

RF Exposure Evaluation Report

Report Reference No...... : **MTEB24110291-H**

FCC ID..... : **2BBXG-EVIPOWER248N**

Compiled by

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Supervised by

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Date of issue..... : **Dec.19,2024**

Representative Laboratory Name. : **Shenzhen Most Technology Service Co., Ltd.**

Address..... : No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park,
Nanshan, Shenzhen, Guangdong, China.

Applicant's name..... : **EVIQO TECHNOLOGIES LIMITED**

Address..... : UNIT 2A,17/F, GLENEALY TOWER NO.1 GLENEALY CENTRAL
HONG KONG China

Test specification/ Standard..... : **47 CFR Part 1.1307;47 CFR Part 1.1310**

KDB447498D01 General RF Exposure Guidance v06

TRF Originator..... : Shenzhen Most Technology Service Co., Ltd.

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Test item description.....: Electric Vehicle AC Charger

Trade Mark.....: N/A

Model/Type reference.....: EVIPOWER248N

Listed Models: EVIPOWER2XXN
(XX stands for current, which can be 40,48)

Modulation Type.....: ASK

Operation Frequency.....: 315MHz

Hardware Version.....: V1.0

Software Version.....: UC2-R_ULOS2.0.3

Rating.....: AC 240V/60Hz

Result.....: **PASS**

TEST REPORT

Equipment under Test : Electric Vehicle AC Charger

Model /Type : EVIPOWER248N

Listed Models : EVIPOWER2XXN
(XX stands for current, which can be 40,48)

Remark : Difference in current

Applicant : EVIQUO TECHNOLOGIES LIMITED

Address : UNIT 2A,17/F, GLENEALY TOWER NO.1 GLENEALY CENTRAL
HONG KONG China

Manufacturer : Fuzhou Ulandpower Technology Co., Ltd.

Address : 15/F, Building 1, Manfo Center, High tech Zone, Minhou County,
Fuzhou City, Fujian Province, China, ZIP CODE: 350108

Test Result:	PASS
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2024-12-19	Initial Issue	Alisa Luo

2. SAR Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

2.1.2 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
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

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$ Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.1.3 EUT RF Exposure

For 315MHz wireless:

Field strength=70.53dBuV/m

EIRP =70.53dBuV/m-95.2= -24.67dBm

Channel	EIRP	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
315 MHz	-24.67dBm	±1	-23.67	0.004	0.0000008	0.21	Pass

Note: 1) Refer to report MTEB24050211-R for EUT test Max Conducted average Output Power value.

Note: 2) Pd = (EIRP)/(4* Pi * R²)=(0.004)/(4*3.1416*20²)=0.0000008

Contains FCCID: 2AC7Z-ESPWROOM32UE

EUT RF Exposure Evaluation operations

Test Mode	Frequency Range(MHz)	Antenna gain		Max. conducted output Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/c m ²)
		dBi	numeric	dBm	mW			
802.11b	2412-2462	4	2.512	15.92	39.08	20	0.0195	1.0
802.11g		4	2.512	12.31	17.02	20	0.0085	1.0
802.11n-HT20		4	2.512	12.23	16.71	20	0.0084	1.0
802.11n-HT40	2422-2452	4	2.512	8.95	7.85	20	0.0039	1.0
BLE	2402-2480	4	2.512	4.81	3.03	20	0.0015	1.0
BT3.0	2402-2480	4	2.512	7.59	5.74	20	0.0029	1.0

Note: WIFI and BT/BLE can't transmit simultaneously.

Simultaneous TX (wifi2.4G+315MHz)

Mode	Power Density(mW/m ²)		Conclusion
	Results	Limit	
Simultaneous TX	0.0195	1.0	PASS

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Results (wifi2.4G+315MHz) =0.0195/1+0.0000008/0.21=0.0195

.....THE END OF REPORT.....