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Zhejiang Lera New Energy Power Technology Co., Ltd

MPE ASSESSMENT REPORT

Report Type:
FCC MPE assessment report

Model:
Eclair 1000

REPORT NUMBER:
231000829HAN-003

ISSUE DATE:
March 19, 2024

DOCUMENT CONTROL NUMBER:
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TEST REPORT

Report no.: 231000829HAN-003

Applicant:	**Zhejiang Lera New Energy Power Technology Co., Ltd 255 Kesheng Road, Haishu Wangchun Industrial Park Ningbo City, Zhejiang Province, China**
Manufacturer:	**Same as Applicant**
Factory:	**Same as Applicant**
FCC ID:	**2BA8W-B1000**
IC:	**30380-B1000**

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:**
Alex Wu	Wakeyou Wang
Project Engineer	Reviewer

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Revision History

Report No.	Version	Description	Issued Date
231000830HZH-003	Rev. 01	Initial issue of report	March 19, 2024

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1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	Portable Power Pack
Type/Model/PMN/HVIN:	Eclair 1000
Description of EUT:	The product covered by this report is a portable power pack with 120VAC input and 12-45VDC input, and with 120VAC,50/60Hz output, 12.6VDC output, Vehicle adapter output, USB output, U20 output and POGOPIN output. This device is intended to be used indoors only. This device is intended to be stored in a vehicle. This device is not intended for use in a commercial repair facility. The EUT contains the WIFI & Bluetooth RF module.
Rating:	DC input: 12-45VDC, 10A MAX AC input: 120VAC, 50/60Hz, 15A Output: AC output (x4): 120VAC, 50/60Hz, 1800W; total 1800W DC output(x2) and Vehicle adapter output: 12.6VDC, 10A; total 126W USB-A (x2): 5VDC,3A/9VDC,2A/12VDC,1.5A,18W(MAX); total 36W Type-C(x2): 5/9/12/15VDC, 3A; 20VDC, 5A; 100W MAX; total 200W Type-C(x2):5VDC,3A/9VDC,2.22A, 20W MAX; total 40W U20(x2): 80W; total 160W POGOPIN: 20VDC, 4A
EUT type:	☒ Tabletop ☐ Floor standing
Brand name:	/
Sample received date:	November 05, 2023
Date of test:	November 05, 2023~ January 15, 2024

1.2 Technical Specification

Wi-Fi:

Frequency Band:	2400MHz ~ 2483.5MHz
Support Standards:	IEEE 802.11b, IEEE 802.11g, IEEE 802.11n(HT20), IEEE 802.11n(HT40)
Type of Modulation:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT20): OFDM (64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n(HT40): OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Operating Frequency:	2412MHz to 2462MHz for IEEE 802.11b/g/n(HT20) 2422MHz to 2452MHz for IEEE 802.11n(HT40)
Channel Number:	11 Channels for 802.11b, 802.11g and 802.11n(HT20) 7 Channels for 802.11n(HT40)
Channel Separation:	5 MHz
Antenna:	PCB Antenna, 0 dBi Gain

Bluetooth LE:

Frequency Band:	2400MHz ~ 2483.5MHz
Support Standards:	Bluetooth LE 5.0
Type of Modulation:	GFSK
Channel Number:	40
Data Rate:	1Mbps
Channel Separation:	2MHz
Antenna Information:	0 dBi 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:

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (uT)	Equivalent plane wave power density S_{eq} (W/m^2)
0-1 Hz	-	$3,2 \times 10^4$	4×10^4	-
1-8 Hz	10 000	$3,2 \times 10^4/f^2$	$4 \times 10^4/f^2$	-
8-25 Hz	10 000	4 000/f	5 000/f	-
0,025-0,8 kHz	250/f	4/f	5/f	-
0,8-3 kHz	250/f	5	6,25	-
3-150 kHz	87	5	6,25	-
0,15-1 MHz	87	0,73/f	0,92/f	-
1-10 MHz	$87/f^{1/2}$	0,73/f	0,92/f	-
10-400 MHz	28	0,073	0,092	2
400-2 000 MHz	$1,375\ f^{1/2}$	$0,0037\ f^{1/2}$	$0,0046\ f^{1/2}$	f/200
2-300 GHz	61	0,16	0,20	10

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 = Tansmit power in mW
G = numeric gain of transmit antenna
R = distance (cm)

As we can see from the test report 231000829HAN-001 and 231000829HAN-002:

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.

Mode	Frequency band	ERP	P	Antenna Gain	R	S	Limits
	(MHz)	dBm	mW	dBi	(cm)	(mW/cm^2)	(mW/cm^2)
Wi-Fi	2400-2483.5	15.12	32.50	0	20	0.0065	1
BLE	2400-2483.5	0.99	1.26	0	20	0.0003	1

Note: 1 mW/cm2 from 1.310 Table 1

Wi-Fi and BLE can transmit simultaneously, so the maximum rate of MPE is:
0.0065/1 + 0.0003/1 = 0.0068 < 1.0

For the device can support simultaneous transmission, according to 447498 D01 General RF Exposure Guidance v06

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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 **********