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:	WiFi & RF 5 in1 LED Controller
Brand Name:	SKYDANCE
Model Number:	WT5

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:	BTF240105R00301
Test Standards:	47 CFR Part 15, Subpart B
Test Conclusion:	Pass
FCC ID:	2BDBM-WT5
Test Date:	2024-01-08 to 2024-01-11
Date of Issue:	2024-01-22

Prepared By: Gavin Cui

Gavin Cui / Project Engineer

Date: 2024-01-22

Approved By:

Ryan.CJ / EMC Manager

Date: 2024-01-22

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Revision History		
Version	Issue Date	Revisions Content
R_V0	2024-01-22	Original
Note: Once the revision has been made, then previous versions reports are invalid.		

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BTF Testing Lab (Shenzhen) Co., Ltd.
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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.
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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:	WiFi & RF 5 in1 LED Controller
Test Model Number:	WT5
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.	

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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

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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-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	2023-11-13	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 Preamplilifier	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

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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

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5 Emission Test Results (EMI)

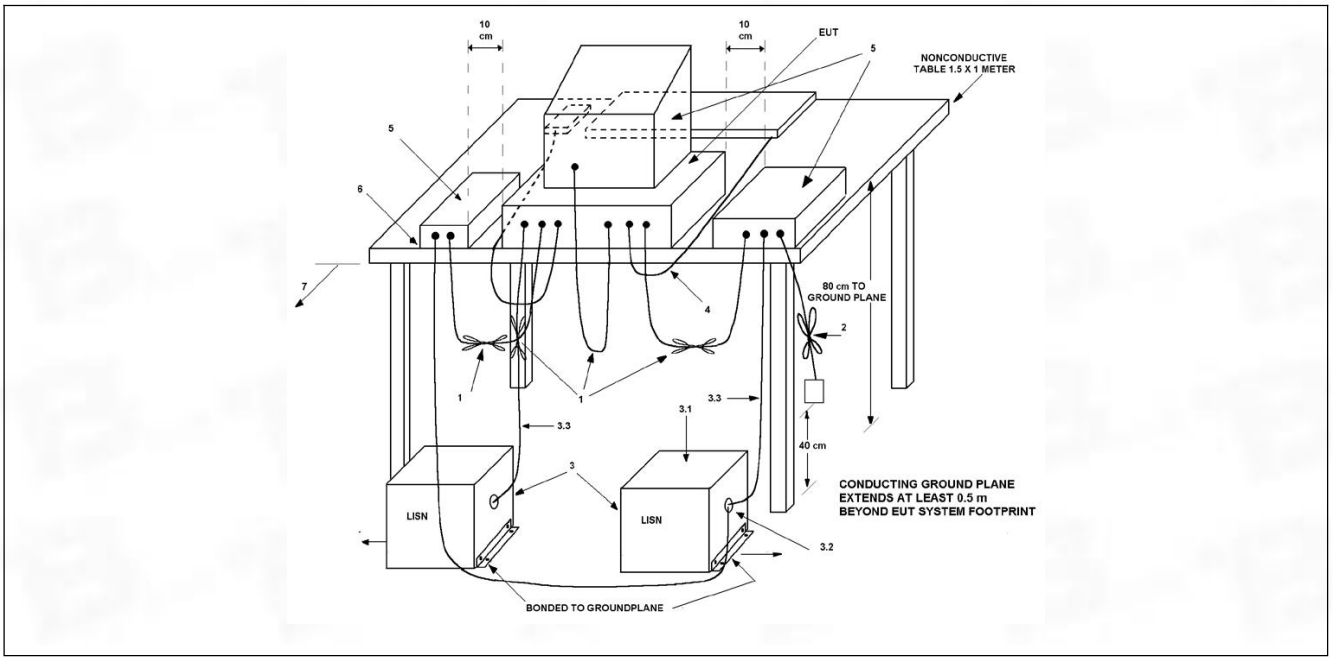
5.1 Conducted emissions on AC mains

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:

