

Longhorn Intelligent Tech Co.,Ltd

MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

Model:
ECA-NH1606S-***#, ECA-NH3206S-***#,
ECA-NH4006S-***#, ECA-NH4806S-***#

REPORT NUMBER:
231200949SHA-002

ISSUE DATE:
May 14, 2024

DOCUMENT CONTROL NUMBER:
TTRFFCCMPE-01_V1 © 2018 Intertek



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: Longhorn Intelligent Tech Co.,Ltd
Floor 2-3, Emerging Industrial Park Factory Building, No. 72, Longhai Third Road, Xiqu, Dayawan District, Huizhou, Guangdong, China

FCC ID: 2APP2-LHEHA

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

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Revision History

Report No.	Version	Description	Issued Date
231200949SHA-002	Rev. 01	Initial issue of report	May 14, 2024

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	EV Charger
Type/Model:	ECA-NH1606S-***#, ECA-NH3206S-***#, ECA-NH4006S-***#, ECA-NH4806S-***# The first two symbol "***" denotes communication function like RS485, can be AA to ZZ; The third symbol "#" denotes power input wire type, can be 0 to 9; The fourth symbol "#" denotes front shell color, can be 0 to 99
Description of EUT:	The EUT is electric vehicle AC charger with RFID function and Bluetooth, WIFI, LTE function. The wireless module FCC ID is XMR202008EC25AFXD, 2AFOS-WT32C3-SX and 2ANDL-CBU. All models are electrically identical except the rated output power.
Rating:	ECA-NH1606S-***#: 120/208/240VAC, 60Hz, 16A Max ECA-NH3206S-***#: 208/240VAC, 60Hz, 32A Max ECA-NH4006S-***#: 208/240VAC, 60Hz, 40A Max ECA-NH4806S-***#: 208/240VAC, 60Hz, 48A Max
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	-
Hardware Version:	-
Serial numbers:	0231031-24-001
Sample received date:	October 31, 2023
Date of test:	November 1, 2023 ~ May 14, 2024

1.2 Technical Specification

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

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

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/f ²)	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:

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

Where S = power density in mW/cm²

P = Power in mW

G = numeric gain of transmit antenna

R = distance (cm)

As we can see from the test report 231200949SHA-001:

$$66.5\text{dBuV/m}@3\text{m}, @20\text{cm}=@3\text{m}+40\log(3/0.2)=113.54\text{dBuV/m}=0.475\text{V/m}<60.77.$$

The power for WIFI/Bluetooth module refers to certificate of FCC ID: 2ANDL-CBU and 2AFOS-WT32C3-SX

The power for LTE module refers to certificate of FCC ID: XMR202008EC25AFXD

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.

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.

Module	Frequency Range	P		G		R	S	Limits
	(MHz)	(dBm)	(mW)	(dBi)	(numeric)	(cm)	(mW/cm ²)	(mW/cm ²)
2ANDL-CBU	Bluetooth LE	18	63.10	2.21	1.663	20	0.0209	1
	WIFI 2.4G	7	5.01	2.21	1.663	20	0.00166	1
2AFOS-WT32C3-SX	Bluetooth LE(1M)	5	3.16	2	1.585	20	0.000996	1
	Bluetooth LE(2M)	1	1.26	2	1.585	20	0.000397	1
	WIFI 2.4G	19	79.43	2	1.585	20	0.025	1
XMR202008EC25AFXD	WCDMA Band II	25	316.23	4	2.512	20	0.158	1
	WCDMA Band IV	25	316.23	4	2.512	20	0.158	1
	WCDMA Band V	25	316.23	4	2.512	20	0.158	0.549
	LTE Band 2	25	316.23	4	2.512	20	0.158	1
	LTE Band 4	25	316.23	4	2.512	20	0.158	1
	LTE Band 5	25	316.23	4	2.512	20	0.158	0.549
	LTE Band 12	25	316.23	4	2.512	20	0.158	0.466
	LTE Band 13	25	316.23	4	2.512	20	0.158	0.518
	LTE Band 14	25	316.23	4	2.512	20	0.158	0.525
	LTE Band66	25	316.23	4	2.512	20	0.158	1
LTE Band 71	25	316.23	4	2.512	20	0.158	0.442	

Note: 1 mW/cm² from 1.310 Table 1.

RFID and all modules can transmit simultaneously, so the maximum rate of MPE is, 0.475/60.77+0.0209/1+0.025/1+0.158/0.45=0.405 <1.0.

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*****