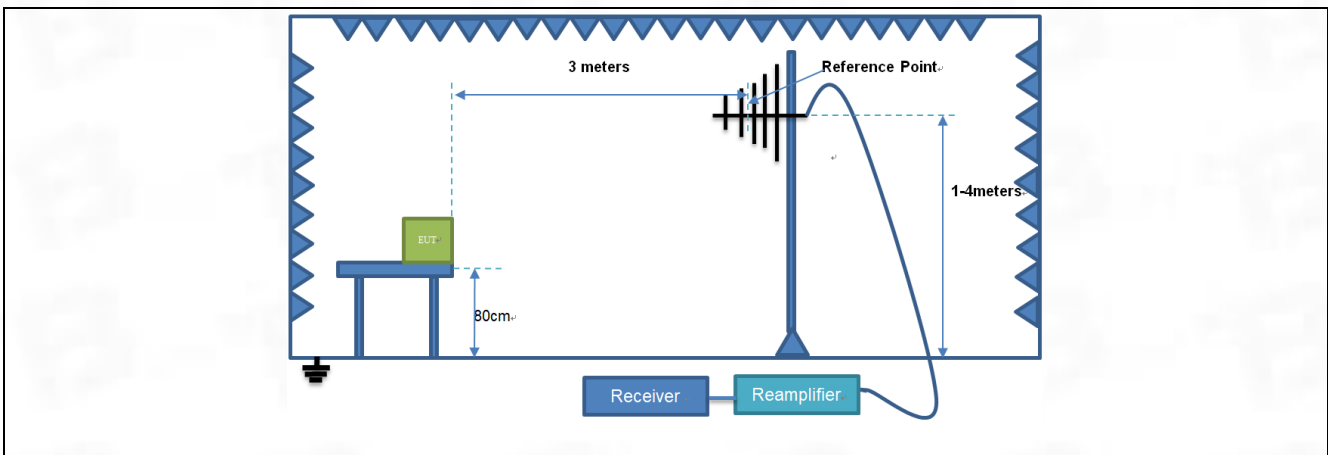
5.2 Radiated emissions (Below 1GHz)

Test Requirement:	15.109, Class B				
Test Method:	ANSI C63.4-2014				
Test Limit:	Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:				
	Frequency of emission (MHz)	Field strength @3m		Field strength @10m	
		(uV/m)	(dBuV/m)	(uV/m)	(dBuV/m)
	30 – 88	100	40	30	29.5
	88 – 216	150	43.5	45	33.1
216 – 960	200	46	60	35.6	
Above 960	500	54	150	43.5	
Procedure:	An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor				

5.2.1 E.U.T. Operation:

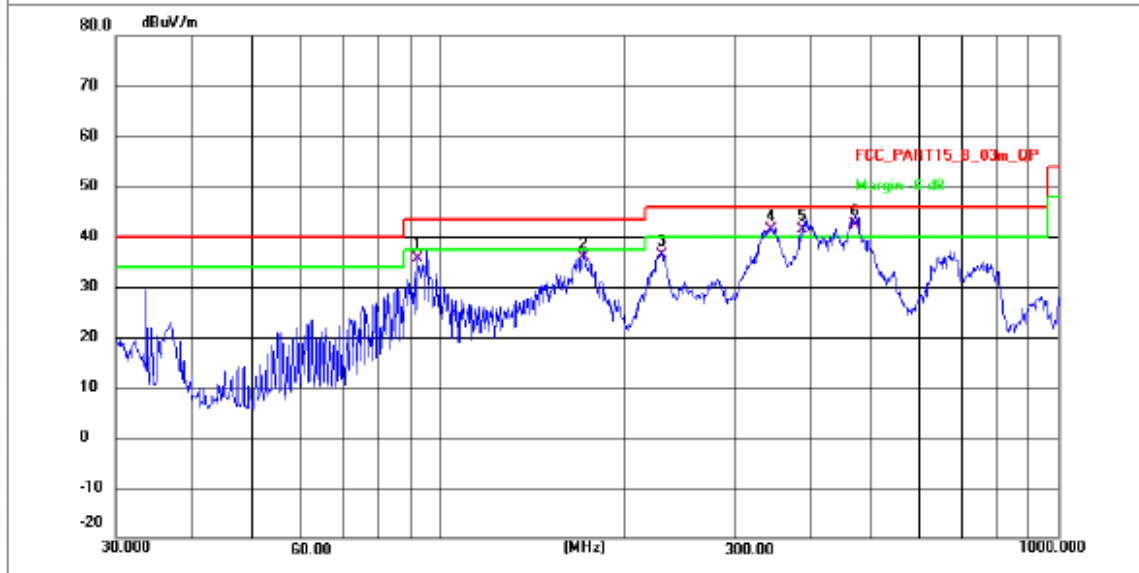
Operating Environment:	
Temperature:	22.7 °C
Humidity:	52.3 %
Atmospheric Pressure:	1010 mbar

5.2.2 Test Setup Diagram:



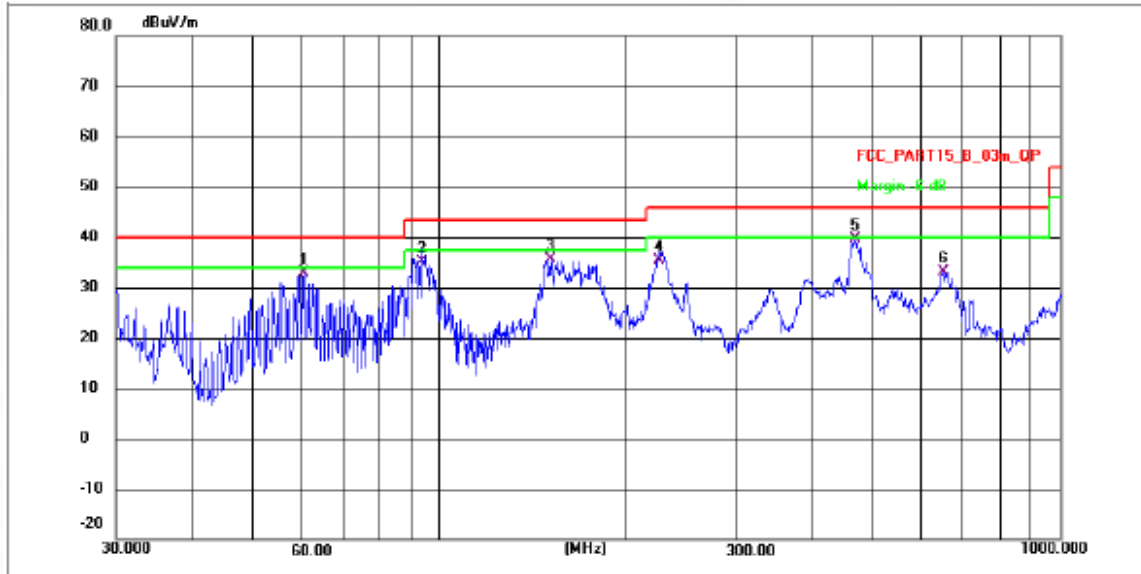
5.2.3 Test Data:

TM1 / Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	92.3002	65.19	-29.49	35.70	43.50	-7.80	QP	P
2	171.9944	63.59	-27.59	36.00	43.50	-7.50	QP	P
3	228.8914	62.47	-26.07	36.40	46.00	-9.60	QP	P
4 !	343.7821	66.58	-25.08	41.50	46.00	-4.50	QP	P
5 !	387.3122	66.03	-24.73	41.30	46.00	-4.70	QP	P
6 *	470.5230	64.11	-21.81	42.30	46.00	-3.70	QP	P

TM1 / Polarization: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	60.2800	53.05	-20.15	32.90	40.00	-7.10	QP	P
2	93.6042	64.48	-29.28	35.20	43.50	-8.30	QP	P
3	150.5377	63.49	-27.78	35.71	43.50	-7.79	QP	P
4	226.0994	61.69	-26.19	35.50	46.00	-10.50	QP	P
5 *	468.8761	61.37	-21.85	39.52	46.00	-6.48	QP	P
6	648.5216	55.86	-22.80	33.06	46.00	-12.94	QP	P

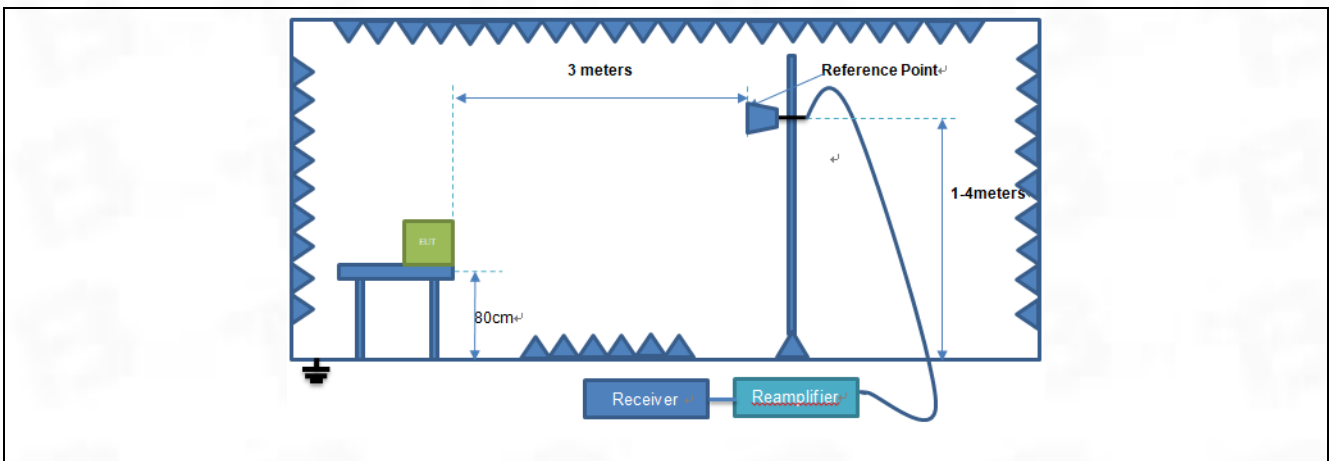
5.3 Radiated emissions (Above 1GHz)

Test Requirement:	15.109, Class B			
Test Method:	ANSI C63.4-2014			
Test Limit:	Frequency of emission (MHz)	Field strength @3m		
		Average (uV/m)	Average(dBuV/m)	Peak (dBuV/m)
	Above 1GHz	500	54	74
Procedure:	<p>An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. For below 1GHz test, Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities. For above 1GHz test, Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.</p> <p>Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</p>			

5.3.1 E.U.T. Operation:

Operating Environment:	
Temperature:	22.7 °C
Humidity:	52.3 %
Atmospheric Pressure:	1010 mbar

5.3.2 Test Setup Diagram:



5.3.3 Test Data:

Note: The peak value is less than the AV limit 54dBuV/m, so the AV value is not evaluated