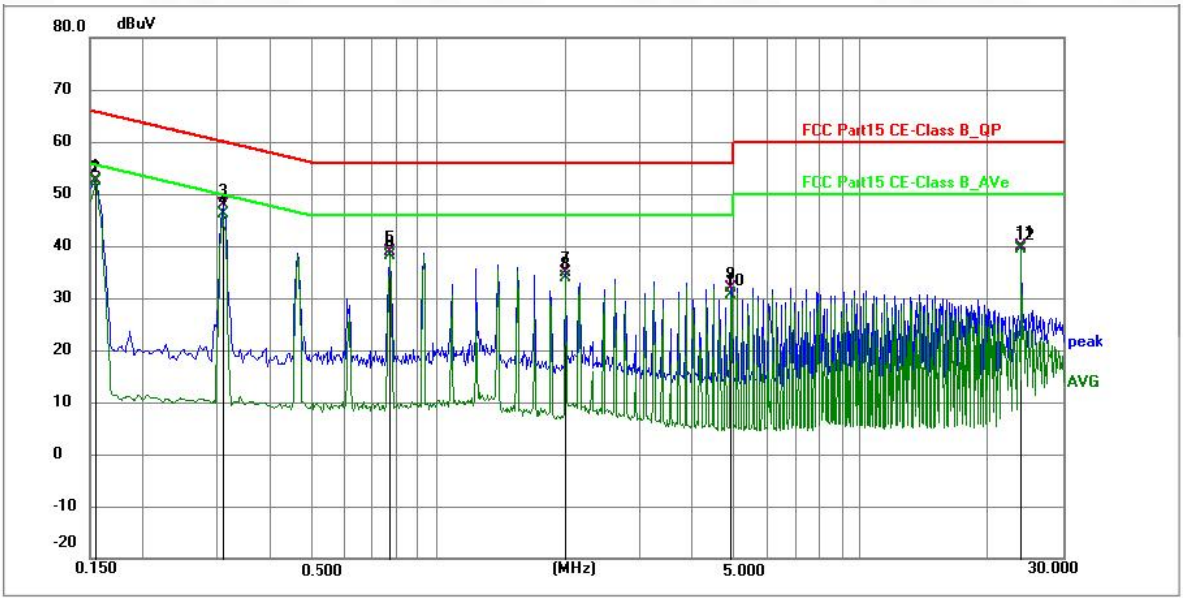
Operating Environment:	
Temperature:	23.9 °C
Humidity:	50 %
Atmospheric Pressure:	1010 mbar

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	0.1544	42.11	10.46	52.57	65.76	-13.19	QP	P	
2 *	0.1544	41.95	10.46	52.41	55.76	-3.35	AVG	P	
3	0.3074	37.35	10.57	47.92	60.04	-12.12	QP	P	
4	0.3074	35.50	10.57	46.07	50.04	-3.97	AVG	P	
5	0.7710	28.22	10.69	38.91	56.00	-17.09	QP	P	
6	0.7710	27.52	10.69	38.21	46.00	-7.79	AVG	P	
7	1.9995	24.29	10.68	34.97	56.00	-21.03	QP	P	
8	1.9995	23.25	10.68	33.93	46.00	-12.07	AVG	P	
9	4.9245	21.20	10.73	31.93	56.00	-24.07	QP	P	
10	4.9245	19.95	10.73	30.68	46.00	-15.32	AVG	P	
11	24.0000	28.66	11.17	39.83	60.00	-20.17	QP	P	
12	24.0000	28.18	11.17	39.35	50.00	-10.65	AVG	P	

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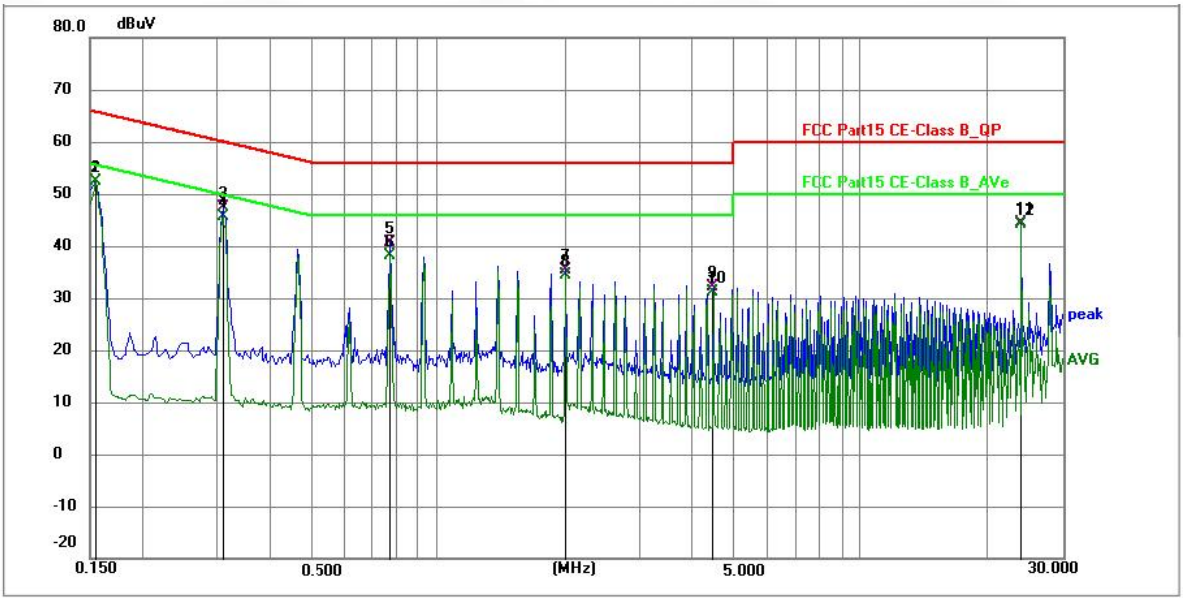
TM1 / Line: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1544	42.02	10.46	52.48	65.76	-13.28	QP	P	
2 *	0.1544	41.83	10.46	52.29	55.76	-3.47	AVG	P	
3	0.3074	36.89	10.57	47.46	60.04	-12.58	QP	P	
4	0.3074	35.12	10.57	45.69	50.04	-4.35	AVG	P	
5	0.7710	29.83	10.69	40.52	56.00	-15.48	QP	P	
6	0.7710	27.38	10.69	38.07	46.00	-7.93	AVG	P	
7	2.0040	24.73	10.68	35.41	56.00	-20.59	QP	P	
8	2.0040	23.62	10.68	34.30	46.00	-11.70	AVG	P	
9	4.4699	21.49	10.70	32.19	56.00	-23.81	QP	P	
10	4.4699	20.48	10.70	31.18	46.00	-14.82	AVG	P	
11	24.0000	33.10	11.17	44.27	60.00	-15.73	QP	P	
12	24.0000	32.90	11.17	44.07	50.00	-5.93	AVG	P	

