



FCC Test Report

For

Applicant Name: GUANGZHOU SKYDANCE CO.,LTD
Address: 2-3 Floor, Building A, No.36, Zhongsan, Shiguang Road, Zhongcun Street, Panyu District, Guangzhou, China
EUT Name: Bluetooth & RF 5 in1 LED Controller
Brand Name: SKYDANCE
Model Number: WB5

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: BTF240105R00201
Test Standards: 47 CFR Part 15, Subpart B

Test Conclusion: Pass
FCC ID: 2BDBM-WB5
Test Date: 2024-01-08 to 2024-01-11
Date of Issue: 2024-01-22

Prepared By:

Gavin Cui

Date:

Gavin Cui / Project Engineer
2024-01-22

Approved By:



Date:

Ryan.CJ / EMC Manager
2024-01-22

Note: All the test results in this report only related to the testing samples. Which can be duplicated completely for the legal use with approval of applicant; it shall not be reproduced except in full without the written approval of BTF Testing Lab (Shenzhen) Co., Ltd.. All the objections should be raised within thirty days from the date of issue. To validate the report, you can contact us.



Test Report Number: BTF240105R00201

Revision History		
Version	Issue Date	Revisions Content
R_V0	2024-01-22	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:	GUANGZHOU SKYDANCE CO.,LTD
Address:	2-3 Floor, Building A, No.36, Zhongsan, Shiguang Road, Zhongcun Street, Panyu District, Guangzhou, China

2.2 Manufacturer Information

Company Name:	GUANGZHOU SKYDANCE CO.,LTD
Address:	2-3 Floor, Building A, No.36, Zhongsan, Shiguang Road, Zhongcun Street, Panyu District, Guangzhou, China

2.3 Factory Information

Company Name:	GUANGZHOU SKYDANCE CO.,LTD
Address:	2-3 Floor, Building A, No.36, Zhongsan, Shiguang Road, Zhongcun Street, Panyu District, Guangzhou, China

2.4 General Description of Equipment under Test (EUT)

EUT Name:	Bluetooth & RF 5 in1 LED Controller
Test Model Number:	WB5
Hardware Version:	B1
Product Function and Intended Use	The EUT is a LED Controller controlled by a 2478MHz remote controller. For more detail information, refer to the user's manual.

2.5 Technical Information

Power Supply:	Powered by DC power supply 24VDC, 15.5A
Rated Current:	12-24VDC, 15.5A
Antenna Type:	External Antenna
Operation Frequency:	2478MHz
Note: #: The antenna gain provided by the applicant, and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.	

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)	$\pm 2.64\text{dB}$
Radiated Emissions (30M - 1GHz)	$\pm 4.12\text{dB}$
Radiated Emissions (above 1GHz)	1-6GHz: $\pm 3.94\text{dB}$ 6-18GHz: $\pm 4.16\text{dB}$

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	2023-02-23	2024-02-22
EMI Receiver	ROHDE&SCHWARZ	ESCI3	101422	2023-11-15	2024-11-14

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	2023-03-24	2024-03-23
Preamplifier	SCHWARZBECK	BBV9744	00246	/	/
RE Cable	REBES Talent	UF1-SMAM-10m	21101566	/	/
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	/	/
RE Cable	REBES Talent	UF1-SMAM-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	2023-11-13	2024-11-12
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	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2023-11-13	2024-11-12

4.2 Test Auxiliary Equipment

Title	Manufacturer	Model No.	Serial No.
DC power supply	ITECH	IT6721	800104030767710436

4.3 Test Modes

No.	Test Modes	Description
TM1	RX mode+working	Keep the EUT connect to AC power line and normal work in continuously RX mode

5 Emission Test Results (EMI)

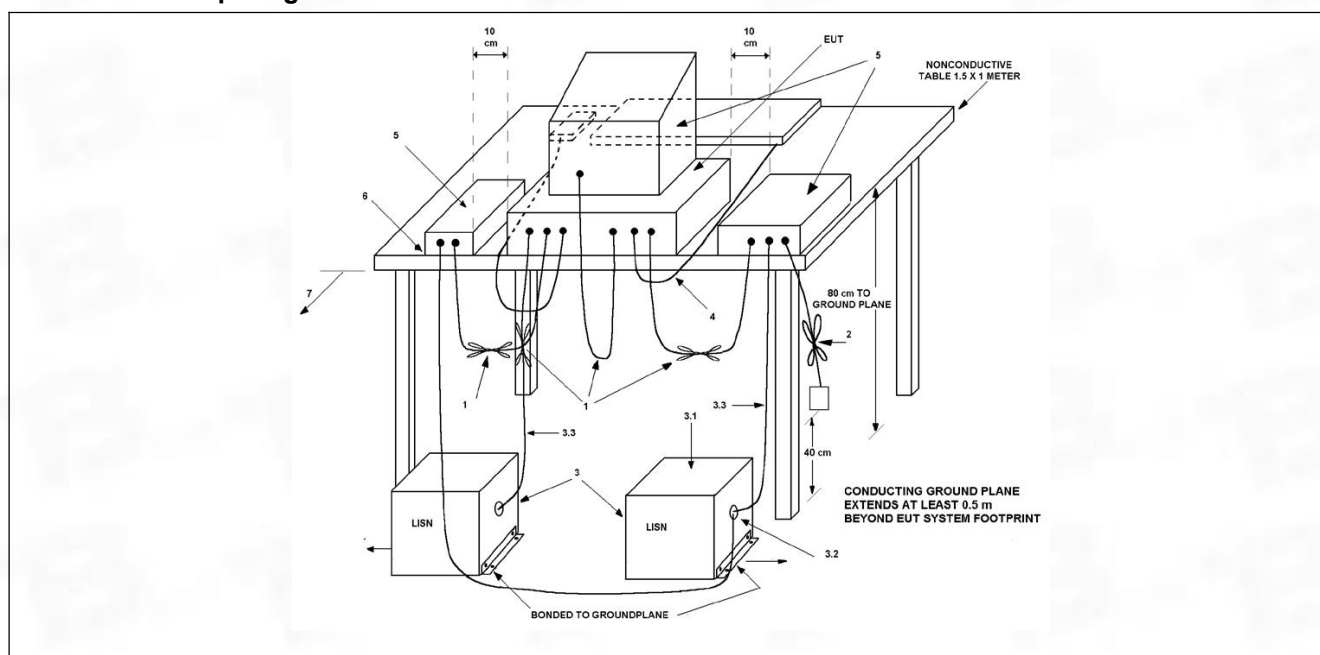
5.1 Conducted emissions on AC mains

Test Requirement:	15.107, Class B		
Test Method:	ANSI C63.4-2014 ANSI C63.4a-2017		
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:

