

Maximum Permissible Exposure Evaluation

FCC ID: 2APB4-FTS20CW

1. Client Information

Applicant : Cooper Lighting, LLC
Address : 1121 Highway 74 South Peachtree City, GA 30269, USA.
Manufacturer : Cooper Lighting, LLC
Address : 1121 Highway 74 South Peachtree City, GA 30269, USA.

2. General Description of EUT

EUT Name	:	LED FIXED LUMINAIRE	
Models No.	:	FTS20CW, FTS20CB	
Model Difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is appearance and color.	
Product Description	:	Operation Frequency:	Bluetooth 4.2(BLE): 2402MHz~2480MHz
		Number of Channel:	40 channels
		RF Output Power:	-1.224dBm(Max)
		Antenna Gain:	2dBi Internal Antenna
		Modulation Type:	GFSK
		Bit Rate of Transmitter:	1 Mbps
Power Supply	:	AC Voltage supplied	
Power Rating	:	Input: AC 120~277V, 50/60Hz	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Note: More information about the RF function, please refer the RF test reports.			

TB-RF-075-1.0

MPE Calculations for BLE

1. Antenna Gain:

Internal Antenna: 2dBi.

2. EUT Operation Condition:

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

3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna

4. Test Result:

Worst Maximum MPE Result								
Mode	N _{TX}	Freq. (MHz)	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
BLE	1	2402	-2.469	-2±1	-1	2	20	0.00025
		2442	-1.224	-1±1	0	2	20	0.00032
		2480	-1.629	-1±1	0	2	20	0.00032
Note: (1) N _{TX} = Number of Transmit Antennas (2) RF Output power specifies that Maximum Conducted Peak Output Power.								

5. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm ²)
300-1,500	F/1500
1,500-100,000	1.0

For BLE (2402~2480 MHz)

MPE limit S: 1mW/ cm²

The MPE is calculated as **0.00032**mW / cm² < limit 1 mW / cm². So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

Note

For a more detailed features description, please refer to the RF Test Report.

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