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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:

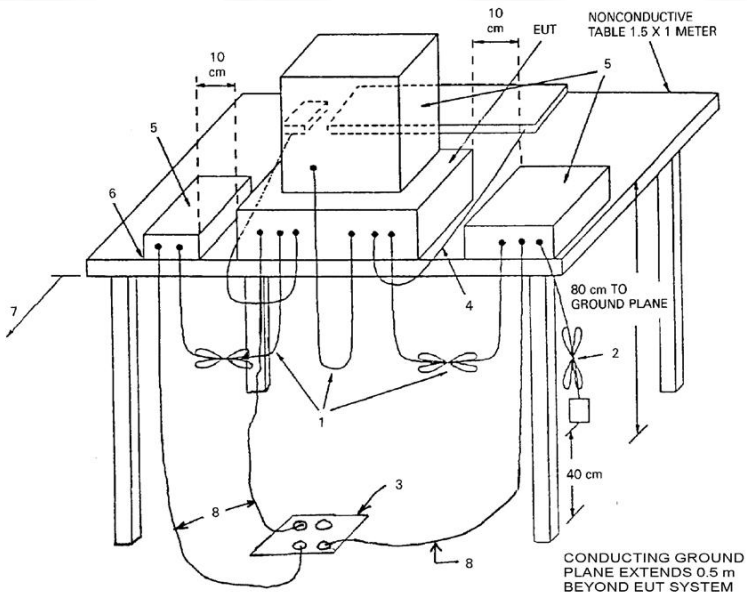
Frequency of emission (MHz)	Field strength @3m		Field strength @10m	
	(uV/m)	(dBuV/m)	(uV/m)	(dBuV/m)
30 – 88	100	40	30	29.5
88 – 216	150	43.5	45	33.1
216 – 960	200	46	60	35.6
Above 960	500	54	150	43.5

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:	23.5 °C
Humidity:	50 %
Atmospheric Pressure:	1010 mbar

5.2.2 Test Setup Diagram:



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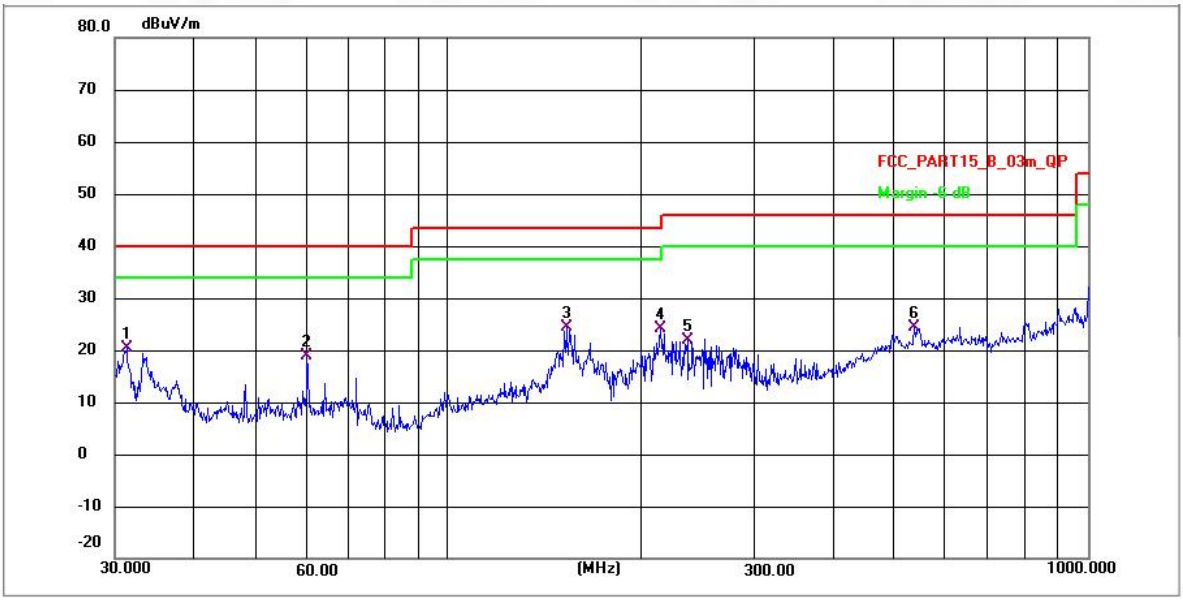
5.2.3 Test Data:

TM1 / Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	31.2893	38.92	-18.51	20.41	40.00	-19.59	QP	P
2	59.9639	37.09	-18.18	18.91	40.00	-21.09	QP	P
3 *	153.2004	52.22	-27.75	24.47	43.50	-19.03	QP	P
4	214.1385	50.90	-26.71	24.19	43.50	-19.31	QP	P
5	236.6447	47.89	-25.96	21.93	46.00	-24.07	QP	P
6	537.5891	45.83	-21.53	24.30	46.00	-21.70	QP	P

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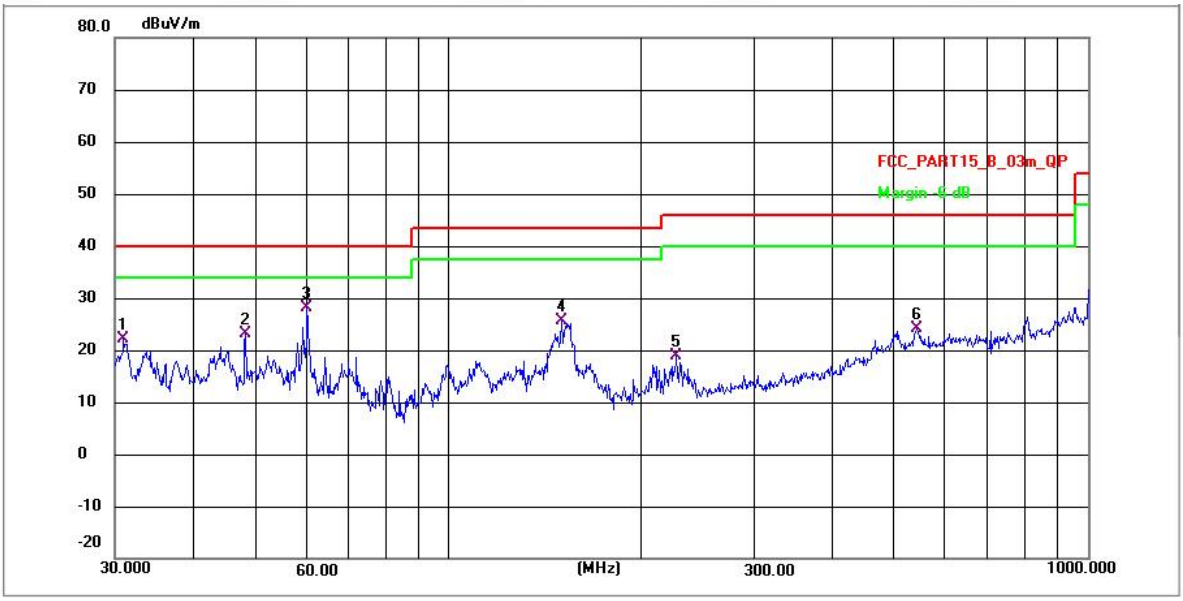
TM1 / Polarization: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	31.0162	42.77	-20.72	22.05	40.00	-17.95	QP	P
2	47.9940	43.40	-20.37	23.03	40.00	-16.97	QP	P
3 *	59.9639	48.19	-20.15	28.04	40.00	-11.96	QP	P
4	150.0108	53.52	-27.78	25.74	43.50	-17.76	QP	P
5	227.6906	45.01	-26.12	18.89	46.00	-27.11	QP	P
6	542.3225	45.83	-21.58	24.25	46.00	-21.75	QP	P