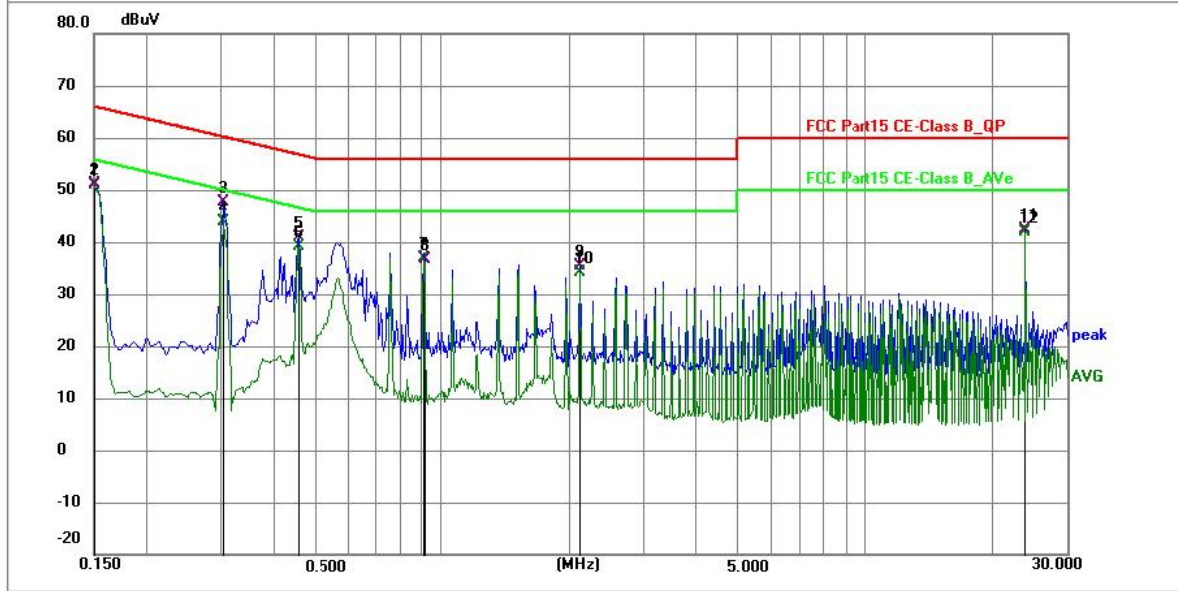
Operating Environment:	
Temperature:	23.9 °C
Humidity:	50 %
Atmospheric Pressure:	1010 mbar

5.1.2 Test Setup Diagram:



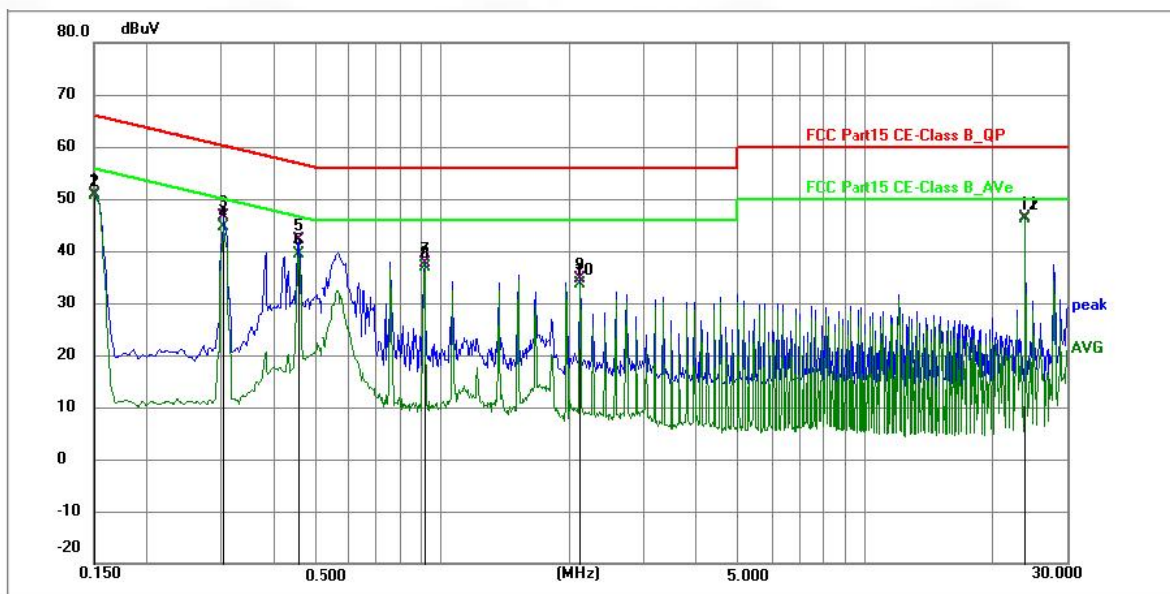
5.1.3 Test Data:

TM1 / Line: Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1 *	0.1500	40.49	10.45	50.94	56.00	-5.06	AVG	P	
2	0.1507	40.76	10.45	51.21	65.96	-14.75	QP	P	
3	0.3030	37.02	10.57	47.59	60.16	-12.57	QP	P	
4	0.3030	33.23	10.57	43.80	50.16	-6.36	AVG	P	
5	0.4560	30.33	10.57	40.90	56.77	-15.87	QP	P	
6	0.4560	28.49	10.57	39.06	46.77	-7.71	AVG	P	
7	0.9060	26.21	10.67	36.88	46.00	-9.12	AVG	P	
8	0.9104	25.86	10.67	36.53	56.00	-19.47	QP	P	
9	2.1164	24.63	10.68	35.31	56.00	-20.69	QP	P	
10	2.1164	23.56	10.68	34.24	46.00	-11.76	AVG	P	
11	24.0000	31.12	11.17	42.29	60.00	-17.71	QP	P	
12	24.0000	30.81	11.17	41.98	50.00	-8.02	AVG	P	

