Maximum Permissible Exposure Evaluation

FCC ID: 2BAFB-X-180RGB

1. Client Information

Applicant	:	Dongguan City Tulifang Photographic Equipment Co., Ltd
Address	:	GD Modern International Exhibition Center Side, Houjie, Dongguan,Guangdong Province, China
Manufacturer	:	Dongguan City Tulifang Photographic Equipment Co., Ltd
Address	:	GD Modern International Exhibition Center Side, Houjie, Dongguan,Guangdong Province, China

2. General Description of EUT

EUT Name	:	LED photo/video light	
Models No.	:	X-180RGB, X-200RGB, X-150RGB, X-120RGB, X-100RGB	
Model Different	:	All these models are identical, in the same PCB, layout and circuit, the only difference is that the model name is different	
Product Description	:	Operation Frequency:	Bluetooth 5.0: 2402MHz~2480MHz
		Number of Channel:	Bluetooth 5.0: 40 channels
		Antenna Gain:	2.5dBi PCB Antenna
Power Rating		Input:AC 100-240V~50/60Hz	
Software Version	:	1.0	
Hardware Version	:	1.0	
Connecting I/O Port(S)	:	Please refer to the User's Manual	
Remark	:	The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.	

1 A/F., Building.6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an, Shenzhen, Guangdong, China
Tel: +86 75526509301 Fax: +86 75526509195

MPE Calculations for WIFI

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

2. **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

3. **Simultaneous transmission MPE Considerations**
   According to KDB447498: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0.
   This means that:
   ∑ of MPE ratios ≤ 1.0

4. Test Result:

Bluetooth LE & 2.4G WiFi worst reported.

Mode	Frequency (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]	Limit of Power Density (mW/cm^2) (S)
BLE 1Mbps	2402	6.033	6±1	7	2.5	20	0.0018	1
	2440	6.136	6±1	7	2.5	20	0.0018	1
	2480	1.967	1±1	2	2.5	20	0.0006	1
BLE 2Mbps	2402	5.795	5±1	6	2.5	20	0.0014	1
	2440	5.940	5±1	6	2.5	20	0.0014	1
	2480	2.086	2±1	3	2.5	20	0.0007	1

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 2.4WIFI:2412~2462 MHz and Bluetooth LE

MPE limit S: $1mW/cm^2$

The MPE is calculated as **0.0018** ***< limit 1mW / 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.

6. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----END OF REPORT-----