

RF Exposure Evaluation Report

Product : Planetarium with Wireless Bluetooth Speaker
(Northern Hemisphere)
Trade mark : EASTCOLIGHT
Model/Type reference : 8007, 8008
Serial Number : N/A
Report Number : EED32N80283402
FCC ID : OIJ8007V2
Date of Issue : Jul. 07, 2021
Test Standards : 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Test result : PASS

Prepared for:

Eastcolight(HK) LTD

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2 Version

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4 General Information

4.1 Client Information

Applicant:	Eastcolight(HK) LTD
Address of Applicant:	Room 1108-1110, Peninsula Centre, 67 Mody Road, Tsim Sha Tsui East, Kowloon, Hong Kong
Manufacturer:	Eastcolight(HK) LTD
Address of Manufacturer:	Room 1108-1110, Peninsula Centre, 67 Mody Road, Tsim Sha Tsui East, Kowloon, Hong Kong
Factory:	Eastco Enterprise (Zhongshan) Ltd.
Address of Factory:	No.1 Jun Mei Road, Shenwan Town, Zhong Shan City, Guangdong, China

4.2 General Description of EUT

Product Name:	Planetarium with Wireless Bluetooth Speaker (Northern Hemisphere)
Model No.:	8007, 8008
Test model:	8007
Trade Mark:	EASTCOLIGHT
EUT Supports Radios application:	BT: 2402MHz~2480MHz

4.3 Product Specification subjective to this standard

Frequency Range:	BT: 2402MHz~2480MHz
Modulation Type:	GFSK, $\pi/4$ DQPSK, 8DPSK
Test Power Grade:	Default
Test Software of EUT:	BT_tool.exe
Antenna Type:	PCB antenna
Antenna Gain:	5dBi
Power Supply:	3X1.5V Batteries; size AA, DC 5.4V
Max Conducted Peak Output Power:	0.89dBm The Max Conducted Peak Output Power data refer to the report EED32N80283401
Sample Received Date:	Apr. 27, 2021
Sample tested Date:	Apr. 27, 2021 to Jun. 05, 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. N/A¹⁾ The Product is powered battery. Model No.: 8007, 8008 Only the model 8007 was tested, 8008 compared with 8007 all parts of the product, Their electrical circuit design, layout, components used and internal wiring are identical, except only the model name are different.	

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:

$$P \text{ (mW)} = P \text{ (W)} / 1000 \text{ and}$$

$$d \text{ (cm)} = d \text{ (m)} / 100$$

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

BT:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm ²)
1	2402	1.2274	3.16	20	0.0008	1

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N80283401 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 ***