TM1 / Line: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	40.43	10.45	50.88	66.00	-15.12	QP	P	
2	0.1508	40.23	10.45	50.68	55.96	-5.28	AVG	P	
3	0.3030	35.95	10.57	46.52	60.16	-13.64	QP	P	
4	0.3030	34.13	10.57	44.70	50.16	-5.46	AVG	P	
5	0.4560	31.55	10.57	42.12	56.77	-14.65	QP	P	
6	0.4560	28.80	10.57	39.37	46.77	-7.40	AVG	P	
7	0.9105	27.03	10.67	37.70	56.00	-18.30	QP	P	
8	0.9105	26.31	10.67	36.98	46.00	-9.02	AVG	P	
9	2.1210	23.88	10.68	34.56	56.00	-21.44	QP	P	
10	2.1210	22.86	10.68	33.54	46.00	-12.46	AVG	P	
11	24.0000	35.14	11.17	46.31	60.00	-13.69	QP	P	
12 *	24.0000	34.96	11.17	46.13	50.00	-3.87	AVG	P	

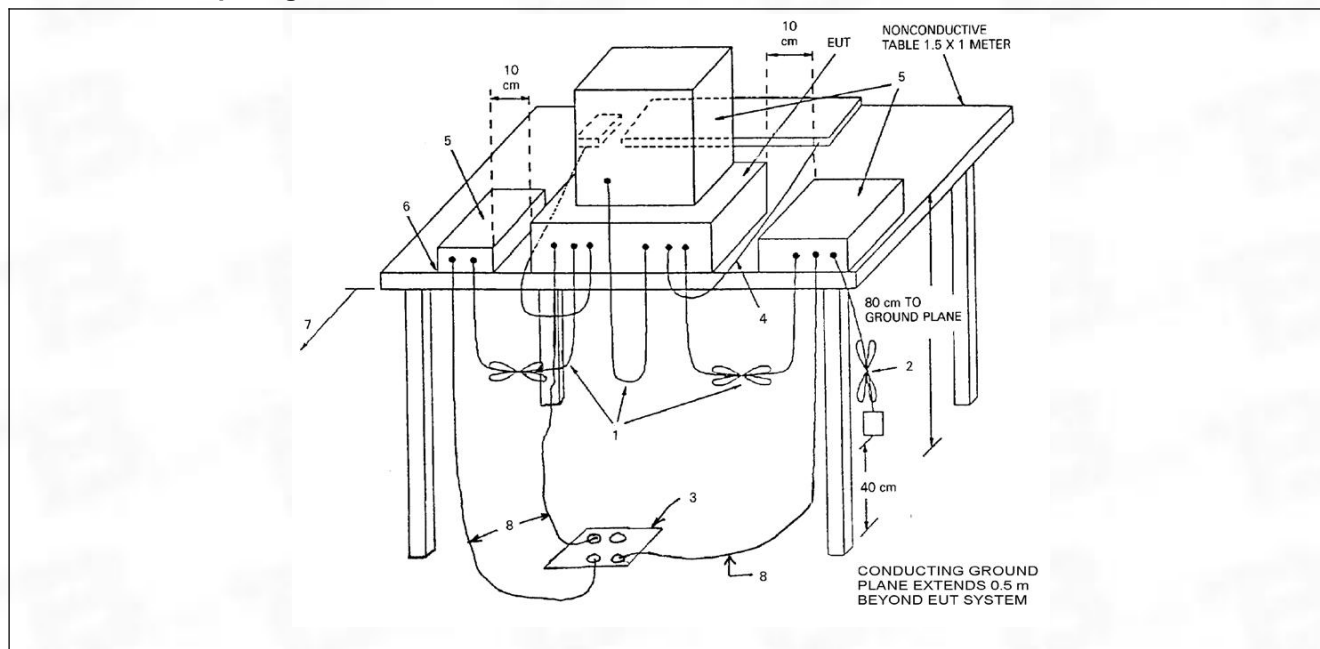
5.2 Radiated emissions (Below 1GHz)

Test Requirement:	15.109, Class B				
Test Method:	ANSI C63.4-2014 ANSI C63.4a-2017				
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:

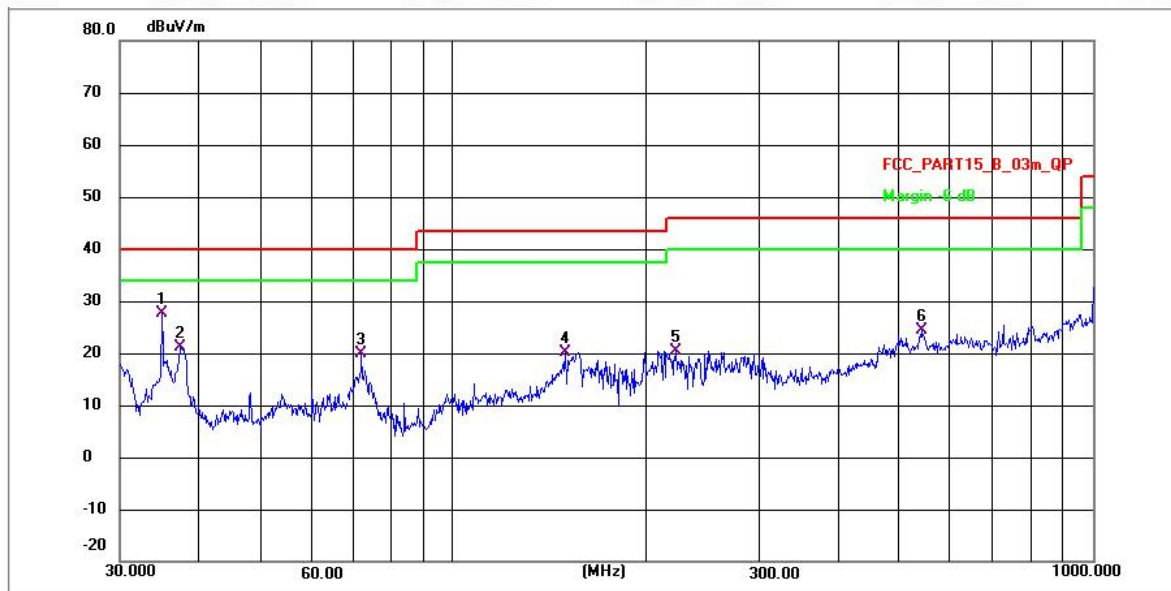
Operating Environment:	
Temperature:	23.6 °C
Humidity:	52 %
Atmospheric Pressure:	1010 mbar

