



FCC TEST REPORT

FCC ID:2A745-T-200X

Report Reference No..... : ZKT-240815L9974E

Date of issue..... : Aug. 14, 2024

Testing Laboratory..... : Shenzhen ZKT Technology Co., Ltd.

Address..... : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

Applicant's name..... : Zhongshan Taozuo Electrical Technology Co., Ltd.

Address..... : 3 / F, Building 4, No. 22, Fuqing 4th Road, Henglan Town,Zhongshan City

Test specification:

Standards..... : 47CFR Part 15 Subpart B
ANSI C63.4:2014

Test procedure..... : N/A

Non-standard test method..... : N/A

Test Report Form No..... : --

Test Report Form(s) Originator..... : ZKT Testing

Master TRF..... : Dated: 2017-06

This test report is specially limited to the above client company and product model only. It may not be duplicated without prior written consent of ZKT Test.

Test item description..... : LED GARAGE LIGHT

Trade Mark..... : /

Manufacturer..... : Zhongshan Taozuo Electrical Technology Co., Ltd.

3 / F, Building 4, No. 22, Fuqing 4th Road, Henglan Town,Zhongshan City

Model/Type reference..... : T-200X

T-260X, T-180X, T-160X, T-120X, T-100X, T-280X, T-300X,
T-60, T-80, T-100, T-120, T-140, T-160, T-180, T-200, T-220,
T-250, CKF12

Model Difference..... : X01 is tested model, other models are derivative models .The models are identical in circuit, only different on the model names. So the test data of X01 can represent the remaining models.

Ratings..... : Input: AC85-265V, 50/60Hz, 42W



Testing procedure and testing location:

Testing Laboratory.....: **Shenzhen ZKT Technology Co., Ltd.**

Address.....: 1/F, No. 101, Building B, No. 6, Tangwei Community
Industrial Avenue, Fuhai Street, Bao'an District,
Shenzhen, China

Date of Test.....: July 15, 2024 - Aug. 14, 2024

Tested by (name + signature).....: Jim Liu

Jim Liu

Reviewer (name + signature).....: Tom Zou

Tom Zou

Approved (name + signature).....: Lake Xie





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1. Revision History

Report No.	Issue Date	Description	Approved
ZKT-240815L9974E	Aug. 14, 2024	Original	Valid



2. Test Summary

Emission			
Requirement - Test	Test Method	Limit	Result
Conducted Emission	47CFR Part 15 Subpart B ANSI C63.4:2014	Class B	PASS
Radiated Emission	47CFR Part 15 Subpart B ANSI C63.4:2014	Class B	PASS

Remark: N/A is abbreviation for Not Applicable.



3. General Information

3.1. Description of EUT

Product:	LED GARAGE LIGHT
Model Name:	T-200X
Normal Testing Voltage:	AC 120 V/ 60 Hz
DC Line	/
I/O Ports	Refer to User Manual
Highest Frequency Generated	Below 108 MHz

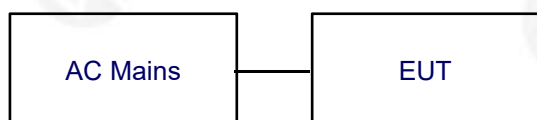
Note:

1) Other Accessory Device List and Details

Description	Manufacturer	Model	Note

2) The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3.2. Block diagram of EUT configuration





3.3. Test Mode

Pretest mode	Mode 1: Light up mode		
Worst-case Test mode	Conducted Emission		Mode 1
	Radiated Emission	Below 1 GHz	Mode 1
		Above 1 GHz	N/A

* Only the Worst-case test mode is shown in the report

3.4. Test Site Environment

Test Item	Required (IEC 60068-1)		Actual
Conducted Emission	Temperature (°C)	15-35	23.8
	Humidity (%RH)	25-75	53.5
	Barometric pressure (mbar)	860-1060	1014
Radiated Emission	Temperature (°C)	15-35	24.0
	Humidity (%RH)	25-75	54
	Barometric pressure (mbar)	860-1060	1014



4. Facilities

4.1. Test Facility

Test site 1: Shenzhen ZKT Technology Co., Ltd.