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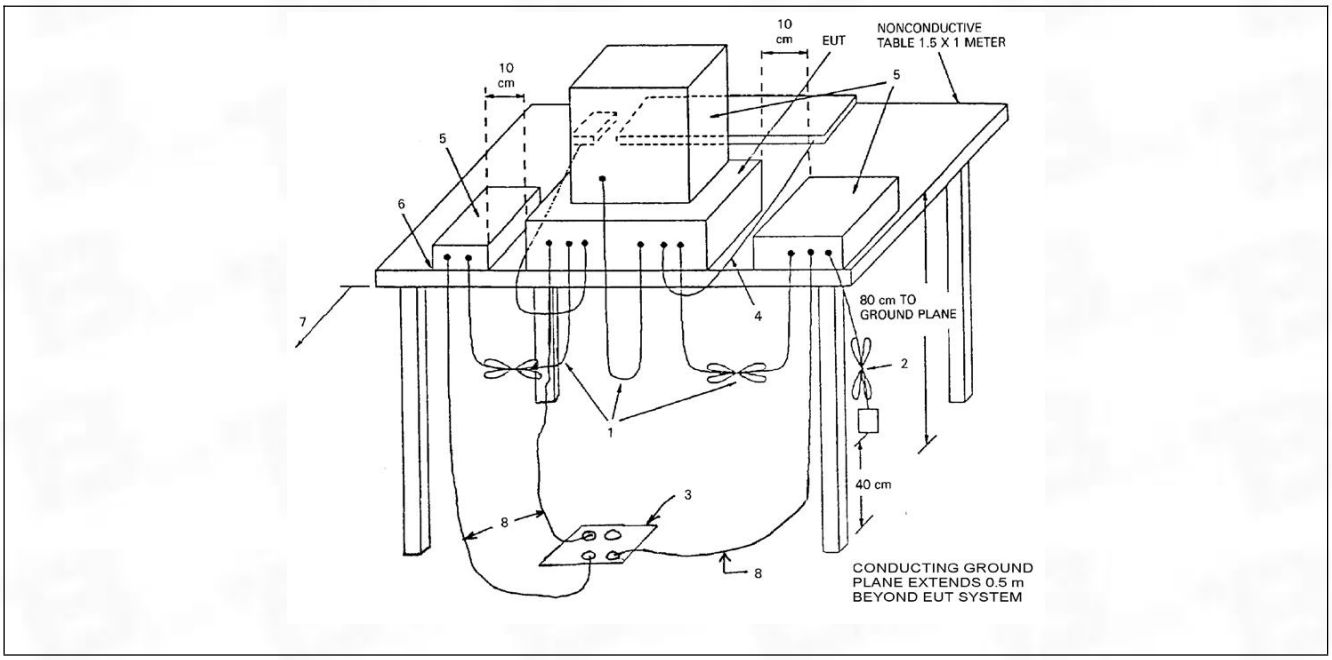
5.3 Radiated emissions (Above 1GHz)

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)** 500; **Average(d BuV/m)** 54; **Peak (dBuV/m)** 74 (Above 1GHz)
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:	23.5 °C
Humidity:	50 %
Atmospheric Pressure:	1010 mbar

5.3.2 Test Setup Diagram:



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5.3.3 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	2814.686	71.05	-49.26	21.79	74.00	-52.21	peak	P
2	4853.473	76.77	-48.12	28.65	74.00	-45.35	peak	P
3	6460.801	81.88	-47.95	33.93	74.00	-40.07	peak	P
4	8449.239	83.37	-45.60	37.77	74.00	-36.23	peak	P
5	11147.963	88.00	-43.03	44.97	74.00	-29.03	peak	P
6 *	14434.695	89.62	-41.23	48.39	74.00	-25.61	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	3145.010	67.31	-48.87	18.44	74.00	-55.56	peak	P
2	4566.668	78.16	-48.10	30.06	74.00	-43.94	peak	P
3	6713.746	81.94	-47.80	34.14	74.00	-39.86	peak	P
4	8868.449	84.58	-44.68	39.90	74.00	-34.10	peak	P
5	11651.652	86.57	-43.04	43.53	74.00	-30.47	peak	P
6 *	14016.956	90.84	-41.22	49.62	74.00	-24.38	peak	P