5.2.2 Test Setup Diagram:



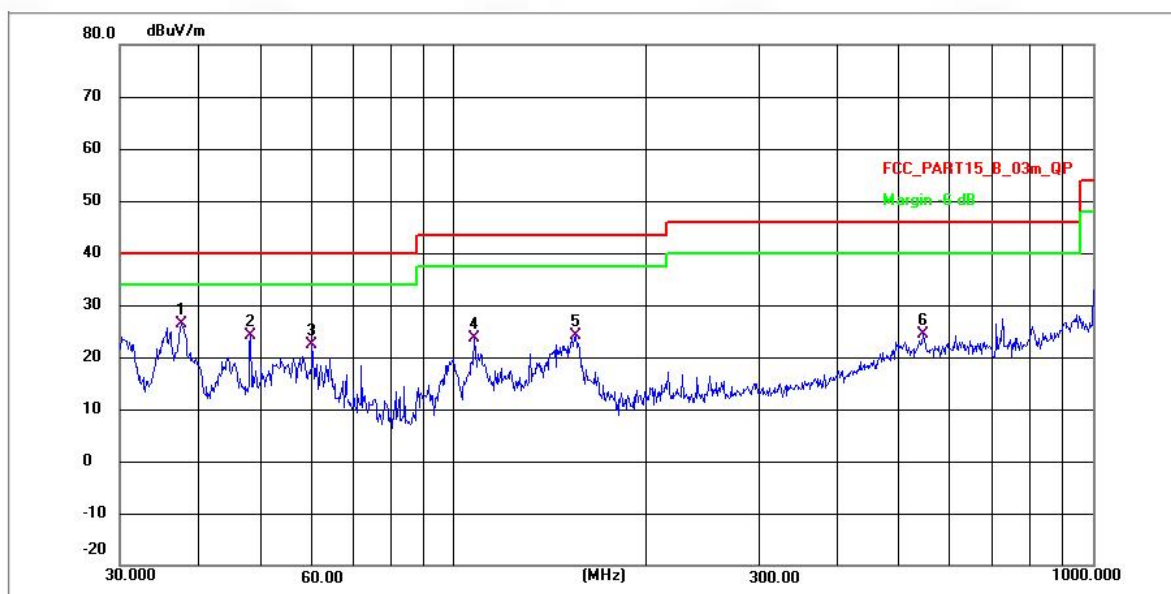
5.2.3 Test Data:

TM1 / Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	35.0048	46.09	-18.46	27.63	40.00	-12.37	QP	P
2	37.4164	39.65	-18.44	21.21	40.00	-18.79	QP	P
3	71.9580	38.01	-18.09	19.92	40.00	-20.08	QP	P
4	149.7480	47.79	-27.78	20.01	43.50	-23.49	QP	P
5	222.9502	46.63	-26.33	20.30	46.00	-25.70	QP	P
6	540.4240	45.96	-21.56	24.40	46.00	-21.60	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 *	37.4821	46.98	-20.58	26.40	40.00	-13.60	QP	P
2	47.9940	44.50	-20.37	24.13	40.00	-15.87	QP	P
3	59.9639	42.49	-20.15	22.34	40.00	-17.66	QP	P
4	107.8877	51.79	-28.15	23.64	43.50	-19.86	QP	P
5	155.6370	51.78	-27.73	24.05	43.50	-19.45	QP	P
6	545.1826	45.89	-21.61	24.28	46.00	-21.72	QP	P

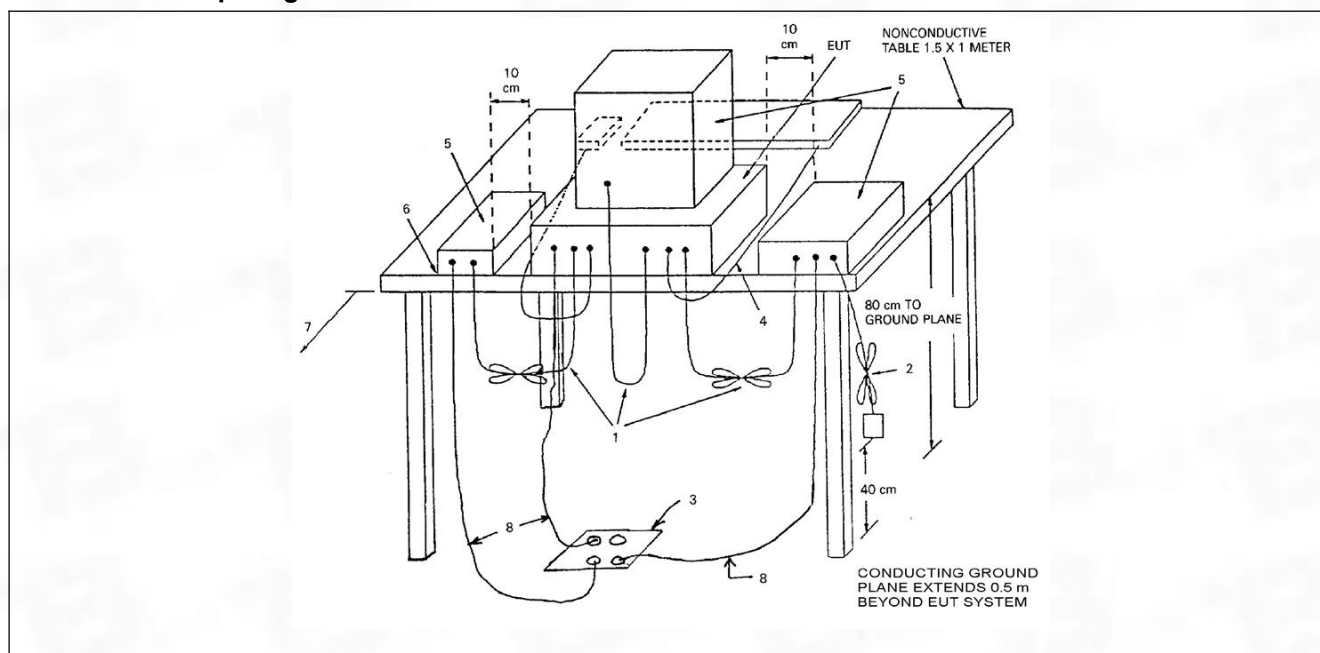
5.3 Radiated emissions (Above 1GHz)