TM1 / Polarization: Horizontal

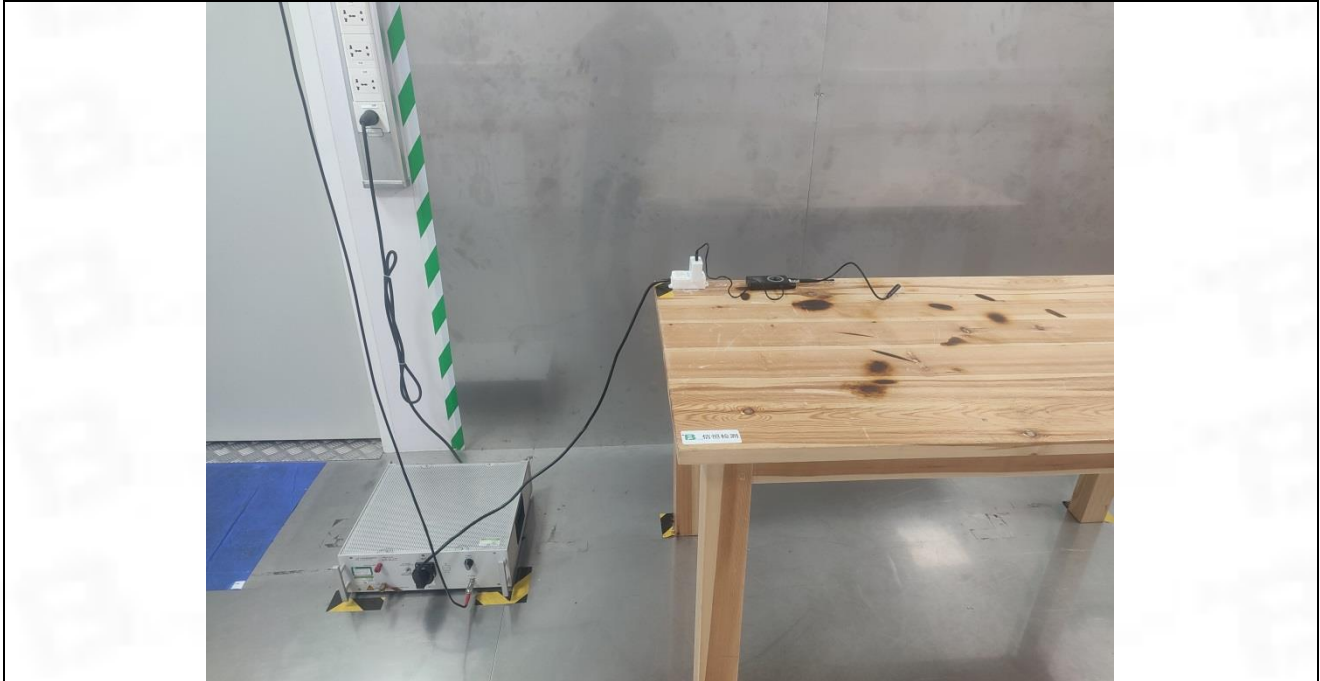
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	1634.687	83.11	-45.96	37.15	74.00	-36.85	peak	P
2	1885.716	84.90	-46.47	38.43	74.00	-35.57	peak	P
3	4105.042	86.56	-46.69	39.87	74.00	-34.13	peak	P
4	7085.312	83.13	-47.47	35.66	74.00	-38.34	peak	P
5	11218.982	85.16	-47.96	37.20	74.00	-36.80	peak	P
6	17509.712	87.57	-47.05	40.52	74.00	-33.48	peak	P

TM1 / Polarization: Vertical

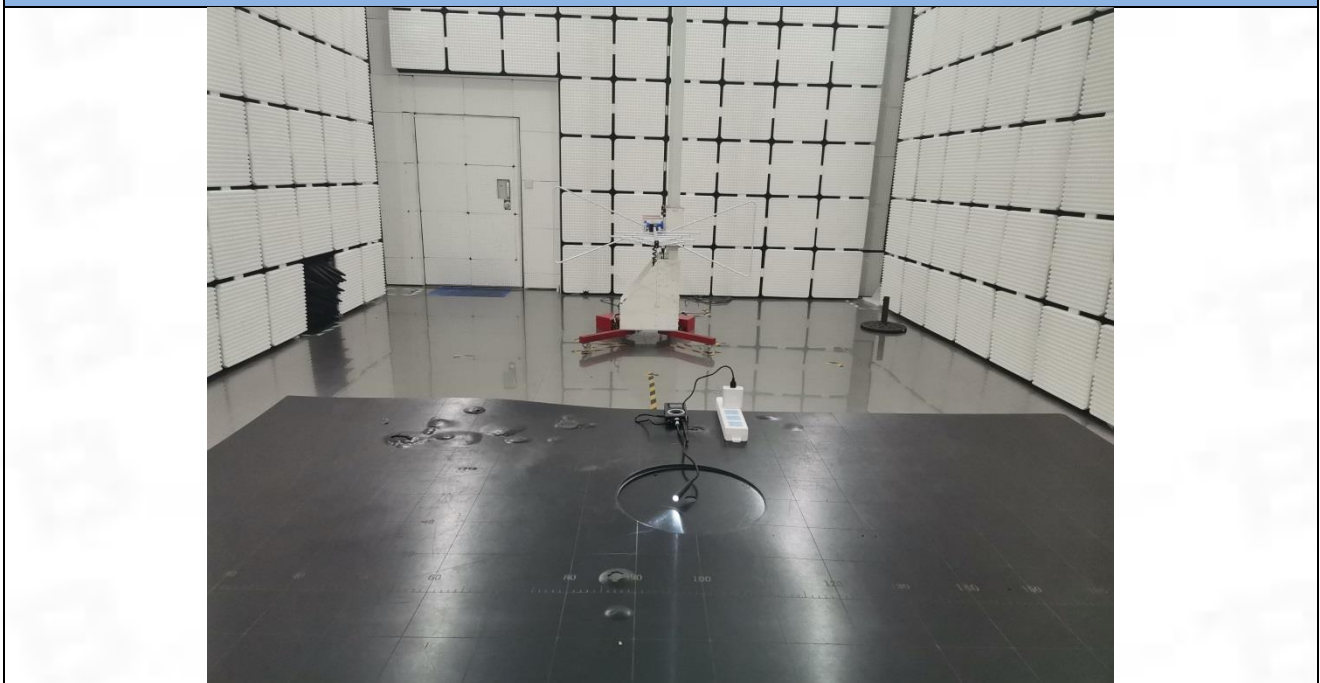
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	1223.950	83.11	-45.96	37.15	74.00	-36.85	peak	P
2	1474.979	84.90	-46.47	38.43	74.00	-35.57	peak	P
3	3694.305	86.56	-46.69	39.87	74.00	-34.13	peak	P
4	6674.575	83.13	-47.47	35.66	74.00	-38.34	peak	P
5	10808.245	85.16	-47.96	37.20	74.00	-36.80	peak	P
6	17098.975	93.83	-47.05	46.78	74.00	-27.22	peak	P

