

RF Exposure Evaluation Report

Product : ELT Gateway
Trade mark : EMC
Model/Type reference : EMC-G001
Serial Number : N/A
Report Number : EED32N80150902
FCC ID : 2AZJ5-EMCG001
Date of Issue : May 14, 2021
Test Standards : 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF
Exposure Guidance v06
Test result : PASS

Prepared for:

Energy Management Collaborative, LLC
2890 Vicksburg Ln N, Plymouth Minnesota,
55447, United States

Prepared by:

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2 Version

Version No.	Date	Description
00	May 14, 2021	Original

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4 General Information

4.1 Client Information

Applicant:	Energy Management Collaborative, LLC
Address of Applicant:	2890 Vicksburg Ln N, Plymouth Minnesota, 55447, United States
Manufacturer:	Energy Management Collaborative, LLC
Address of Manufacturer:	2890 Vicksburg Ln N, Plymouth Minnesota, 55447, United States
Factory:	Ban Seng Lee Industries Sdn. Bhd.
Address of Factory:	Lot 4220, Persimpangan Jalan Batu Arang/ Lebuhraya PLUS, Rawang, Selangor, Malaysia.

4.2 General Description of EUT

Product Name:	ELT Gateway
Model No.:	EMC-G001
Trade Mark:	EMC
EUT Supports Radios application:	BT 5.1 Single module 2402MHz to 2480MHz

4.3 Product Specification subjective to this standard

Frequency Range:	BT 5.1 Single module 2402MHz to 2480MHz	
Modulation Type:	GFSK	
Test Power Grade:	Default	
Test Software of EUT:	Simplicity Studio	
Antenna Type:	Monopole Antenna	
Antenna Gain:	2dBi	
Power Supply:	Adapter:	Mode:XH-UL0505-A1 Input: 100V-240V~50/60Hz 0.3A Max Output: 5.0V---0.5A
Max Conducted Peak Output Power:	12.7dBm	
	The Max Conducted Peak Output Power data refer to the report EED32N80150901	
Sample Received Date:	Mar, 24. 2021	
Sample tested Date:	Mar, 24. 2021 to May, 08. 2021	
Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.		

4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{377}$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and

d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2} \quad \text{Equation 1}$$

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

5.2 Maximum Permissible Exposure

Substituting the MPE safe distance using $d = 20$ cm into Equation 1:

$$S = 0.000199 \times P \times G$$

Where P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
39	2480	18.621	1.584893	20	0.0059	1

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N80150901 for EUT external and internal photos.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

*** End of Report ***