Test Requirement:	15.109, Class B				
Test Method:	ANSI C63.4-2014 ANSI C63.4a-2017				
Test Limit:	Frequency of emission (MHz)	Field strength @3m			
		Average (uV/m)	Average(d BuV/m)	Peak (dBuV/m)	
	Above 1GHz	500	54	74	
Procedure:	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. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor				

5.3.1 E.U.T. Operation:

Operating Environment:	
Temperature:	24.3 °C
Humidity:	47.4 %
Atmospheric Pressure:	1010 mbar

5.3.2 Test Setup Diagram:



5.3.3 Test Data:

TM1 / Polarization: Horizontal

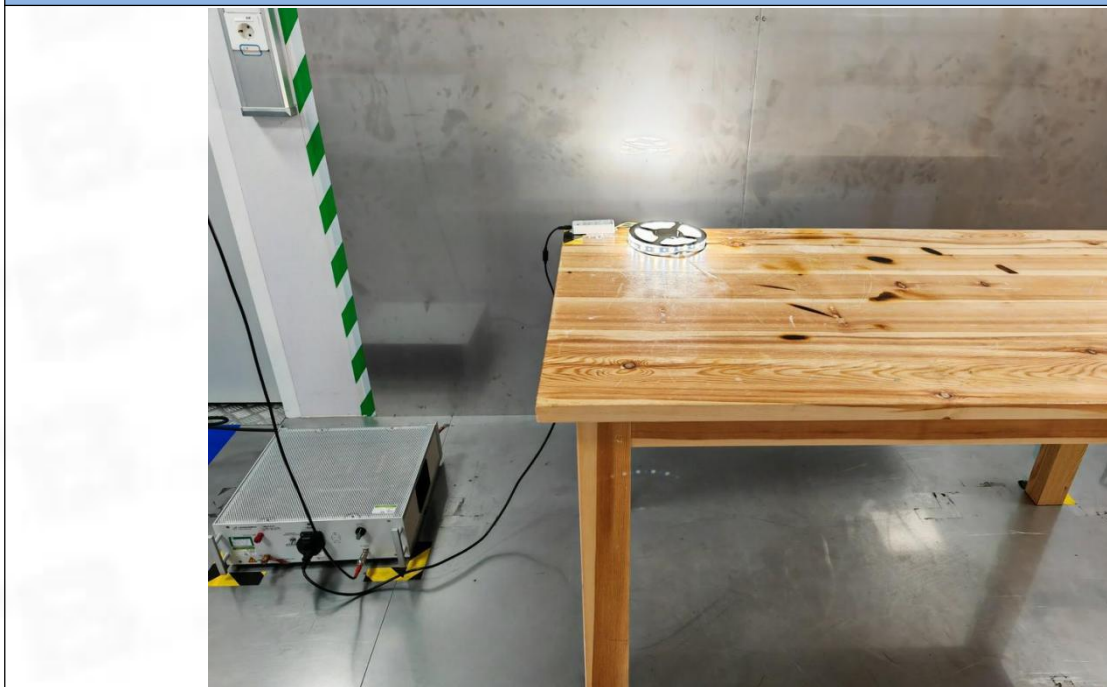
No.	Frequency (MHz)	Reading (dBu)	Factor (dB/m)	Level (dBu/m)	Limit (dBu/m)	Margin (dB)	Detector	P/F
1	3074.543	68.94	-48.89	20.05	74.00	-53.95	peak	P
2	4500.748	75.40	-48.12	27.28	74.00	-46.72	peak	P
3	6367.878	81.78	-47.95	33.83	74.00	-40.17	peak	P
4	8222.277	83.85	-45.60	38.25	74.00	-35.75	peak	P
5	11689.241	87.50	-43.06	44.44	74.00	-29.56	peak	P
6 *	14746.341	89.76	-41.99	47.77	74.00	-26.23	peak	P

TM1 / Polarization: Vertical

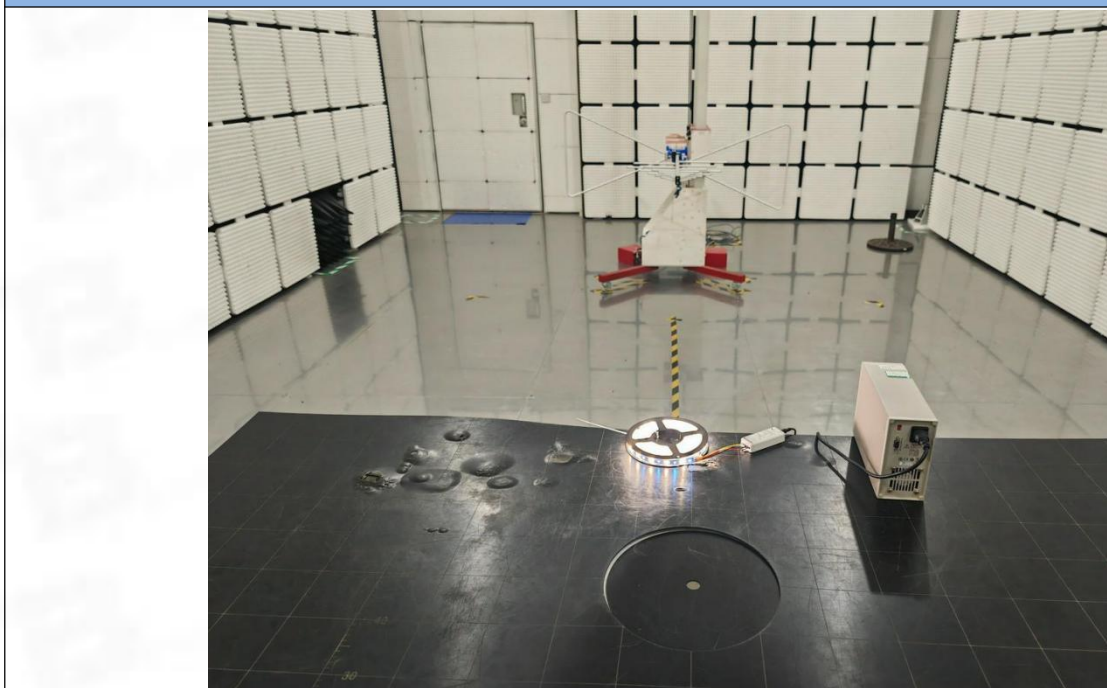
No.	Frequency (MHz)	Reading (dBu)	Factor (dB/m)	Level (dBu/m)	Limit (dBu/m)	Margin (dB)	Detector	P/F
1	2603.481	67.58	-49.24	18.34	74.00	-55.66	peak	P
2	4945.317	78.31	-48.10	30.21	74.00	-43.79	peak	P
3	6616.694	82.89	-47.80	35.09	74.00	-38.91	peak	P
4	8262.014	83.50	-45.58	37.92	74.00	-36.08	peak	P
5	11324.677	87.85	-43.00	44.85	74.00	-29.15	peak	P
6 *	14553.823	88.92	-41.96	46.96	74.00	-27.04	peak	P

