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:

Centre Testing International Group Co., Ltd.
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Compiled by: Tom Chen Reviewed by: Aaron Ma

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Approved by: David Wang Date: May 14, 2021

David Wang

Check No.::5209230321

2 Version

Version No.	Date	Description
00	May 14, 2021	Original

3 Contents

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

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

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm^2

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 / cm^2

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.

*** End of Report ***