6 Test Setup Photos

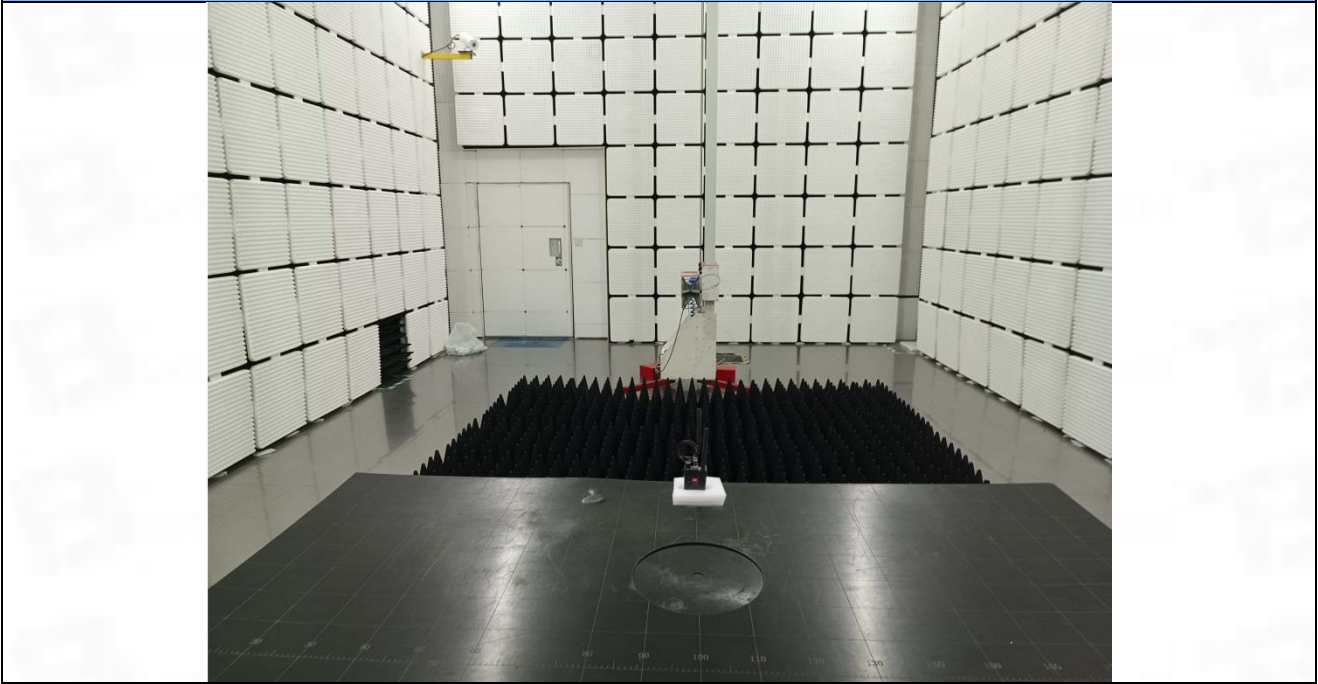
Conducted emissions on AC mains