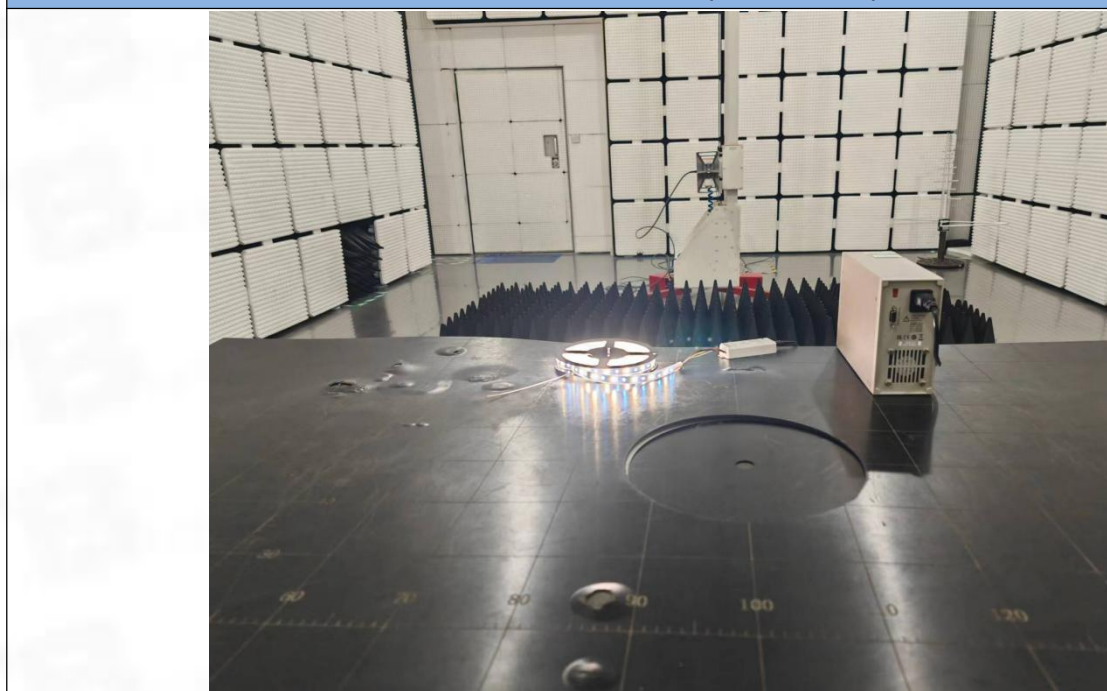
6 Test Setup Photos

Conducted emissions on AC mains



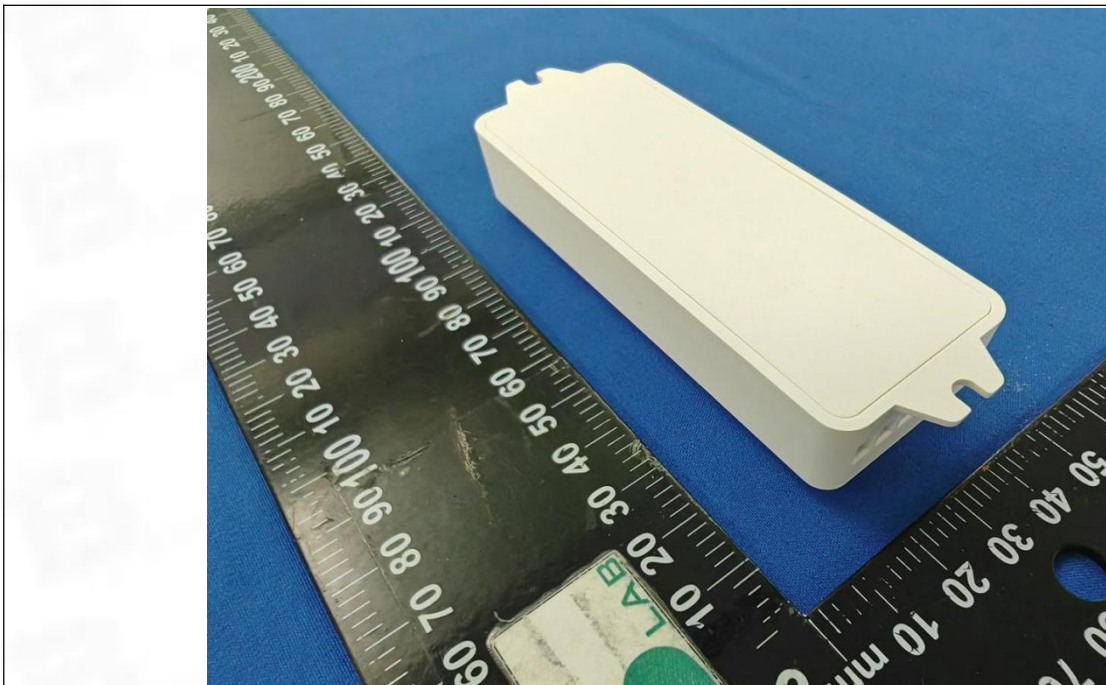
Radiated emissions (Below 1GHz)

