

14821530 Canada Inc. (DBA FractalEV)

MPE ASSESSMENT REPORT

Report Type:
IC MPE assessment report

MODEL:
FR-482C1DRNAJ, FR-802C1DRNAJ

REPORT NUMBER:
231200519SHA-004

ISSUE DATE:
March 26, 2024

DOCUMENT CONTROL NUMBER:
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TEST REPORT

Applicant: 14821530 Canada Inc. (DBA FractalEV)
Suite 210 5-420 Erb St. W. Waterloo Ontario N2L6K6 Canada

Manufacturer: 14821530 Canada Inc. (DBA FractalEV)
Suite 210 5-420 Erb St. W. Waterloo Ontario N2L6K6 Canada

Factory: 14821530 Canada Inc. (DBA FractalEV)
Suite 210 5-420 Erb St. W. Waterloo Ontario N2L6K6 Canada

IC: 31974-FR802C1DR

SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

RSS-102: Issue 5 (March 2015)

PREPARED BY:

REVIEWED BY:



Project Engineer
Sky Yang

Reviewer
Eric Li

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Revision History

Report No.	Version	Description	Issued Date
231200519SHA-004	Rev. 01	Initial issue of report	March 26, 2024

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Product name:	EV Charger
Type/Model:	FR-482C1DRNAJ, FR-802C1DRNAJ
Description of EUT:	The EUT is an electric vehicle AC charger.
Rating:	FR-482C1DRNAJ: 208/240VAC, 60Hz, 48A Max FR-802C1DRNAJ: 208/240VAC, 60Hz, 80A Max
EUT type:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Software Version:	-
Hardware Version:	-
Sample received date:	February 21, 2024
Date of test:	February 22, 2024~ March 8, 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 Test Exclusion Limit

Section 2.5.2: Exemption from Routine Evaluation Limits – RF Exposure Evaluation

According to RSS-102 Table 1(RF Field Strength Limits for Devices Used by the General Public)

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

RF exposure evaluation is required if the separation distance between the user and the device's radiating element is >20 cm, except when the device operates as follows:

Frequency (MHz)	EIRP (W)
< 20	≤ 1
≥ 20 and < 48	≤ 22.48/f ^{0.5}
≥ 48 and < 300	≤ 0.6
≥ 300 and < 6000	≤ 1.31 × 10 ⁻² f ^{0.6834}
≥ 6000	≤ 5

Calculated limit according to above table:

Band (MHz)	EIRP (W)
315	≤ 0.668
433.92	≤ 0.831
2400 - 2483.5	≤ 2.675
5150 - 5250	≤ 4.507
5250 - 5350	≤ 4.567
5470-5600 & 5650-5725	≤ 4.697
5725 -5850	≤ 4.845
GSM850	≤ 1.288
GSM1900	≤ 2.239
WCDMA Band II	≤ 2.239
WCDMA Band IV	≤ 2.122
WCDMA Band V	≤ 1.288

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LTE Band 2	≤ 2.239
LTE Band 4	≤ 2.122
LTE Band 5	≤ 1.288
LTE Band 7	≤ 2.751
LTE Band 12	≤ 1.151
LTE Band 13	≤ 1.238
LTE Band 14	≤ 1.250
LTE Band 25	≤ 2.239
LTE Band 26(814 – 824MHz)	≤ 1.278
LTE Band 26(824 – 849MHz)	≤ 1.288
LTE Band 38	≤ 2.803
LTE Band 41	≤ 2.748
LTE Band 66	≤ 2.122
LTE Band 71	≤ 1.110

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2.2 Assessment Results

The fundamental emission is measured as:

☐ Radiated Method:

Maximum EIRP

Device	Field Strength (dBuV/m)	EIRP (mW)
Remote transmitter		

☒ Conducted Method:

The Power Data please refer to the RF Test Report 231200519SHA-002

13.56MHz: 61.0dBuV/m@3m, @20cm=@3m+40log(3/0.2)=108.04dBuV/m

Maximum EIRP

For 13.56MHz: 108.04dBuV/m=0.000085W< 1W.

The power for WIFI module refers to certificate of IC: 21098-ESPS3WROOM1

The power for LTE module refers to report of IC: 10224A-021EG91NAXD

Maximum EIRP:

Device	Conducted Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP (W)	Limit (W)
WIFI 2.4G	20.50	3.26	23.76	0.238	≤ 2.675
BLE	10.00	3.26	13.26	0.021	≤ 2.675
WCDMA Band II	24.00	5.5	29.50	0.891	≤ 2.239
WCDMA Band IV	24.00	5.5	29.50	0.891	≤ 2.122
WCDMA Band V	24.00	5.5	29.50	0.891	≤ 1.288
LTE Band 2	24.50	5.5	30.00	1.000	≤ 2.239
LTE Band 4	24.50	5.5	30.00	1.000	≤ 2.122
LTE Band 5	24.50	5.5	30.00	1.000	≤ 1.288
LTE Band 12	24.50	5.5	30.00	1.000	≤ 1.151
LTE Band 13	24.50	5.5	30.00	1.000	≤ 1.238
LTE Band 25	25.00	5.5	30.50	1.122	≤ 2.239
LTE Band 26(814-824)	25.00	5.5	30.50	1.122	≤ 1.278
LTE Band 26(824-849)	25.00	5.5	30.50	1.122	≤ 1.288

RFID, WIFI and LTE can transmit simultaneously, so the maximum rate of MPE is,
 $0.000085/1+0.238/2.675+1.122/1.278=0.967\leq 1.0$.

Therefore, the MPE requirement is deemed to be satisfied without test.

***** END *****