1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Registration Number:255941

Designation Number: CN0325

IC Registered No.: 29832

CAB identifier: CN0143

4.2. Test Instruments

Conducted emissions Test

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	N/A	Nov. 14, 2023	Nov. 13, 2024
2	LISN	CYBERTEK	EM5040A	E1850400149	N/A	Nov. 02, 2023	Nov. 01, 2024
3	Test Cable	N/A	C-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
4	Test Cable	N/A	C-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
5	Test Cable	N/A	C-03	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
6	EMI Test Receiver	R&S	ESCI3	101393	4.42 SP3	Nov. 02, 2023	Nov. 01, 2024
9	EMC Software	Frad	EZ-EMC	Ver.EMC-CO N 3A1.1	N/A	\	\



Radiation emissions& Radio Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	100969	4.32	Nov. 02, 2023	Nov. 01, 2024
2	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	N/A	N/A	Nov. 13, 2023	Nov. 12, 2024
3	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	N/A	Nov. 13, 2023	Nov. 12, 2024
4	Loop Antenna	TESEQ	HLA6121	58357	N/A	Nov. 16, 2023	Nov. 15, 2024
5	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	60747	N/A	Nov. 02, 2023	Nov. 01, 2024
6	Amplifier (1GHz-26.5GHz)	HuiPu	8449B	3008A00315	N/A	Nov. 02, 2023	Nov. 01, 2024
7	Test Cable	N/A	R-01	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
8	Test Cable	N/A	R-02	N/A	N/A	Nov. 02, 2023	Nov. 01, 2024
9	ESG Signal Generator	Agilent	E4421B	N/A	B.03.84	Nov. 02, 2023	Nov. 01, 2024
10	Signal Generator	Agilent	N5182A	N/A	A.01.87	Nov. 02, 2023	Nov. 01, 2024
11	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	N/A	\	\
12	Turntable	MF	MF-7802BS	N/A	N/A	\	\
13	Antenna tower	MF	MF-7802BS	N/A	N/A	\	\

4.3. Testing software

Project	Software name	Edition
Conducted Emission	EZ-EMC	EMC-CON 3A1.1+
Radiated Emission	EZ-EMC	FA-03A2 RE+



4.4.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)	2.60
Radiated Emission(30MHz~1GHz)	4.60
Radiated Emission(1GHz~18GHz)	4.30

Decision Rule

- ☒ Uncertainty is not included
☐ Uncertainty is included



5. Emission

5.1. Conducted Emission

5.1.1. Limit

For Class B devices:

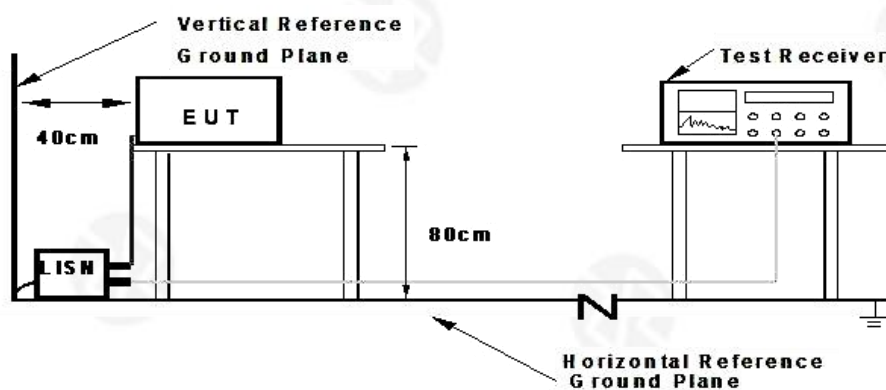
Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

For Class A devices:

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	79	66
0.5-30	73	60

5.1.2. Test setup



Note: 1. Support units were connected to second LISH.

2. Both of LISHs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

The setup of EUT is according with ANSI C63.4 measurement procedure. Specification used with 47CFR Part 15 Subpart B limits.



5.1.3. Test procedure

Measurement was performed in shielded room, and instruments used were followed clause 4 of ANSI C63.4.