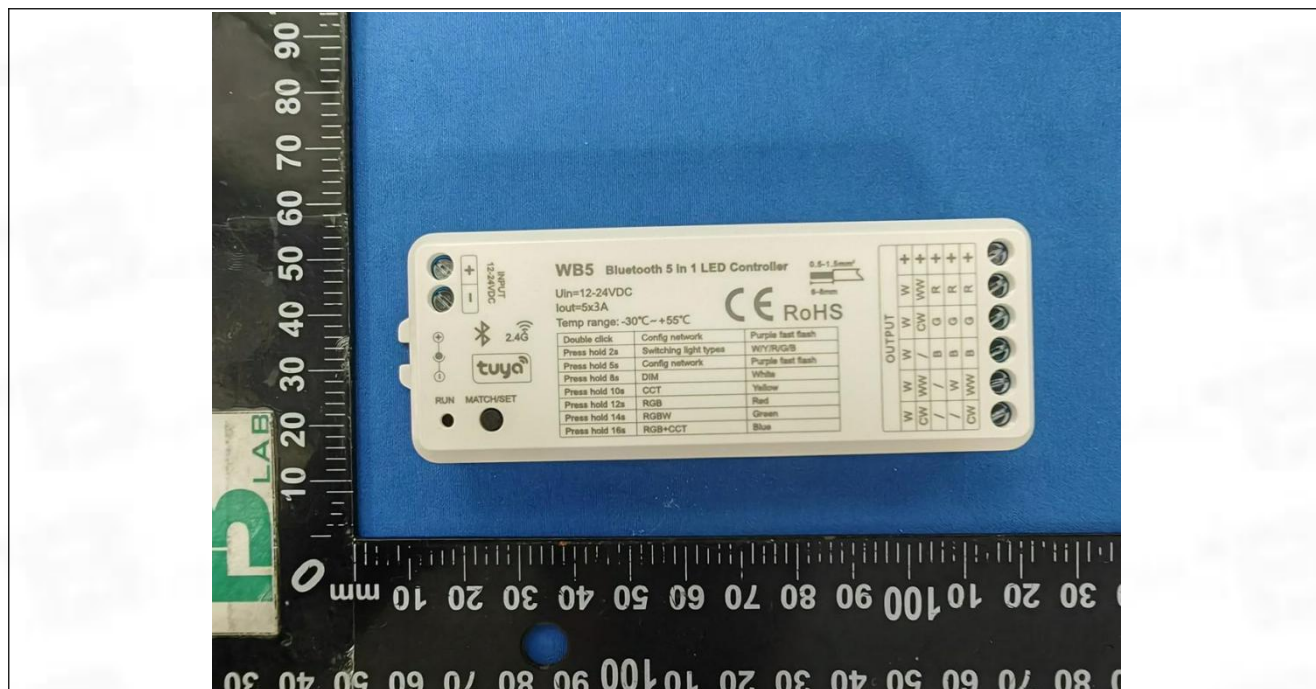


Radiated emissions (Above 1GHz)

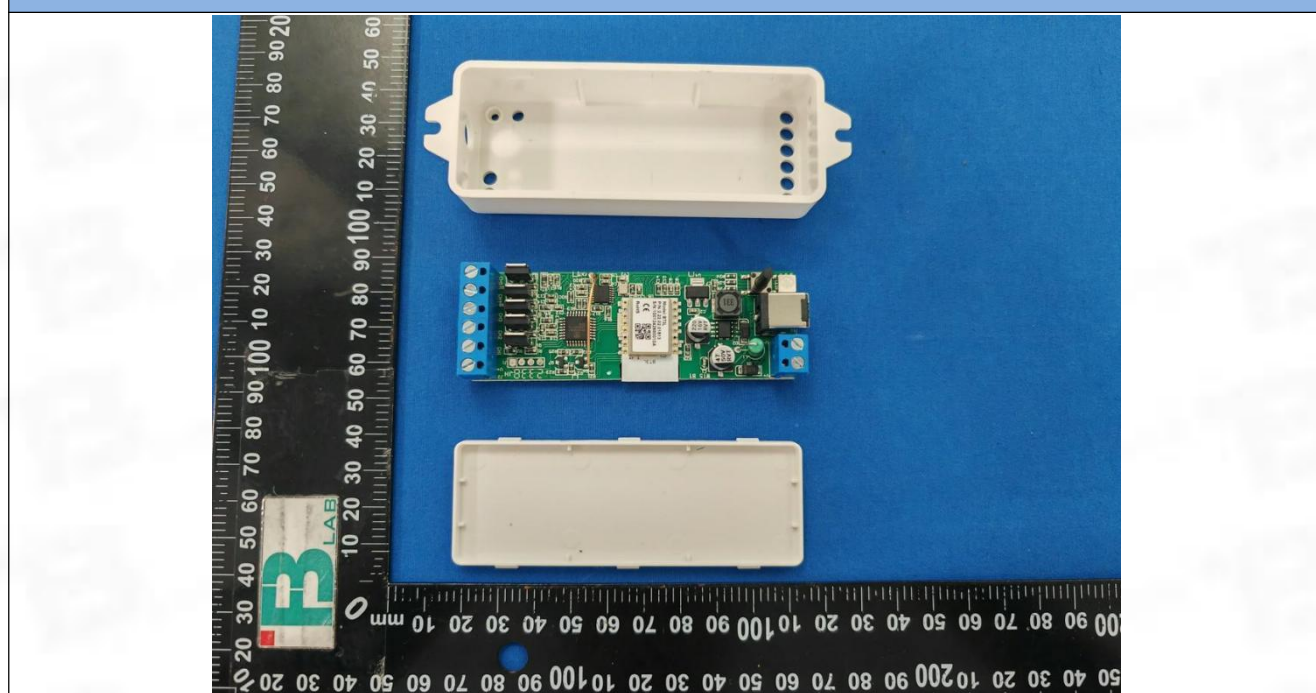
7 EUT Constructional Details (EUT Photos)

