

# Xiamen Topstar Co., Ltd.

## MPE ASSESSMENT REPORT

**Report Type:**

FCCC MPE assessment report

**Model:**

TSE240V/32AUS-H01R002, TSE240V/40AUS-H01R002,  
TSE240V/48AUS-H01R002, TSE240V/32AUS-C01R001,  
TSE240V/40AUS-C01R001, TSE240V/48AUS-C01R001,  
TSE240V/32AUS-C01R002, TSE240V/40AUS-C01R002,  
TSE240V/48AUS-C01R002

**REPORT NUMBER:**

221100385SHA-002

**ISSUE DATE:**

January 6, 2023

**DOCUMENT CONTROL NUMBER:**

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**Applicant:** Xiamen Topstar Co.,Ltd  
No.696 Meixi Road, Tong'an District, Xiamen City, Fujian Province, P.R.China

**Manufacturer:** Xiamen Topstar Lighting Co.,Ltd  
676 Meixi Avenue, Tong'an District, Xiamen, China

**Factory:** Xiamen Topstar Lighting Co.,Ltd  
676 Meixi Avenue, Tong'an District, Xiamen, China

**FCC ID:** 2A9FM-TSE240VAUS

**SUMMARY:**

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06  
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

**PREPARED BY:**

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Project Engineer  
Sky Yang

**REVIEWED BY:**

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Reviewer  
Eric Li

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**TEST REPORT****Revision History**

Report No.	Version	Description	Issued Date
221100385SHA-002	Rev. 01	Initial issue of report	January 6, 2023

**TEST REPORT**

## 1 GENERAL INFORMATION

### 1.1 Description of Equipment Under Test (EUT)

Product name:	Electric Vehicle AC Charging Station
Type/Model:	TSE240V/32AUS-H01R002, TSE240V/40AUS-H01R002, TSE240V/48AUS-H01R002, TSE240V/32AUS-C01R001, TSE240V/40AUS-C01R001, TSE240V/48AUS-C01R001, TSE240V/32AUS-C01R002, TSE240V/40AUS-C01R002, TSE240V/48AUS-C01R002
Description of EUT:	The EUT is Electric Vehicle AC Charger with RFID Function, it supports WIFI, Bluetooth and LTE function, the wireless module FCC ID is 2AC7Z-ESPC3WROOM and XMR201909EC25AFX, the wireless module IC is 21098-ESPC3WROOM and 10224A-2019EC25AFX. Same components used in those models except for output current. Home Edition model: TSE240V/32AUS-H01R002, TSE240V/40AUS-H01R002, TSE240V/48AUS-H01R002 with WIFI, BLE and RFID. Business Edition model: TSE240V/32AUS-C01R001, TSE240V/32AUS-C01R001, TSE240V/48AUS-C01R001 with WIFI, BLE, RFID and 4G; TSE240V/32AUS-C01R002, TSE240V/40AUS-C01R002, TSE240V/48AUS-C01R002 with WIFI, BLE, RFID. So choose TSE240V/48AUS-C01R001 to test as representative.
Rating:	TSE240V/32AUS-H01R002, TSE240V/32AUS-C01R001, TSE240V/32AUS-C01R002:208-240VAC, 60Hz, 32A, 7.6kW TSE240V/40AUS-H01R002, TSE240V/40AUS-C01R001, TSE240V/40AUS-C01R002:208-240VAC, 60Hz, 40A, 9.6kW TSE240V/48AUS-H01R002, TSE240V/48AUS-C01R001, TSE240V/48AUS-C01R002:208-240VAC, 60Hz, 48A, 11.5kW
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	V5
Hardware Version:	YX-R1-V100
Serial numbers:	22100801-23-05
Sample received date:	November 4, 2022
Date of test:	November 4, 2022 ~ November 5, 2022

### 1.2 Technical Specification

Frequency Range:	13.56 MHz ~ 13.56 MHz
Modulation:	ASK
Antenna gain:	PCB antenna, 5dBi

**TEST REPORT****1.3 Description of Test Facility**

Name:	Intertek Testing Services Shanghai
Address:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone:	86 21 61278200
Telefax:	86 21 54262353

The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L0139
	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	VCCI Registration Lab Registration No.: R-14243, G-10845, C-14723, T-12252
	A2LA Accreditation Lab Certificate Number: 3309.02

## Sub-contractor

Name:	Shenzhen STS Testing Services Co.,Ltd.
Address:	A 1/F, Building B, Zhuoke Science Park, No.190, Chongqing Road, Heping Shequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guangdong, People's Republic of China
Telephone:	86 755 36886288
The test facility is recognized, certified, or accredited by these organizations:	CNAS Accreditation Lab Registration No. CNAS L7649
	FCC Accredited Lab Designation Number: CN1203
	IC Registration Lab CAB identifier.: CN0086
	A2LA Accreditation Lab Certificate Number: 4338.01

**TEST REPORT****2 MPE Assessment****Test result:** Pass**2.1 MPE Assessment Limit****Mobile device exposure for standalone operations:**

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

Note: Limit for 13.56MHz is 60.77 V/m

Mobile device exposure for simultaneous transmission operations: **the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0**

**TEST REPORT****2.2 Assessment Results**

Power density (S) is calculated according to the formula:

$$S = P / (4\pi R^2)$$

Where S = power density in mW/cm<sup>2</sup>

P = Radiated transmit power in mW

R = distance (cm)

As we can see from the test report 221100385SHA-001:

$$47.96\text{dBuV/m}@3\text{m}, @20\text{cm} = @3\text{m} + 40\log(3/0.2) = 95.00\text{dBuV/m} = 0.056\text{V/m} < 60.77.$$

The power for WIFI modular refers to certificate of FCC ID: 2AC7Z- ESPC3WROOM

The power for LTE modular refers to certificate of FCC ID: XMR201909EC25AFX

The calculations in the table below use the highest gain of antenna for client EUT. These calculations represent worst case in terms of the exposure levels.

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Frequency Range	EIRP		Antenna Gain	R	S	Limits
(MHz)	(dBm)	(mW)	(dBi)	(cm)	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )
WIFI 2.4G	20.82	120.781	3.26	20	0.024	1
Bluetooth	11.78	15.066	3.26	20	0.003	1
LTE	29.00	794.328	4	20	0.158	0.45

Note: 1 mW/cm<sup>2</sup> from 1.310 Table 1.

RFID, WIFI and LTE can transmit simultaneously, so the maximum rate of MPE is,  
0.056/60.77+0.024/1+0.158/0.45=0.376 <1.0.

**TEST REPORT**

**Appendix I**

Definition below must be outlined in the User Manual:

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

\*\*\*\*\*END\*\*\*\*\*