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Powercore Technology Co., Ltd.
MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

MODEL:
Kern-C130, Kern-C130(NACS30), Kern-NACS30,
Kern-C130(C130), Kern-NACS30(NACS30),
Kern-C140, Kern-C140(NACS40), Kern-NACS40,
Kern-C140(C140), Kern-NACS40(NACS40)

REPORT NUMBER:
250100109SHA-002

ISSUE DATE:
February 7, 2025

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Report no.: 250100109SHA-002

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Applicant:	Powercore Technology Co., Ltd. 4th Floor, Jiangsu Science and Technology Finance Building, No.21 Andemen Street, Yuhuatai District, Nanjing City, Jiangsu Province, P.R. China
Manufacturer:	Powercore Technology Co., Ltd. 4th Floor, Jiangsu Science and Technology Finance Building, No.21 Andemen Street, Yuhuatai District, Nanjing City, Jiangsu Province, P.R. China
Factory:	Powercore Technology Co., Ltd. Zone A, No.1 Yuansi Road, Jiangbei New District, Nanjing City, Jiangsu Province, P.R. China
FCC ID:	2A98K-KERN

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:**

Sky Yang

Eric Li

Project Engineer
Sky Yang

Reviewer
Eric Li

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Revision History

Report No.	Version	Description	Issued Date
250100109SHA-002	Rev. 01	Initial issue of report	February 7, 2025

TEST REPORT

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	DC Electric Vehicle Charging Station
Type/Model:	Kern-C130, Kern-C130(NACS30), Kern-NACS30, Kern-C130(C130), Kern-NACS30(NACS30), Kern-C140, Kern-C140(NACS40), Kern-NACS40, Kern-C140(C140), Kern-NACS40(NACS40)
Description of EUT:	The EUT is an electric vehicle DC charging station. EUT contains two certified wireless modules, the FCC ID is 2AL6KBL-M8821CS1 and XMR201903EG25G, the IC is 20944-BLM8821CS1 and 10224A-201903EG25G. All models are electrically identical except output connector and rated power. Kern-C130 and Kern-C140 have one CCS1 output connector, Kern-NACS30 and Kern-NACS40 has one NACS output connector, Kern-C130(C130) and Kern-C140(C140) have two CCS1 output connectors, Kern-NACS30(NACS30) and Kern-NACS40(NACS40) have two NACS output connectors, Kern-C130(NACS30) and Kern-C140(NACS40) have one CCS1 output connector and one NACS output connector.

Rating:	Kern-C130, Kern-C130(NACS30), Kern-NACS30, Kern-C130(C130), Kern-NACS30(NACS30): Input: 480VAC±10%, 50/60Hz, 38A
	                    Output: 150-1000VDC, 80A Max, 30kW Max
	Kern-C140, Kern-C140(NACS40), Kern-NACS40, Kern-C140(C140), Kern-NACS40(NACS40): Input: 480VAC±10%, 50/60Hz, 51A
	                    Output: 150-1000VDC, 100A Max, 40kW Max

Category of EUT:	Class A
EUT type:	☐ Table top ☒ Floor standing
Software Version:	-
Hardware Version:	-
Serial numbers:	A241230-36
Sample received date:	December 30, 2024
Date of test:	January 2, 2025 ~ January 6, 2025

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 FTZ) Co., Ltd.
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 L21189
	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/cm2)	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: f = frequency in MHz. * = Plane-wave equivalent power density.

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**

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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/cm^2

      P = Power in mW

      G = numeric gain of transmit antenna

      R = distance (cm)

Limit for 13.56MHz is 60.77 V/m

As we can see from the test report 250100109SHA-001:

62.3dBuV/m@3m, @20cm=@3m+40log(3/0.2)=109.344dBuV/m=0.293V/m<60.77.

The power for WIFI module refers to certificate of FCC ID: 2AL6KBL-M8821CS1

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.

Frequency Range (MHz)	P		G		R (cm)	S (mW/cm2)	Limits (mW/cm2)
	(dBm)	(mW)	(dBi)	(numeric)			
2.4G WLAN	13.00	19.95	2.00	1.58	20	0.0063	1.0000
5.2G WLAN	12.00	15.85	2.00	1.58	20	0.0050	1.0000
5.8G WLAN	10.00	10.00	2.00	1.58	20	0.0032	1.0000
BT	5.00	3.16	2.00	1.58	20	0.0010	1.0000
BLE	4.00	2.51	2.00	1.58	20	0.0008	1.0000
GSM850	25.81	381.07	4.50	2.82	20	0.2138	0.5495
GSM1900	22.81	190.99	4.50	2.82	20	0.1071	1.0000
WCDMA Band II	25.00	316.23	4.50	2.82	20	0.1774	1.0000
WCDMA Band IV	25.00	316.23	4.50	2.82	20	0.1774	1.0000
WCDMA Band V	25.00	316.23	4.50	2.82	20	0.1774	0.5509
LTE Band 2	25.00	316.23	4.50	2.82	20	0.1774	1.0000
LTE Band 4	25.00	316.23	4.50	2.82	20	0.1774	1.0000
LTE Band 5	25.00	316.23	4.50	2.82	20	0.1774	0.5498
LTE Band 7	25.00	316.23	4.50	2.82	20	0.1774	1.0000
LTE Band 12	25.00	316.23	4.50	2.82	20	0.1774	0.4665
LTE Band 13	25.00	316.23	4.50	2.82	20	0.1774	0.5197
LTE Band 25	25.00	316.23	4.50	2.82	20	0.1774	1.0000
LTE Band 26(814-824)	25.00	316.23	4.50	2.82	20	0.1774	0.5431
LTE Band 26(824-849)	25.00	316.23	4.50	2.82	20	0.1774	0.5498
LTE Band 38	25.00	316.23	4.50	2.82	20	0.1774	1.0000
LTE Band 41	25.00	316.23	4.50	2.82	20	0.1774	1.0000

Note: 1 mW/cm2 from 1.310 Table 1.

RFID, LTE and WIFI/Bluetooth can transmit simultaneously, so the maximum rate of MPE is,

0.293/60.77+0.0063/1+0.2138/0.5495=0.400 <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**************************************