

TEST REPORT

Product Name : Smart Fairy Lights
Brand Mark : N/A
Model No. : 50597
Report Number : BLA-EMC-202206-A12703
FCC ID : 2AQUQGE50597
Date of Sample Receipt : 2022/6/29
Date of Test : 2022/6/29 to 2022/7/18
Date of Issue : 2022/7/18
Test Standard : 47 CFR Part 1.1307, Part 1.1310
Test Result : Pass

Prepared for:

Globe Electric Company Inc.

150 Oneida, Montreal, Quebec, Canada, H9R 1A8

Prepared by:

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2022/7/18



REPORT REVISE RECORD

Version No.	Date	Description
00	2022/7/18	Original

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1 TEST SUMMARY

Test item	Test Requirement	Test Method	Class/Severity	Result
RF Exposure	47 CFR Part 1.1307, Part 1.1310	CFR 47 Part 1.1310	CFR 47 Part 1.1310	PASS

2 GENERAL INFORMATION

Applicant	Globe Electric Company Inc.
Address	150 Oneida, Montreal, Quebec, Canada, H9R 1A8
Manufacturer	Globe Electric Company Inc.
Address	150 Oneida, Montreal, Quebec, Canada, H9R 1A8
Factory	Globe Electric Company Inc.
Address	150 Oneida, Montreal, Quebec, Canada, H9R 1A8
Product Name	Smart Fairy Lights
Test Model No.	50597

3 GENERAL DESCRIPTION OF E.U.T.

Hardware Version	ANT_RGB_V5.5
Software Version	V1.0

BLE:

Operation Frequency:	2402MHz-2480MHz
Modulation Type:	GFSK
Channel Spacing:	2MHz
Number of Channels:	40
Antenna Type:	PCB Antenna
Antenna Gain:	2.21dBi (Provided by the applicant)

WIFI:

Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Channel Spacing:	5MHz
Number of Channels:	802.11b/g/n(HT20):11 802.11n(HT40):7
Antenna Type:	PCB Antenna
Antenna Gain:	2.21dBi (Provided by the applicant)

4 LABORATORY LOCATION

All tests were performed at:
BlueAsia of Technical Services(Shenzhen) Co., Ltd.
Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province,
China
Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673
No tests were sub-contracted.

5 RF EXPOSURE COMPLIANCE REQUIREMENT

5.1 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.

5.2 TEST PROCEDURE

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

5.3 EUT RF EXPOSURE EVALUATION

Antenna Gain: 2.21dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.663 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

BLE:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
middle	2440	1.233	1.328	0.0004	1.0	PASS

2.4G WIFI(802.11b):

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit	Result
lowest	2412	11.897	15.477	0.0051	1.0	PASS

Note: Refer to report No. BLA-EMC-202206-A12701/02 for EUT test Max Conducted Peak Output Power value.

The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation Requirement

----END OF REPORT----

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