Detailed test procedure was following clause 7 of ANSI C63.4.

Frequency range 150kHz – 30MHz was checked and EMI receiver measurement bandwidth was set to 9 kHz.

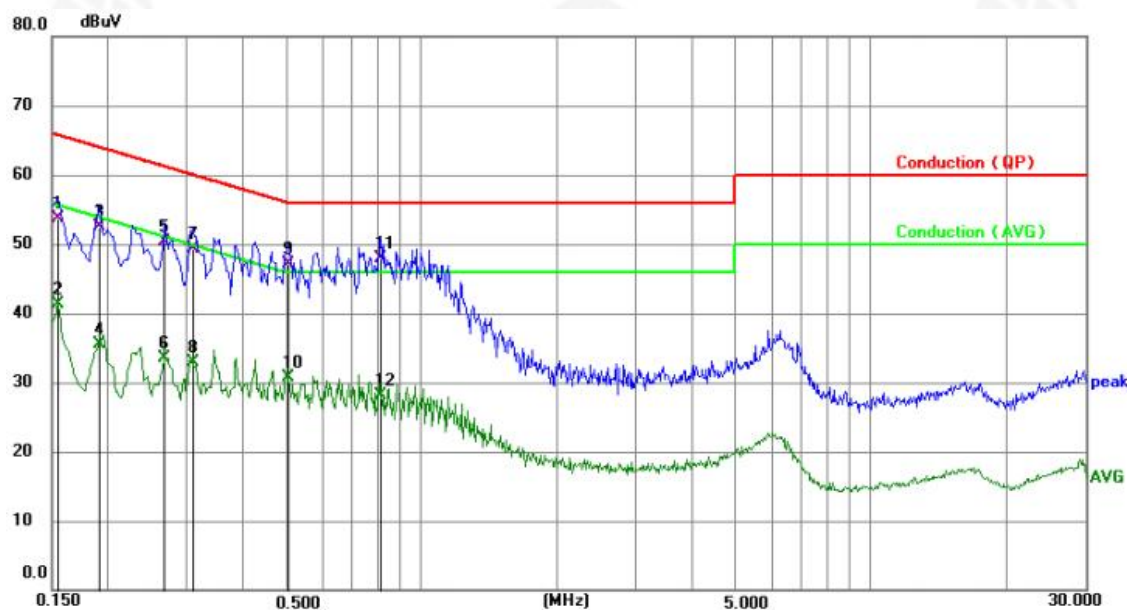
5.1.4. Test results

PASS

Please refer to pages 13 - 14 for data.