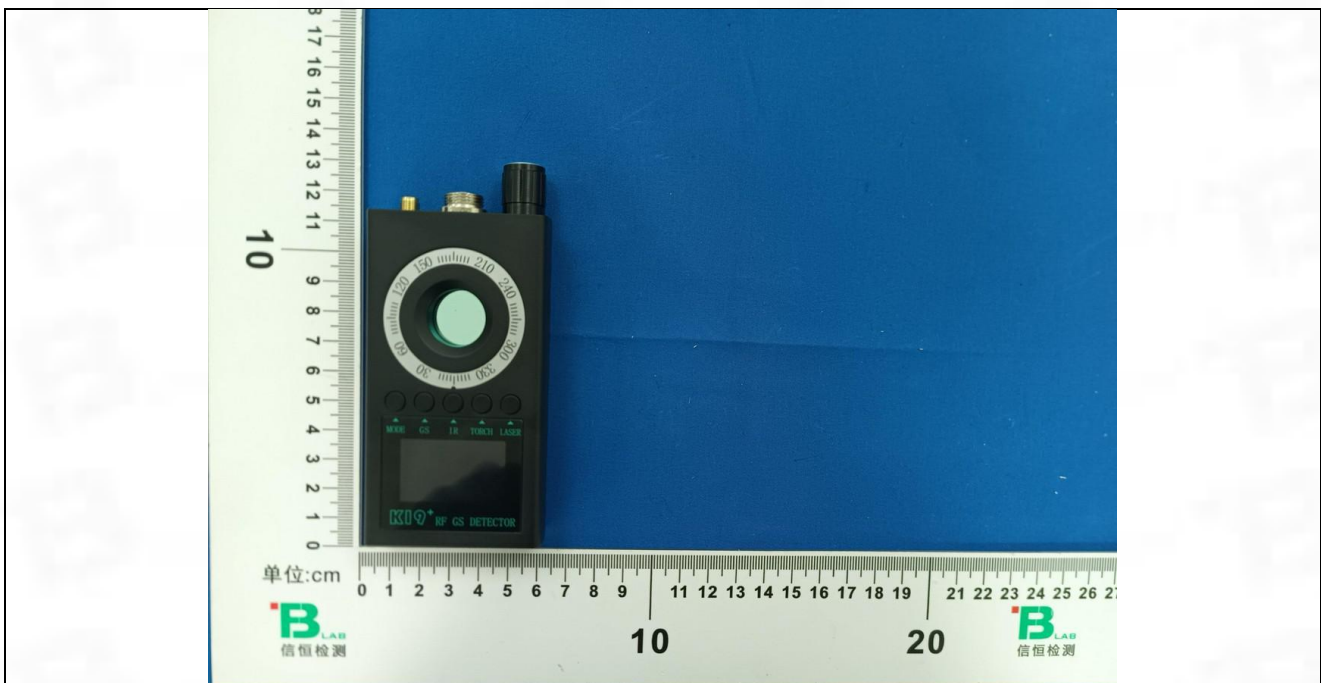
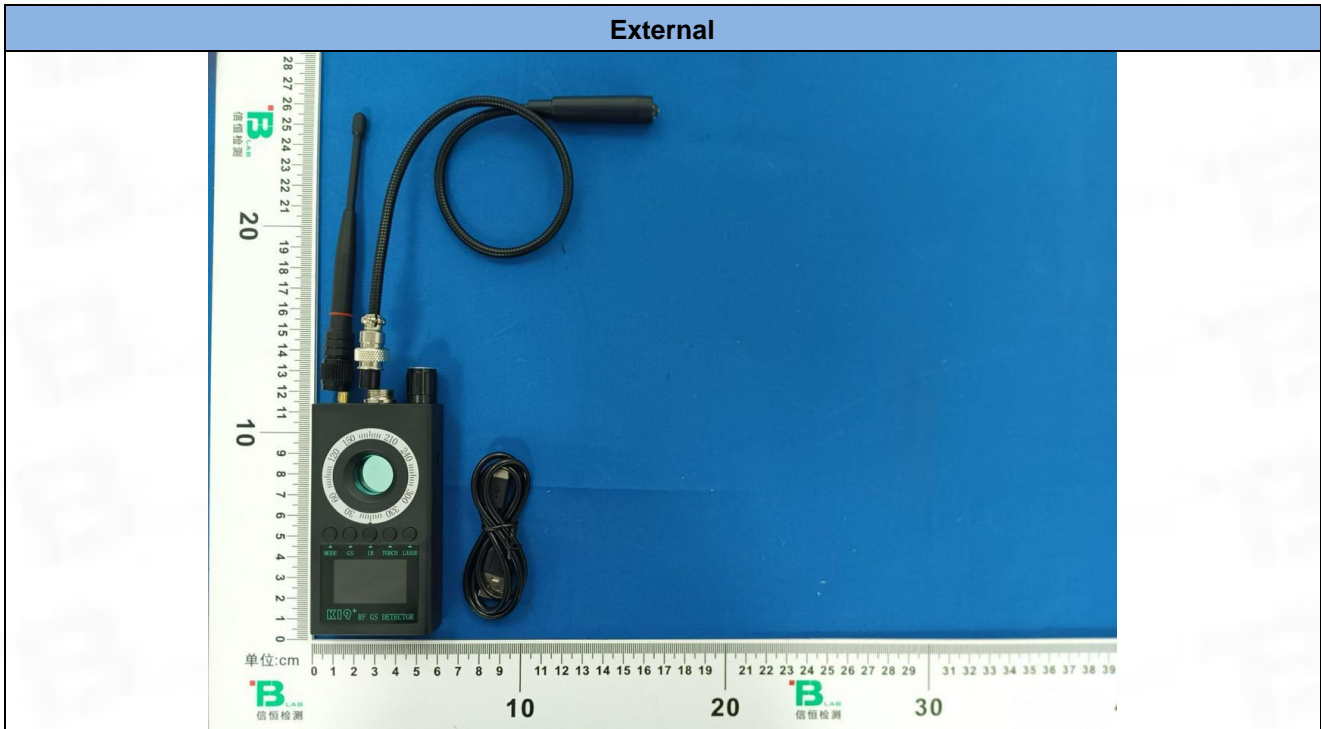
Radiated emissions (Below 1GHz)

