



# Maximum Permissible Exposure Evaluation

## FCC ID: 2A8TU-TH01

### 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>	:	WiFi Temperature & Humidity Sensor
<b>Models No.</b>	:	TH01, TH11, TH13, TH13Pro
<b>Model Different</b>	:	All these models are identical in the same PCB, layout and electrical circuit, The only difference is model name.
<b>Product Description</b>	:	Operation Frequency: 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11b/g/n(HT40): 2422MHz~2452MHz Bluetooth LE: 2402MHz~2480MHz
	:	Number of Channel: 802.11b/g/n(HT20):11 Channels 802.n(HT40):9 Channels Bluetooth LE: 40 Channels
	:	Antenna Gain: 2.21dBi PCB Antenna
<b>Power Rating</b>	:	Input: DC 1.5V AAA*2
<b>Software Version</b>	:	V5.7.1
<b>Hardware Version</b>	:	V2.1.5
<b>Connecting I/O Port(S)</b>	:	Please refer to the User's Manual
<b>Remark</b>	:	The evaluation report used the EUT(202312-0065-10-2#). EUT with two kinds of PCB, the only different is the sensor and RF Module(One with a shield, the other without a shield).



## 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  $\leq 1.0$ .

This means that:

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



#### 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 <sup>2</sup> ) [S]	Limit of Power Density (mW/ cm <sup>2</sup> ) (S)
BLE	2402	4.848	4±1	5	2.21	20	0.0011	1
	2440	4.082	4±1	5	2.21	20	0.0011	1
	2480	3.826	3±1	4	2.21	20	0.0008	1
802.11b	2412	16.42	16±1	17	2.21	20	0.0166	1
	2437	15.99	15±1	16	2.21	20	0.0132	1
	2462	15.3	15±1	16	2.21	20	0.0132	1
802.11g	2412	16.28	16±1	17	2.21	20	0.0166	1
	2437	15.73	15±1	16	2.21	20	0.0132	1
	2462	15.06	15±1	16	2.21	20	0.0132	1
802.11n(HT20)	2412	16.25	16±1	17	2.21	20	0.0166	1
	2437	15.63	15±1	16	2.21	20	0.0132	1
	2462	14.99	14±1	15	2.21	20	0.0105	1
802.11n(HT40)	2422	14.99	14±1	15	2.21	20	0.0105	1
	2437	14.37	14±1	15	2.21	20	0.0105	1
	2452	14.33	14±1	15	2.21	20	0.0105	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 <sup>2</sup> )
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<sup>2</sup>

The MPE is calculated as **0.0166** < **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-----

