

Test Report

Prepared for: OMCO SOLAR, LLC

Model: TC1.4.0.00

Description: Self-Sustained IoT Solar Tracker Controller

Project No: p2570007

Serial Number: 2501.001

To

FCC Part 1.1310
FCC Part 1.1307

Date of Issue: October 6, 2025

On the behalf of the applicant:

OMCO SOLAR, LLC
4550 W Watkins St
Phoenix AZ 85043

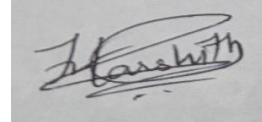
Attention of:

Steve Ouandji, Sr Product Development Engineer
Ph: 602-352-2726
Email: Souandji@omcoform.com

Prepared By:

Compliance Testing, LLC
Mesa, AZ 85204
(480) 926-3100 phone / (480) 926-3598 fax
www.compliancetesting.com
ANAB Cert#: AT-2901
FCC Site Reg. #750616
ISED Site Reg. #2044A-2

Reviewed / Authorized By:



Harshith Devaraja
EMC Engineer

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Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	October 6, 2025	Harshith Devaraja	Original Document

Current revision of the test report replaces any prior versions. Only the current version of the test report is valid.

EUT Description

Model:	TC1.4.0.00
Serial:	2501.001
Firmware:	2.0.0
Software:	2.0.0
Description:	Self-Sustained IoT Solar Tracker Controller
Additional Information:	Usage: Fixed FCC ID(LoRa): 2BUGQ-TC14XMOS2279 FCC ID(Bluetooth): X8WBM832
Receipt of Sample(s):	September 17, 2025
EUT Condition:	Visual Damage No State of Development Production/Production Equivalent

Average Power calculations

Average Power = Peak Power * duty-cycle%

LoRa (From FCC report: p2570007 FCC_247_RSS_247_Issue 4_Rev 1.0)

Tuned Frequency (MHz)	Measured peak Electric field strength value (dBμV/m)	Radiated Peak Output Power (mW)	Duty Cycle (%)	Average Power (mW)
902.3	118.399	206.5	100	206.5
908.5	118.396	206.3	100	206.3
914.9	118.561	214.3	100	214.3

Bluetooth (From FCC report number: ISL-18LR304FC)

Tuned Frequency (MHz)	Peak Power reading (dBm)	Output Power (mW)	Duty Cycle (%)	Average Power (mW)
Low	3.97	2.50	100	2.50
Mid	3.96	2.49	100	2.49
High	4.05	2.54	100	2.54

MPE Evaluation

This is a fixed device used in Uncontrolled Exposure environment.

Limits Controlled Exposure 47 CFR 1.1310 Table 1, (A)

0.3-3.0 MHz:	Limit [mW/cm ²] = 100
3.0-30 MHz:	Limit [mW/cm ²] = (900/f ²)
30-300 MHz:	Limit [mW/cm ²] = 1.0
300-1500 MHz:	Limit [mW/cm ²] = f/300
1500-100,000 MHz	Limit [mW/cm ²] = 5

Limits Uncontrolled Exposure 47 CFR 1.1310 Table 1, (B)

0.3-1.234 MHz:	Limit [mW/cm ²] = 100
1.34-30 MHz:	Limit [mW/cm ²] = (180/f ²)
30-300 MHz:	Limit [mW/cm ²] = 0.2
300-1500 MHz:	Limit [mW/cm ²] = f/1500
1500-100,000 MHz	Limit [mW/cm ²] = 1.0

Test Data - LoRa

Test Frequency, MHz	914.9
Power, mW (P)	214.3
Numerical gain (G)	1 (Radiated power measurement)
Distance (R)	20 cm

$S = \frac{P * G}{4\pi r^2}$
Power Density (S) mw/cm ²

Power Density (S) = 0.0426 mw/cm ²
Limit = (from above table) = 0.6095 mw/cm ²

Test Data - Bluetooth

Test Frequency, MHz	2480
Power, mW (P)	2.54
Antenna gain	0.24
Numerical gain (G)	1.06
Distance (R)	20 cm

$S = \frac{P * G}{4\pi r^2}$
Power Density (S) mw/cm ²

Power Density (S) = 0.000535 mw/cm ²
Limit = (from above table) = 1 mw/cm ²

Determination of Exemption 47 CFR 1.1307 (b)(3)(i)(B)

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Note: Max output power value is obtained from associated report.

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

LoRa

$$\begin{aligned} ERP_{20 \text{ cm}} &= 2040 * 0.9149 \text{ GHz} \\ &= 1866.396 \text{ mW} \end{aligned}$$

Separation distance (d) = 20 cm

$$P_{th} = 1866.396 \text{ mW}$$

Average power of the EUT = 214.3 mW

Bluetooth

$$ERP_{20 \text{ cm}} = 3060 \text{ mW}$$

Separation distance (d) = 20 cm

$$P_{th} = 3060 \text{ mW}$$

Average power of the EUT = 2.54 mW

Multiple Sources 47 CFR 1.1307 (b)(3)(ii)(B)

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

$$= \frac{214.3}{1866.396} + \frac{2.54}{3060}$$

$$= 0.1148 + 0.00083$$

$$= 0.11563 < 1$$

The Multiple RF sources are Exempt.

END OF TEST REPORT