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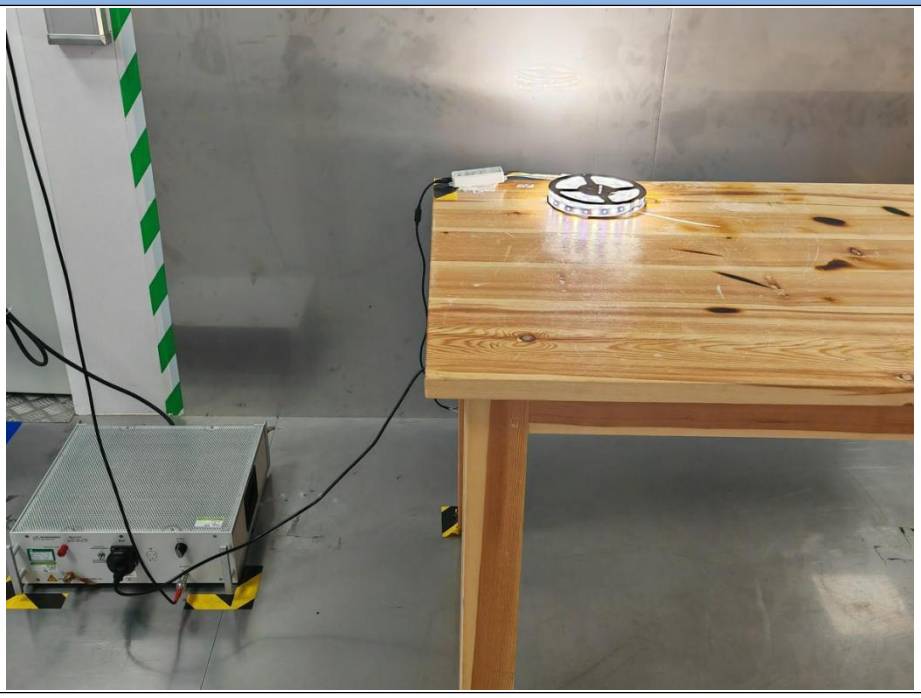
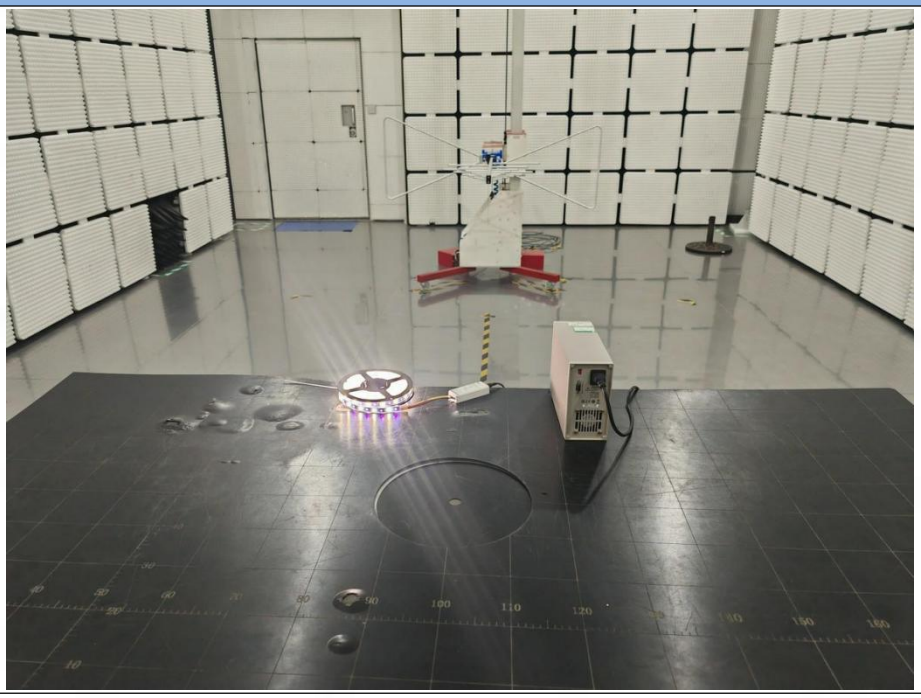
6 Test Setup Photos

Conducted emissions on AC mains


Radiated emissions (Below 1GHz)