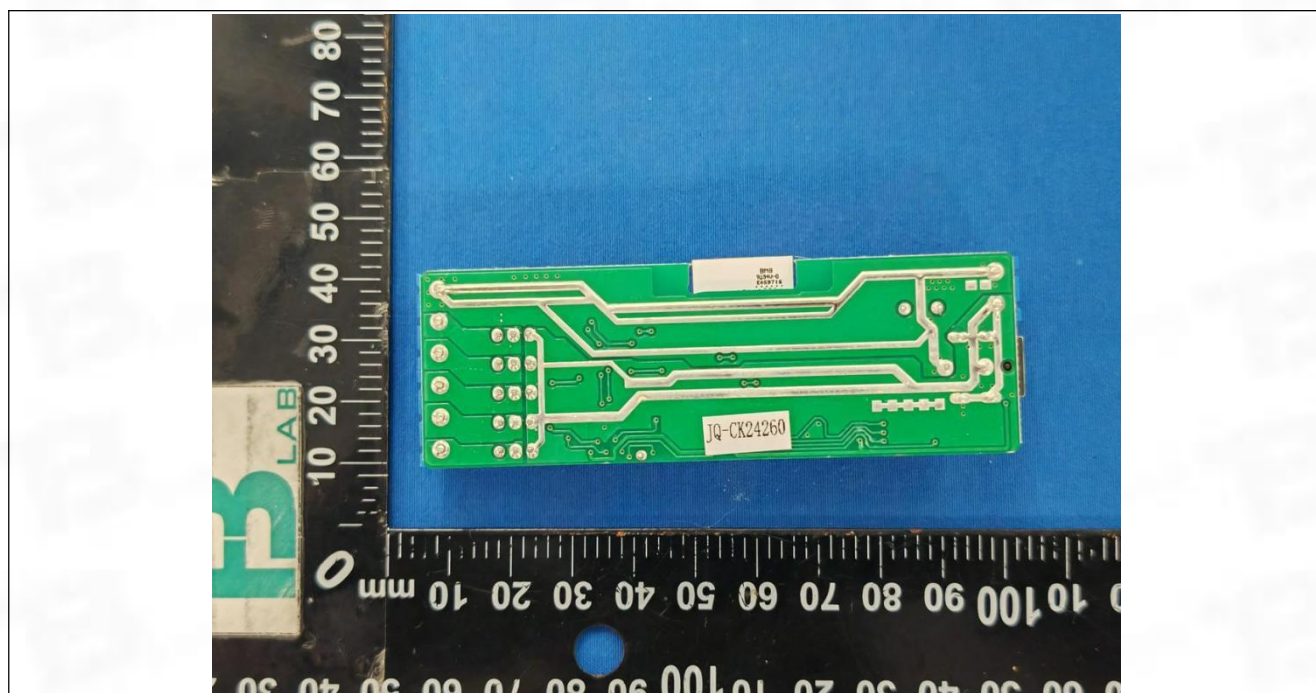
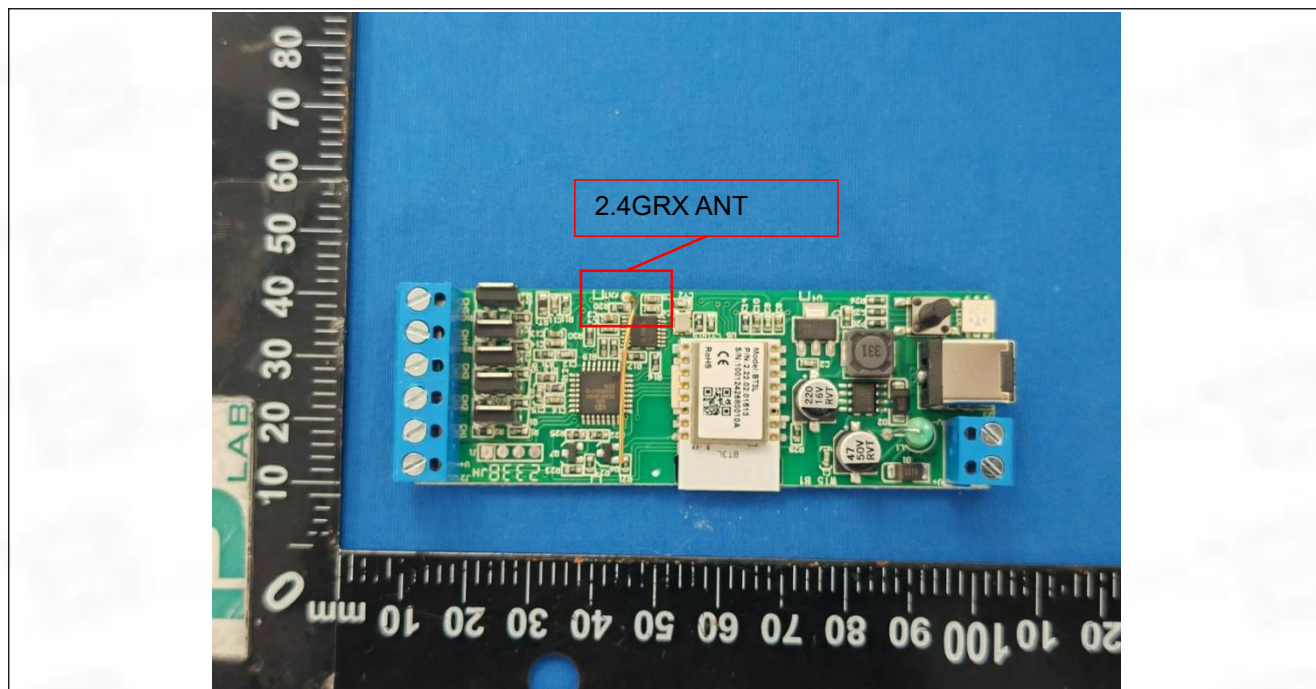
External





Internal







Test Report Number: BTF240105R00201



BTF Testing Lab (Shenzhen) Co., Ltd.

F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street,
Bao'an District, Shenzhen, China

www.btf-lab.com

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