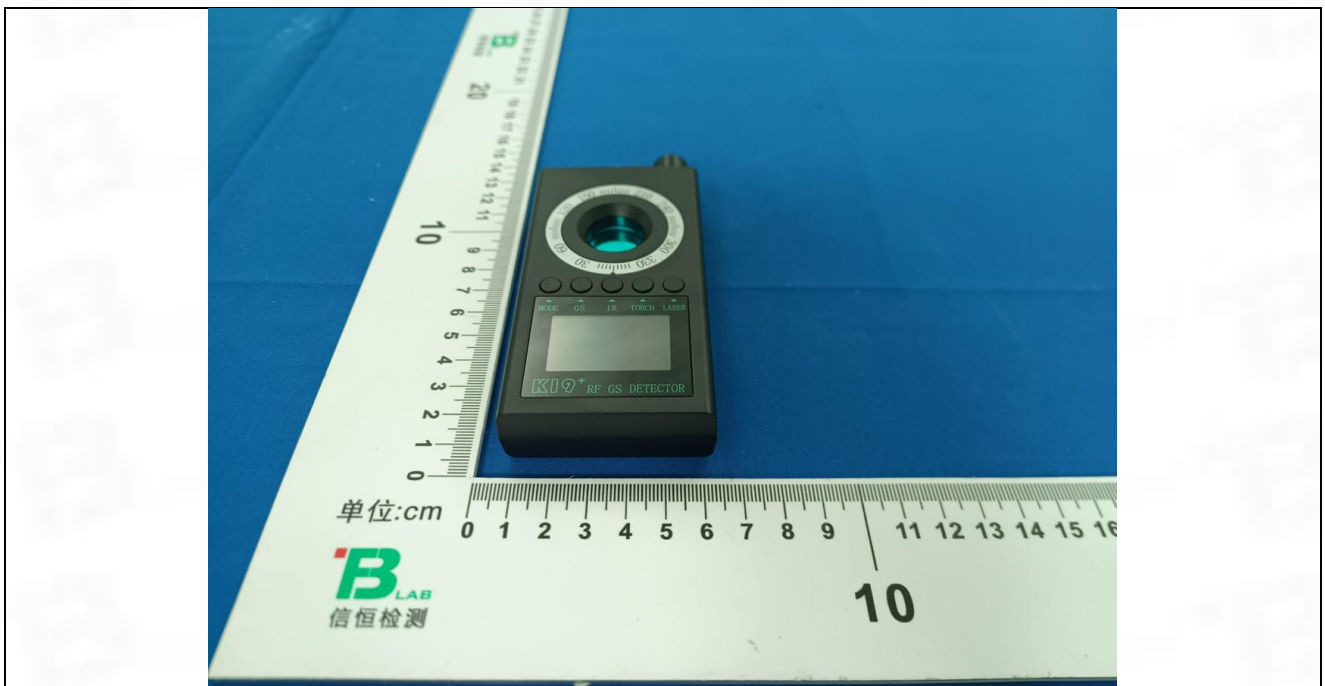


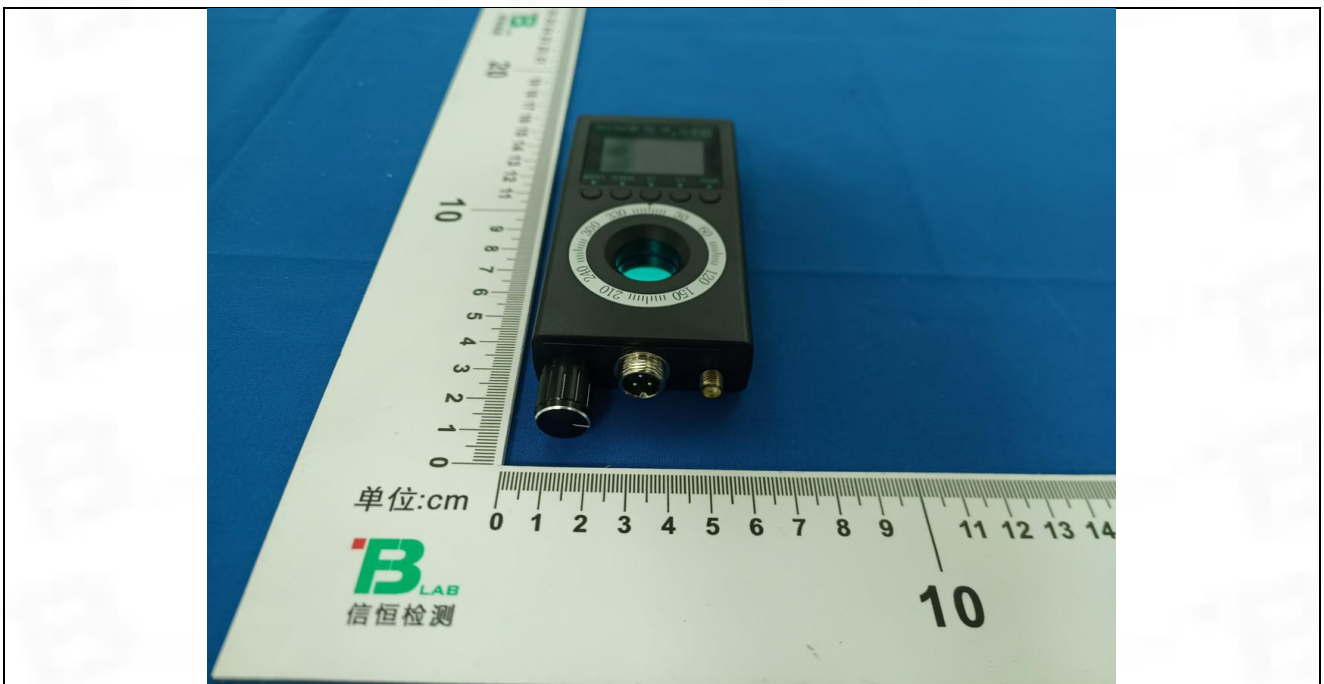
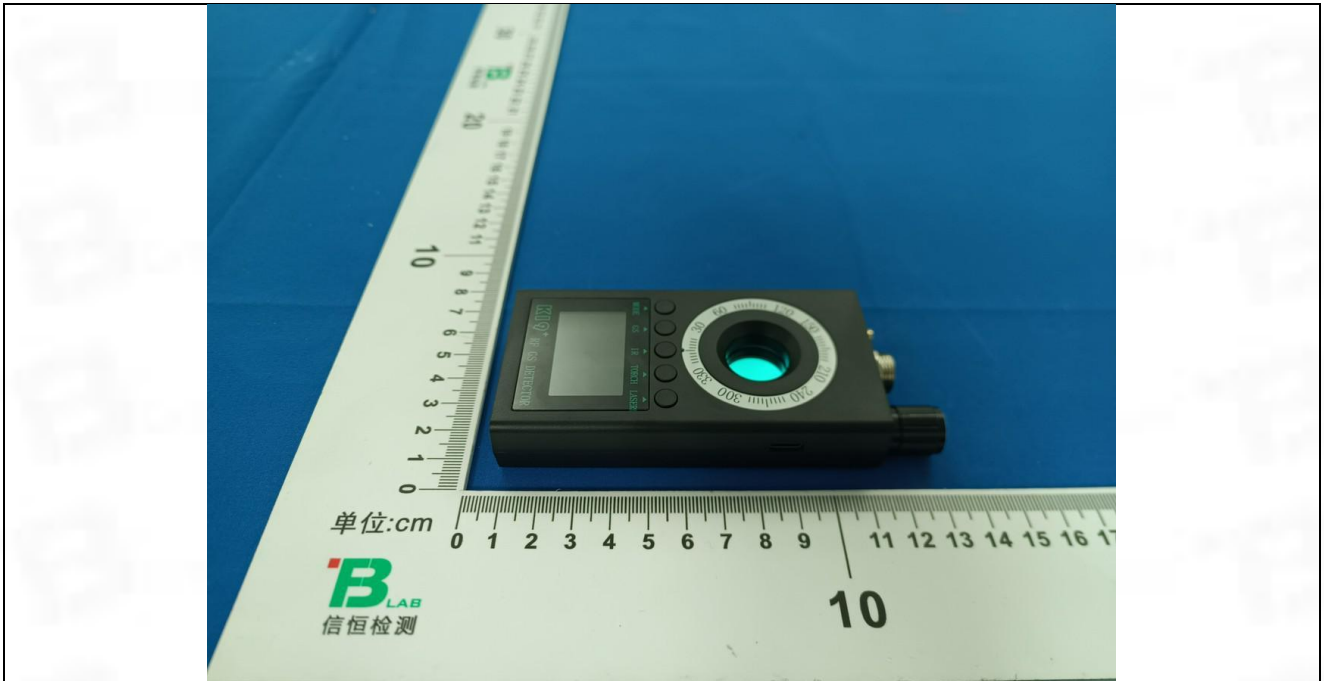
Radiated emissions (Above 1GHz)