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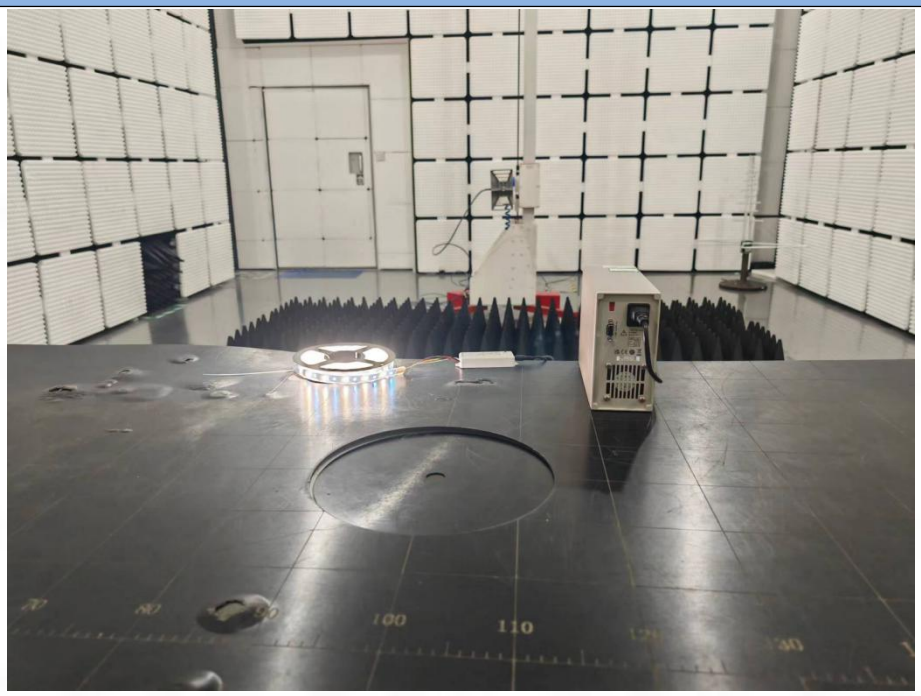
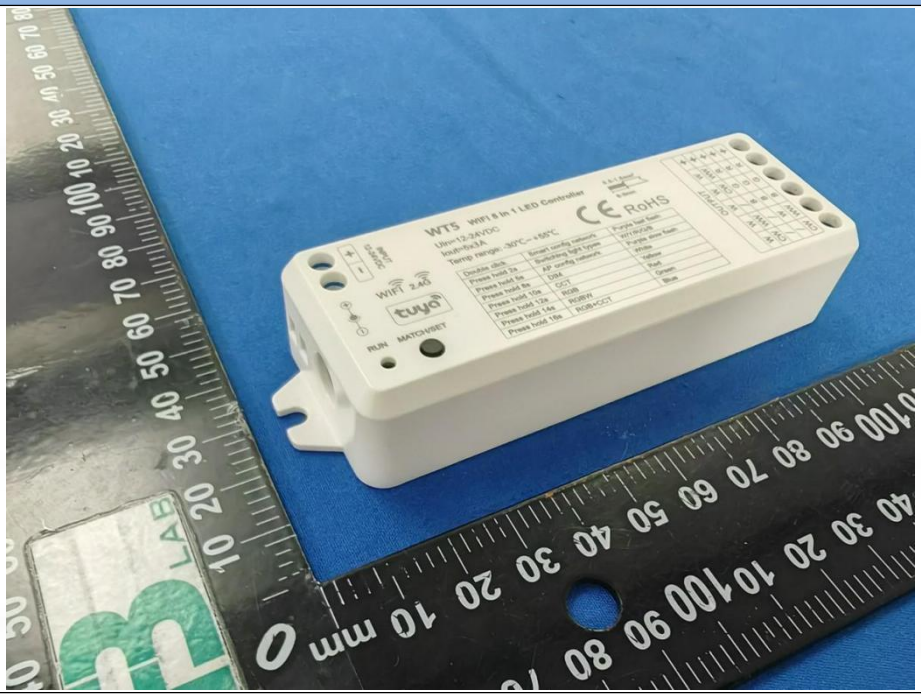
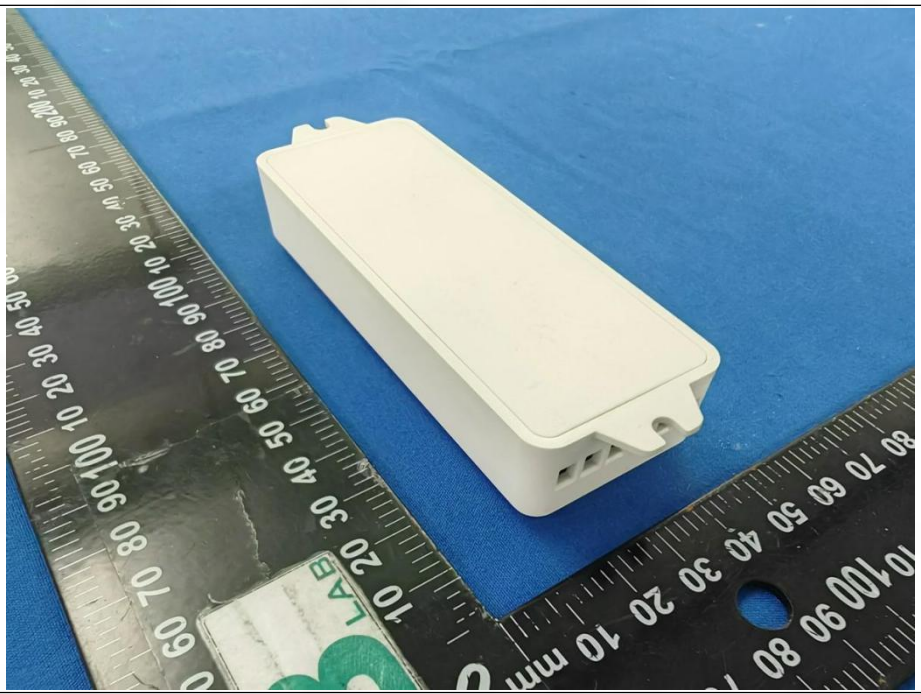
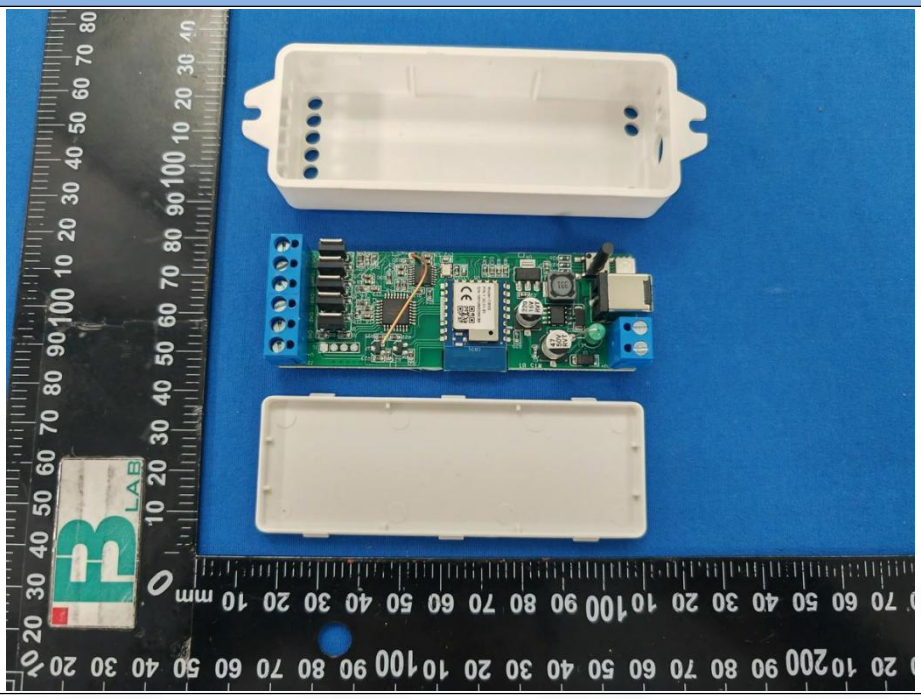
Radiated emissions (Above 1GHz)


