

RF Exposure Evaluation Report

Report Reference No...... : **MTWG22020103-H**

FCC ID..... : **2ANPB-RCC60REGO**

Compiled by

(position+printed name+signature)..: File administrators Alisa Luo

Supervised by

(position+printed name+signature)..: Test Engineer Sunny Deng

Approved by

(position+printed name+signature)..: Manager Yvette Zhou

Date of issue..... : **March 11,2022**

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..... : **RNG International Inc.**

Address..... : 17534 Von Karman Avenue irvine California United States 92614

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.

Shenzhen Most Technology Service Co., Ltd. All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen Most Technology Service Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen Most Technology Service Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Test item description..... : REGO 12V 60A MPPT Solar Charger Controller

Trade Mark..... : 

Manufacturer..... : SRNE Solar Co., Ltd

Model/Type reference..... : RCC60REGO

Listed Models : N/A

Modulation Type..... : GFSK

Operation Frequency..... : From 2402MHz to 2480MHz

Hardware Version..... : HY-40R204P

Software Version..... : RGXNY_R2TC_04_01_20191105_V1.1.hex

Rating..... : DC 100V, 50A/800W Max

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

TEST REPORT

Equipment under Test : REGO 12V 60A MPPT Solar Charger Controller

Model /Type : RCC60REGO

Listed Models : N/A

Remark : N/A

Applicant : **RNG International Inc.**

Address : 17534 Von Karman Avenue irvine California United States 92614

Manufacturer : **SRNE Solar Co., Ltd**

Address : 4-5F, 13A Wutong Island, Neihuan Rd, Xixiang, Bao`an, ShenZhen, Guangdong

Test Result:	PASS
---------------------	-------------

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	2022-03-11	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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$ 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

Antenna Gain: 2.1dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.4 in linear scale. Output Power Into Antenna & RF Exposure Evaluation Distance:

BLE

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402 MHz)	-1.255	-1.255 ± 1	-0.255
Middle(2440MHz)	-0.118	-0.118 ± 1	0.882
Highest(2480MHz)	-2.201	-2.201 ± 1	-1.201

BLE

Worst case: GFSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
Highest(2440 MHz)	0.882	1.23	2.1	0.0004	1.0	Pass

Note: 1) Refer to report **MTWG22030128-R1** for EUT test Max Conducted average Output Power value.Note: 2) $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2) = (1.23 \cdot 1.62) / (4 \cdot 3.1416 \cdot 20^2) = 0.0004$

Note: 3) EUT's Bluetooth module is more than 20cm away from the human body.

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