

RF Exposure Evaluation Report

Product : Trailing Edge Dimmer
Trade mark : N/A
Model/Type reference : TRED-CSB-2A, SRPT-CSB
Serial Number : N/A
Report Number : EED32K00059602
FCC ID : 2AJMLEUTRED
Date of Issue : Nov. 08, 2018
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
KDB 447498 D01v06
Test result : PASS

Prepared for:

EULUM DESIGN, LLC

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Prepared by:

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Date:

Nov. 08, 2018



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2 Version

Version No.	Date	Description
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4 General Information

4.1 Client Information

Applicant:	EULUM DESIGN, LLC
Address of Applicant:	6131-B Kellers Church Road, Pipersville, PA 18947 USA
Manufacturer:	EULUM DESIGN, LLC
Address of Manufacturer:	6131-B Kellers Church Road, Pipersville, PA 18947 USA

4.2 General Description of EUT

Product Name:	Trailing Edge Dimmer
Model No.(EUT):	TRED-CSB-2A, SRPT-CSB
Trade mark:	N/A
EUT Supports Radios application:	BT4.0 Single mode, 2402-2480MHz
Power Supply:	AC 120V, 60Hz

4.3 Product Specification subjective to this standard

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	4.0
Modulation Technique:	DSSS
Modulation Type:	GFSK
Number of Channel:	40
Test Power Grade:	N/A
Test Software of EUT:	N/A
Antenna Type:	Chip Antenna
Antenna Gain:	1.3dBi
Max Conducted Peak Output Power:	-1.181dBm The Max Conducted Peak Output Power data refer to the report EED32K00059601
Sample Received Date:	Apr. 27, 2018
Sample tested Date:	Apr. 27, 2018 to May 06, 2018
The tested sample(s) and the sample information are provided by the client. Model No.: TRED-CSB-2A, SRPT-CSB Their electrical circuit design, layout and RF module used are electrically identical, Just have the different in base band, some components are not installed for the SPRT-CSB, but in TRES-CSB-2A.	

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

5.1.1 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

A rough estimation of the expected exposure in power flux density on a given point can be made with the following equation:

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R= distance to the centre of radiation of the antenna

EIRP = P*G

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user.

Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user's manual. Therefore, the S of the device is calculated with R=20cm, and if it is below the limit S, then we can conclude the device complies with the rules.

5.1.2 Test Procedure

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

5.1.3 EUT RF Exposure Evaluation

Antenna Gain: 1.3dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power(dBm)	Gain (dBi)	EIRP* (dBm)	EIRP (mW)	R (cm)	S (mW/cm ²)	Limit (mW/cm ²)	Result
Lowest	2402	-1.181	1.3	0.119	1.03	20	0.0002	1.0	Pass

Note: Refer to report No. EED32K00059601 for EUT test Max Conducted Peak Output Power value.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32K00059601 for EUT external and internal photos.

*** End of Report ***

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