Longhorn Intelligent Tech Co.,Ltd

MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

Model:
ECA-NC3202S-XYZC, ECA-NC4002S-XYZC,
ECA-NC4802S-XYZC

REPORT NUMBER:
220900614SHA-002

ISSUE DATE:
April 17, 2023

DOCUMENT CONTROL NUMBER:
TTRFFCCMPE-01_V1

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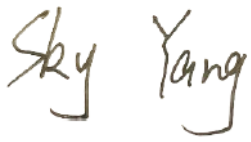
TEST REPORT

Report no.: 220900614SHA-002

Applicant:	Longhorn Intelligent Tech Co.,Ltd Longhorn Hi-Tech Estate, Gongyeyuan Road, Dalang Street, Longhua New District, Shenzhen Guangdong, China
Manufacturer:	Longhorn Intelligent Tech Co.,Ltd Longhorn Hi-Tech Estate, Gongyeyuan Road, Dalang Street, Longhua New District, Shenzhen Guangdong, China
Factory 1:	Sichuan Weiyu Electric Co.,Ltd No.1 Tumenjiang Road, C2# Building, Tianyu Science & Technology Park, Deyang, Sichuan, 618000, China
Factory 2:	Longhorn Intelligent Tech Co.,Ltd 3rd to 5th floors, 5th Plant, Zhonghai Science and Technology (Huizhou) Park, Western Zone, Dayawan, Huizhou City, Guangdong, China
FCC ID:	2APP2-LHECA

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:	**REVIEWED BY:**
	
Project Engineer Sky Yang	Reviewer Eric Li

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Revision History

Report No.	Version	Description	Issued Date
220900614SHA-002	Rev. 01	Initial issue of report	April 17, 2023

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TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	EV Charger
Type/Model:	ECA-NC3202S-XYZC, ECA-NC4002S-XYZC, ECA-NC4802S-XYZC "X" denotes basic communication function like LAN, WIFI, BLE and 4G, can be A to Z; "Y" denotes additional communication function like CAN, RS485, PLC and USB, can be A to Z; "Z" denotes whether there are touch button and electricity meter, can be 0 to 9; "C" denotes front shell color, can be 0 to 99
Description of EUT:	The EUT is electric vehicle AC charger with RFID function and optional Bluetooth, WIFI, LTE function. The wireless module FCC ID is XMR201909EC25AFX, 2AQV6RABBIT and 2AHMR-BW16. All models are electrically identical except the rated output power. We choose the ECA-NC4802S-AA17(full function) to test as representative and list the results in this report.
Rating:	Input: 208/240VAC, 50/60Hz Output: ECA-NC3202S-XYZC: 208/240VAC, 50/60Hz, 32A ECA-NC4002S-XYZC: 208/240VAC, 50/60Hz, 40A ECA-NC4802S-XYZC: 208/240VAC, 50/60Hz, 48A
EUT type:	☒ Table top ☐ Floor standing
Software Version:	-
Hardware Version:	-
Serial numbers:	0230116-24-001
Sample received date:	January 29, 2023
Date of test:	January 30, 2023 ~ February 17, 2023

1.2 Technical Specification

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

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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 Member No.: 3598 (Registration No.: R-14243, G-10845, C-14723, T-12252)
	A2LA Accreditation Lab Certificate Number: 3309.02

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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^2)	Averaging time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	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**

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^2

P = Radiated transmit power in mW

R = distance (cm)

As we can see from the test report 220900614SHA-001:
62.25dBuV/m@3m, @20cm=@3m+40log(3/0.2)=109.29dBuV/m=0.29V/m<60.77.

The power for Bluetooth module refers to certificate of FCC ID: 2AQV6RABBIT
The power for WIFI module refers to certificate of FCC ID: 2AHMR-BW16
The power for LTE module 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/cm2)	(mW/cm2)
Bluetooth	7.59	5.74	-0.41	20	0.00114	1
WIFI 5G	18	63.10	2	20	0.0126	1
WIFI 2.4G	20	100.00	2	20	0.0199	1
LTE	29.00	794.328	4	20	0.158	0.45

Note: 1 mW/cm2 from 1.310 Table 1.

RFID, WIFI and LTE can transmit simultaneously, so the maximum rate of MPE is,
0.29/60.77+0.00114/1+0.0199/1+0.158/0.45=0.377 <1.0.

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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**********