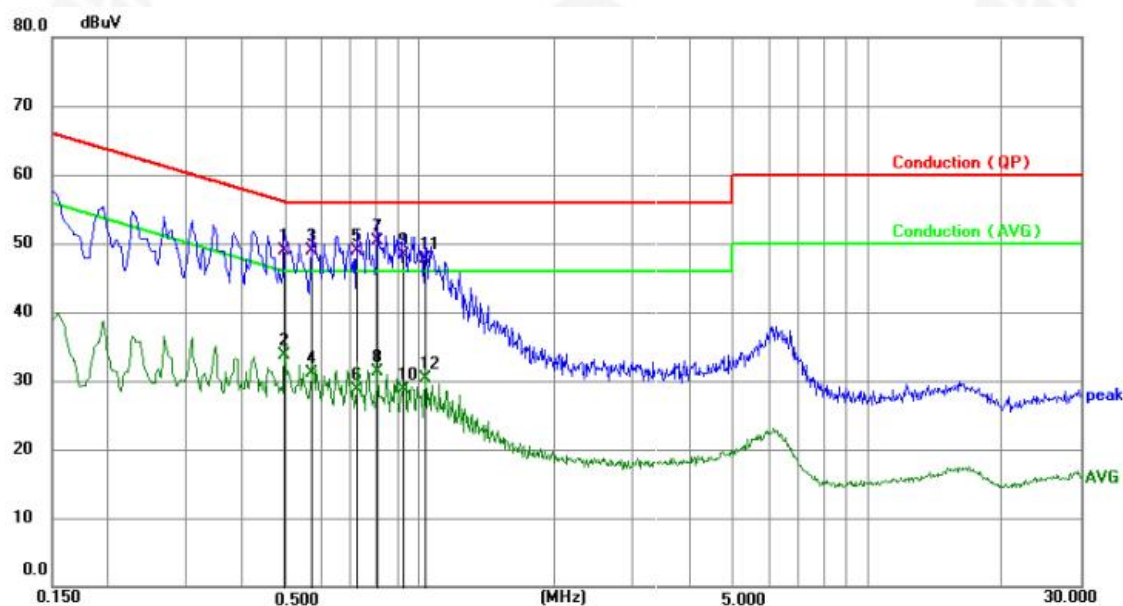
Phase: Live



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1544	43.76	9.89	53.65	65.76	-12.11	QP
2	0.1544	31.37	9.89	41.26	55.76	-14.50	AVG
3	0.1905	42.64	9.91	52.55	64.01	-11.46	QP
4	0.1905	25.57	9.91	35.48	54.01	-18.53	AVG
5	0.2670	40.27	9.94	50.21	61.21	-11.00	QP
6	0.2670	23.64	9.94	33.58	51.21	-17.63	AVG
7	0.3074	39.43	9.95	49.38	60.04	-10.66	QP
8	0.3074	22.86	9.95	32.81	50.04	-17.23	AVG
9	0.5054	37.11	10.02	47.13	56.00	-8.87	QP
10	0.5054	20.66	10.02	30.68	46.00	-15.32	AVG
11 *	0.8114	37.94	10.04	47.98	56.00	-8.02	QP
12	0.8114	18.02	10.04	28.06	46.00	-17.94	AVG



Phase: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.4965	38.85	10.02	48.87	56.06	-7.19	QP
2	0.4965	23.64	10.02	33.66	46.06	-12.40	AVG
3	0.5730	38.78	10.03	48.81	56.00	-7.19	QP
4	0.5730	21.06	10.03	31.09	46.00	-14.91	AVG
5	0.7215	38.85	10.04	48.89	56.00	-7.11	QP
6	0.7215	18.59	10.04	28.63	46.00	-17.37	AVG
7 *	0.8070	40.32	10.04	50.36	56.00	-5.64	QP
8	0.8070	21.23	10.04	31.27	46.00	-14.73	AVG
9	0.9195	38.29	10.05	48.34	56.00	-7.66	QP
10	0.9195	18.56	10.05	28.61	46.00	-17.39	AVG
11	1.0275	37.60	10.06	47.66	56.00	-8.34	QP
12	1.0275	20.25	10.06	30.31	46.00	-15.69	AVG

Note: Level=Reading + Factor

Margin=Level – Limit



5.2. Radiated emissions

5.2.1. Limit

For Class B devices (at 3m):

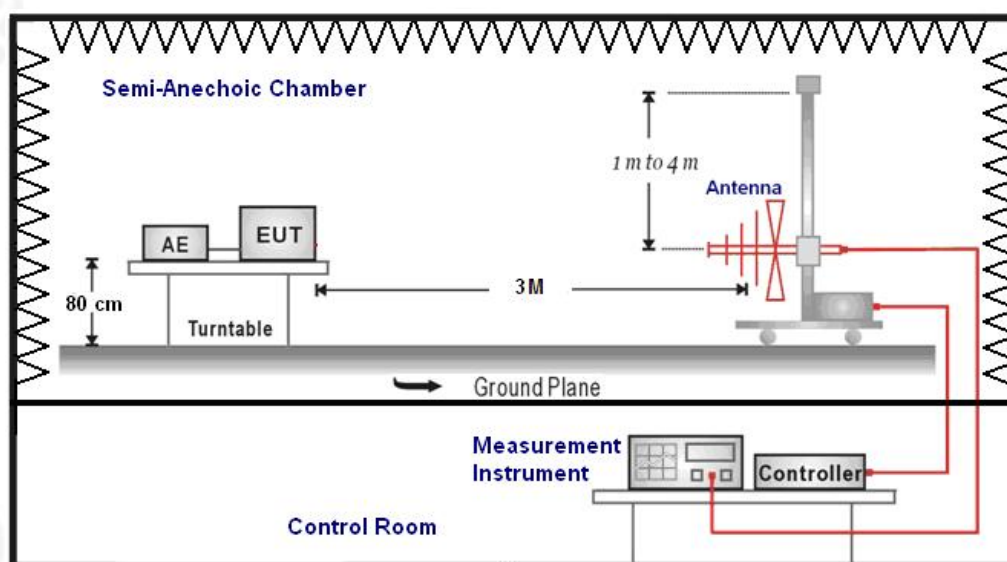
Frequency of emission (MHz)	(microvolts/meter)	(dB μ V/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