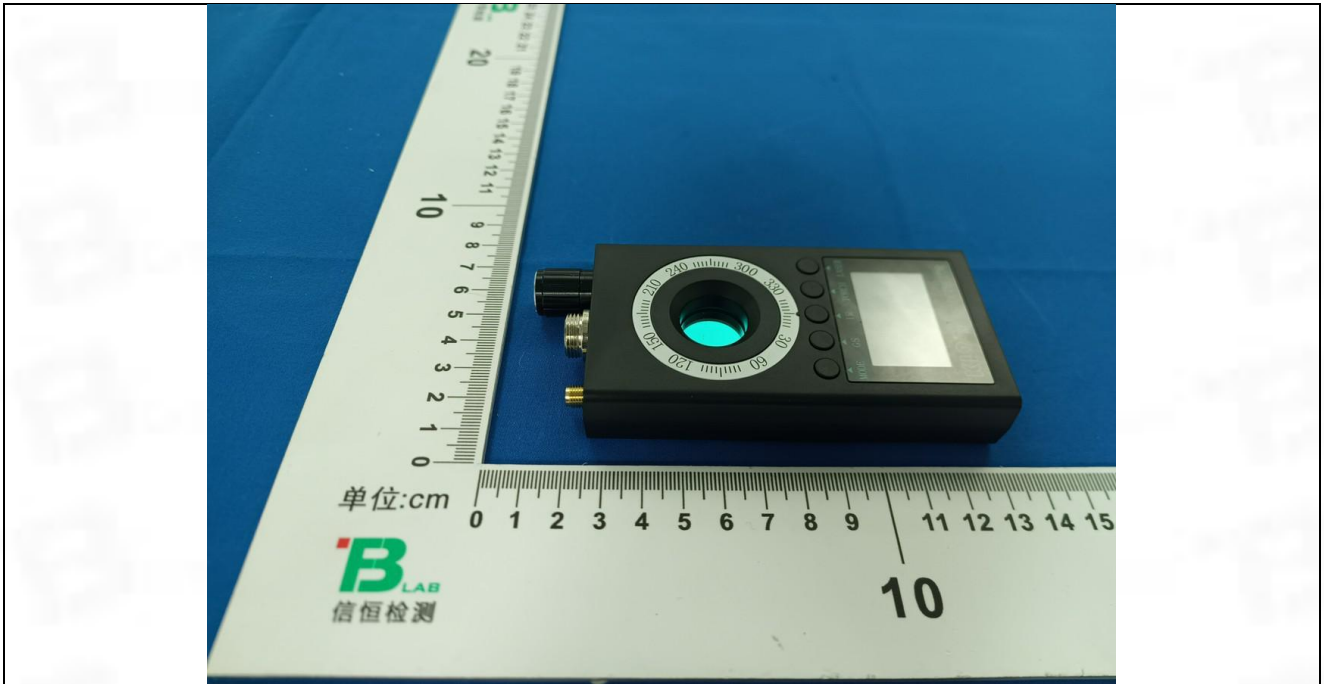


7 EUT Constructional Details (EUT Photos)

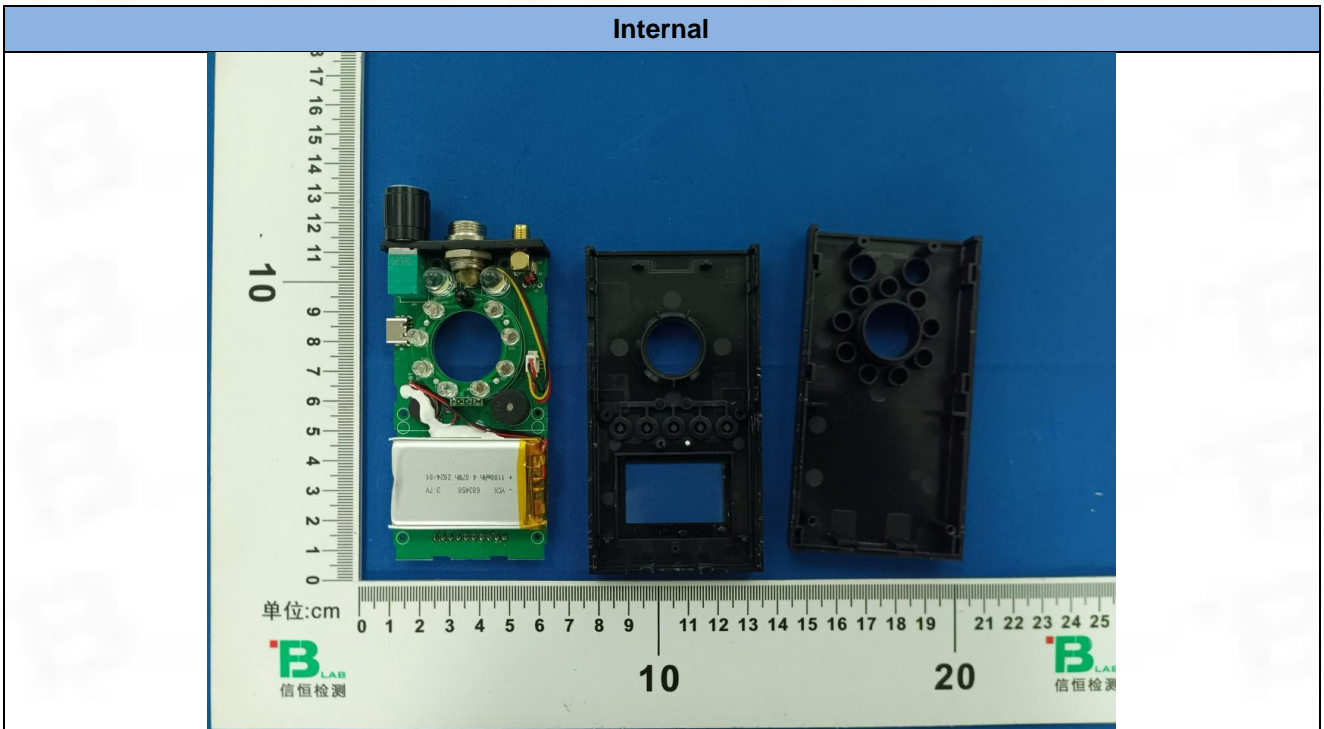


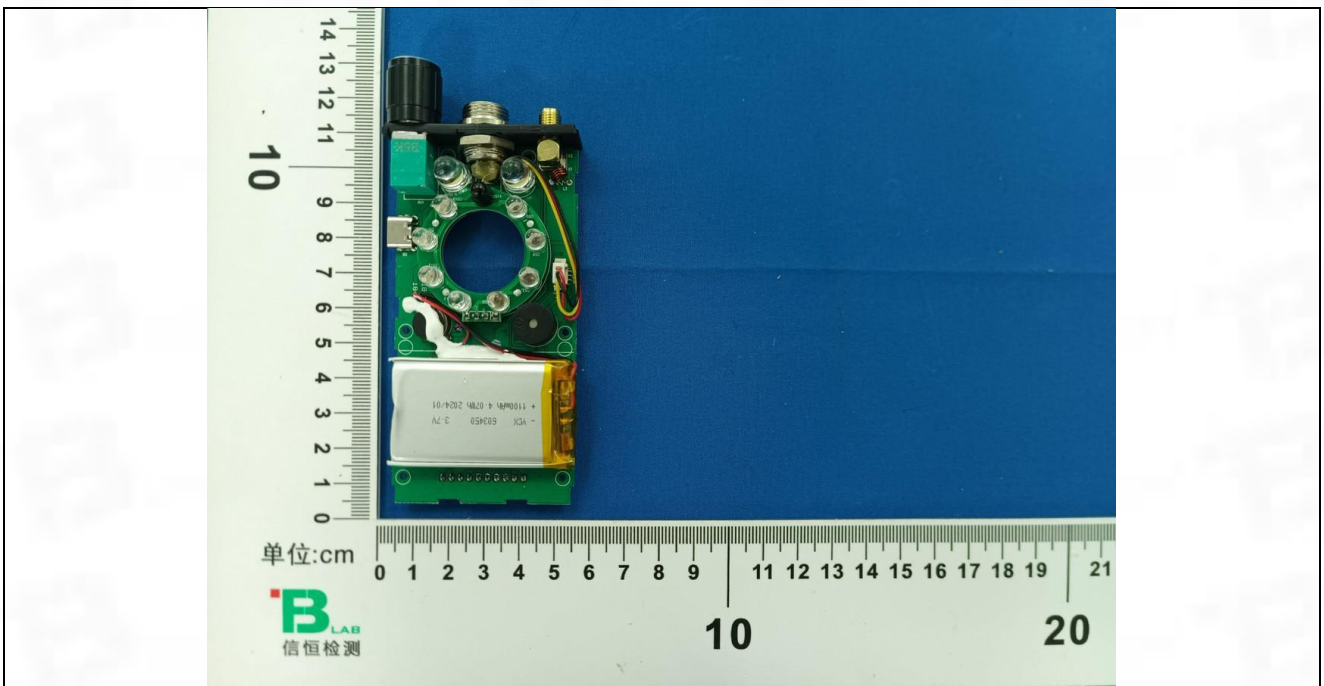
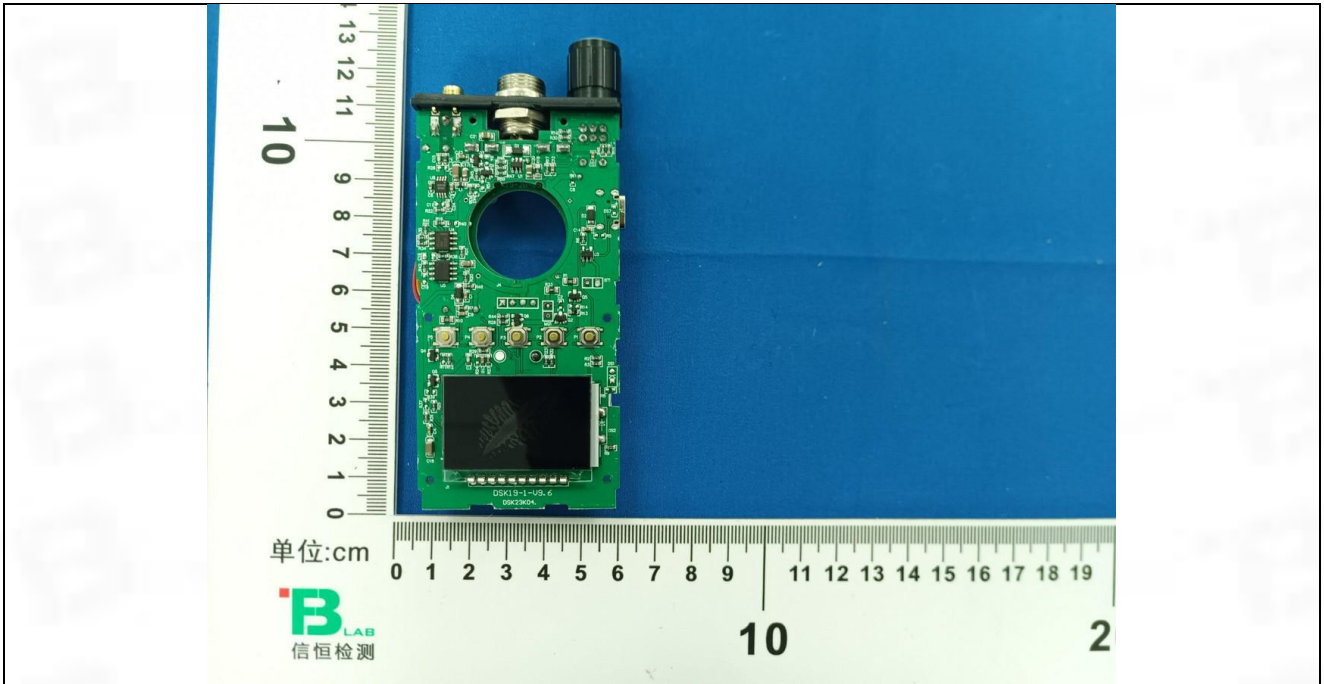






Internal







Test Report Number: BTF240802R00301



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Bao'an District, Shenzhen, China

www.btf-lab.com

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