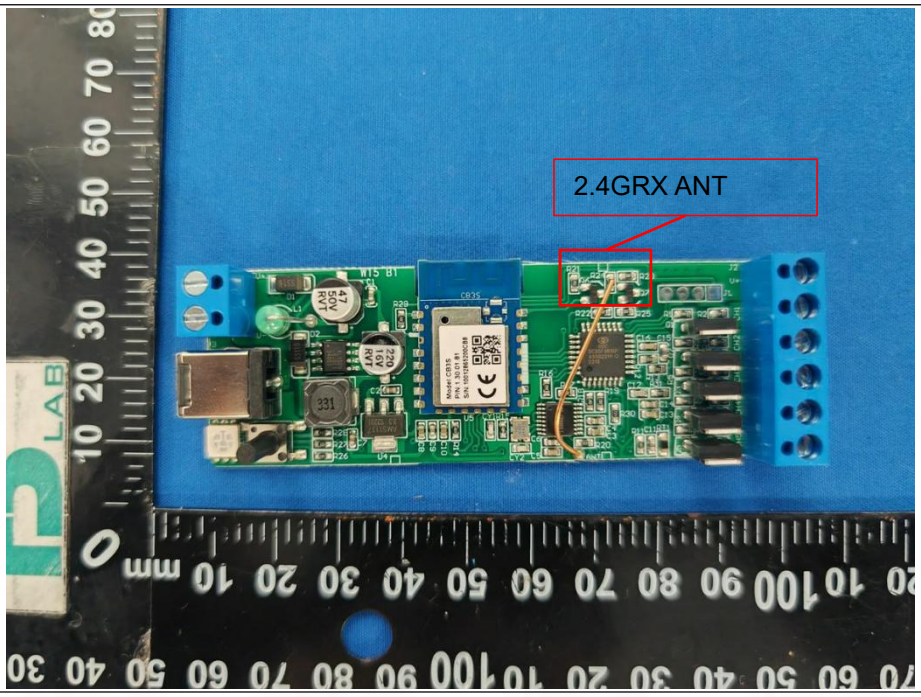
7 EUT Constructional Details (EUT Photos)

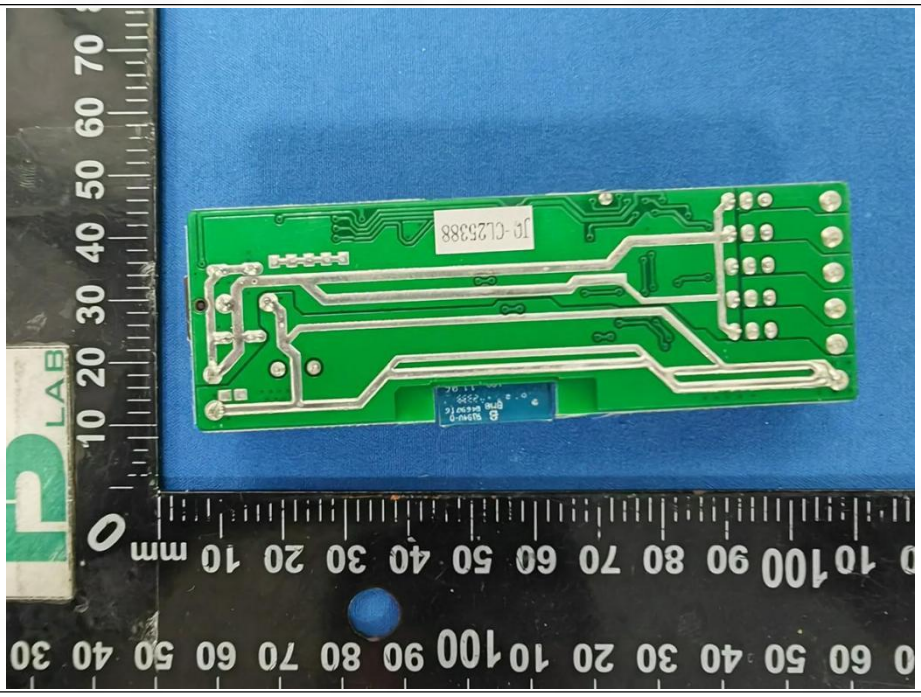
External




WT5 WIFI 5 in 1 LED Controller
Uin=12-24VDC
Iout=5x3A
Temp range: -30℃~+55℃
RoHS
WIFI 2.4G
tuya
RUN
MATCH/SET
OUTPUT

Internal




2.4GRX ANT



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-- END OF REPORT --

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