For Class A devices (at 10m):

Frequency of emission (MHz)	(microvolts/meter)	(dB μ V/m)
30-88	90	39
88-216	150	43.5
216-960	210	46.4
Above 960	300	49.5

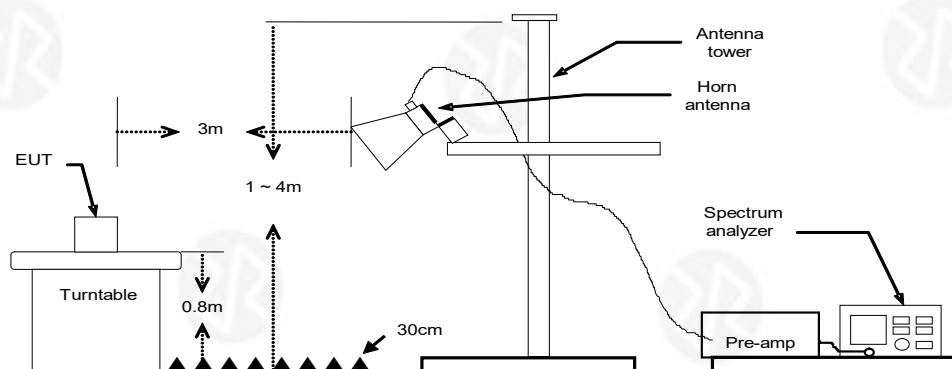
5.2.2. Test setup

Radiated Emission Test Set-Up Frequency Below 1 GHz





Radiated Emission Test Set-Up Frequency Above 1GHz



The radiated tests were performed in semi-anechoic(3m) test site, using the setup accordance with the ANSI C63.4:2014.

5.2.3. EMI Test Receiver Setup and Spectrum Analyzer Setup

During the radiated emission test, the EMI test receiver and Spectrum Analyzer were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz-1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1 MHz	3 MHz	/	AVG

5.2.4. Test procedure

The measurement was performed in a 3m semi-anechoic chamber, and instruments used were followed clause 4 of ANSI C63.4.

Detailed test procedure was following clause 8 of ANSI C63.4.

Note: for the measurement distance other than 3m and 10m, the limit is varied according to 20dB/10 decades.

5.2.5. Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

5.2.6. Test results

PASS

Please refer to pages 17 - 18 for data.



Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	53.6931	37.97	-9.15	28.82	40.00	-11.18	QP
2	112.5242	44.87	-12.22	32.65	43.50	-10.85	QP
3	179.3863	45.57	-12.37	33.20	43.50	-10.30	QP
4	502.9395	39.07	-4.03	35.04	46.00	-10.96	QP
5 *	645.1194	39.19	-1.54	37.65	46.00	-8.35	QP
6	677.5797	36.60	-1.00	35.60	46.00	-10.40	QP



Polarization: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	177.5089	44.40	-12.47	31.93	43.50	-11.57	QP
2	260.1444	41.33	-8.86	32.47	46.00	-13.53	QP
3	400.4318	39.17	-5.75	33.42	46.00	-12.58	QP
4	432.5455	37.33	-5.22	32.11	46.00	-13.89	QP
5	499.4245	35.70	-4.09	31.61	46.00	-14.39	QP
6	737.0711	32.73	-0.16	32.57	46.00	-13.43	QP

Note: Level=Reading + Factor
Margin=Level – Limit



6. Photographs of EUT

Reference to the appendix I for details.



7. Test Setup Photographs

Reference to the appendix II for details.

End of report