

Nanjing PowerCore Technology Co., Ltd.

MPE ASSESSMENT REPORT

Report Type:

FCCC MPE assessment report

Model:

NKR-AC002

REPORT NUMBER:

220302566SHA-002

ISSUE DATE:

April 21, 2023

DOCUMENT CONTROL NUMBER:

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FCC ID: 2A98K-AC002

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
220302566SHA-002	Rev. 01	Initial issue of report	April 21, 2023

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	AC Electric Vehicle Charging Station
Type/Model:	NKR-AC002
Description of EUT:	The EUT is electric vehicle AC charger with RFID, WIFI and LTE function. The wireless module FCC ID is 2AC7Z-ESPWROOM32UE and XMR201903EG25G.
Rating:	Input: 240VAC $\pm$ 10%, 60Hz Output: 240V $\pm$ 10%, Max 48A*2
EUT type:	☐ Table top ☒ Floor standing
Software Version:	-
Hardware Version:	-
Serial numbers:	0230303-29
Sample received date:	March 13, 2023
Date of test:	March 20, 2023 ~ March 24, 2023

1.2 Technical Specification

Frequency Range:	13.56 MHz ~ 13.56 MHz
Modulation:	ASK
Antenna:	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:

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

Where S = power density in mW/cm²

P = Radiated transmit power in mW

R = distance (cm)

As we can see from the test report 220302566SHA-001:

$$52.9\text{dBuV/m}@3\text{m}, @20\text{cm}=@3\text{m}+40\log(3/0.2)=99.94\text{dBuV/m}=0.099\text{V/m}<60.77.$$

The power for WIFI module refers to certificate of FCC ID: 2AC7Z- ESPWROOM32UE

The power for LTE module refers to certificate of FCC ID: XMR201903EG25G

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 ²)	(mW/cm ²)
WIFI 2.4G	19.92	98.18	4	20	0.0195	1
LTE	29.00	794.328	4	20	0.158	0.45

Note: 1 mW/cm² from 1.310 Table 1.

RFID, LTE and WIFI can transmit simultaneously, so the maximum rate of MPE is,
 $0.099/60.77+0.0195/1+0.158/0.45=0.372 < 1.0$.

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*****