

# Maximum Permissible Exposure Evaluation

## FCC ID: 2A8TU-BT03

### 1. Client Information

<b>Applicant</b>	:	Shenzhen Forever Young Technology Co., Ltd
<b>Address</b>	:	2/F, No B2 Bldg, Fuyuan Industrial Park, Fu yong Town, Bao'an District, Shenzhen, China
<b>Manufacturer</b>	:	Shenzhen Forever Young Technology Co., Ltd
<b>Address</b>	:	2/F, No B2 Bldg, Fuyuan Industrial Park, Fu yong Town, Bao'an District, Shenzhen, China

### 2. General Description of EUT

<b>EUT Name</b>	:	Bluetooth Gateway	
<b>Models No.</b>	:	BT03, BT01, BT06, BT08	
<b>Model Different</b>	:	All these models are identical in the same PCB layout and electrical circuit, the only difference is that appearance.	
<b>Product Description</b>	:	Operation Frequency:	Bluetooth 4.2(BLE): 2402MHz~2480MHz
	:	Antenna Gain:	1.88dBi PCB Antenna
<b>Power Rating</b>	:	Input: DC 5V/1A	
<b>Software Version</b>	:	V5.5.0	
<b>Hardware Version</b>	:	V1.13.1	
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual	
<b>Remark</b>	:	the evaluation report used the EUT(202401-0129-2-2#).	



## MPE Calculations for BLE

### 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  $\leq 1.0$ .

This means that:

$$\sum \text{ of MPE ratios } \leq 1.0$$

### 4. Test Result:

worst reported.

BLE MPE Result									
Mode	N <sub>TX</sub>	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 <sup>2</sup> ) [S]	limit (mW/cm2)
BLE (1Mbps)	1	2402	-1.77	-2±1	-1	1.88	20	0.00024	1
		2440	-1.313	-1±1	0	1.88	20	0.00031	1
		2480	-0.943	-1±1	0	1.88	20	0.00031	1
<b>Note:</b> N <sub>TX</sub> = Number of Transmit Antennas 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 <sup>2</sup> )
300-1,500	F/1500
1,500-100,000	1.0

For Bluetooth LE

MPE limit S: 1mW/ cm<sup>2</sup>

The MPE is calculated as **0.00031** < **limit 1mW / cm<sup>2</sup>**. 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-----**