# Safety Human Exposure

## 1.1 Radio Frequency Exposure Compliance

### 1.1.1 Electromagnetic Fields

**RESULT:** **Pass**

| | | |
|---|---|---|
| Test item | : | KULGLASS |
| Identification / Type No. | : | E2508 |
| FCC ID | : | FHO-E2508 |
| IC | : | 10912A-E2508 |
| Test standard | : | CFR47 FCC Part 2: Section 2.1093<br>CFR47 FCC Part 1: Section 1.1310<br>FCC KDB Publication 447498 D04 V01<br>RSS-102 Issue 6 December 2023 |

- **Product Classification**

This device defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that the RF source's radiating structure(s) is/are within 20 centimeters of the body of the user.

Max 1.50 dBi

- **Radio Frequency Exposure Limit**

For FCC:
According to FCC KDB # 447498 D04 V01, Clause Appendix B and 1.1307(b)(3)(i)(B)
The available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold $P_{th}$ (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). $P_{th}$ is given by:

$$P_{th}\ (\text{mW}) = \begin{cases} ERP_{20\ cm}(d/20\ \text{cm})^x & d \le 20\ \text{cm} \\ ERP_{20\ cm} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases}$$

Where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20\ cm}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases}$$

$d$ = the separation distance (cm);

For IC:

| Frequency (MHz) | ≤ 5 mm (mW) | 10 mm (mW) | 15 mm (mW) | 20 mm (mW) | 25 mm (mW) | 30 mm (mW) | 35 mm (mW) | 40 mm (mW) | 45 mm (mW) | > 50 mm (mW) |
|---|---|---|---|---|---|---|---|---|---|---|
| **≤ 300** | 45 | 116 | 139 | 163 | 189 | 216 | 246 | 280 | 319 | 362 |
| **450** | 32 | 71 | 87 | 104 | 124 | 147 | 175 | 208 | 248 | 296 |
| **835** | 21 | 32 | 41 | 54 | 72 | 96 | 129 | 172 | 228 | 298 |
| **1900** | 6 | 10 | 18 | 33 | 57 | 92 | 138 | 194 | 257 | 323 |
| **2450** | 3 | 7 | 16 | 32 | 56 | 89 | 128 | 170 | 209 | 245 |
| **3500** | 2 | 6 | 15 | 29 | 50 | 72 | 94 | 114 | 134 | 158 |
| **5800** | 1 | 5 | 13 | 23 | 32 | 41 | 54 | 74 | 102 | 128 |

When the operating frequency of the device is between two frequencies located in above table, linear interpolation shall be applied for the applicable separation distance. If the separation distance of the device is between two distances located in above table, linear interpolation may be applied for the applicable frequency. Alternatively, the limit corresponding to the smaller distance may be employed.

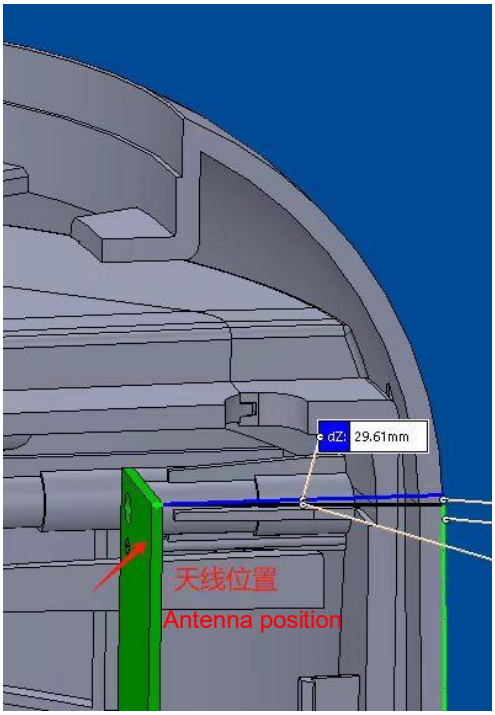
**a) EUT RF Exposure Evaluation standalone operations**

| Mode | Frequency [GHz] | *Measured RF Output Power [dBm] | Antenna Gain [dBi] | EIRP [mW] | ERP [mW] | Distance d [cm] | FCC Limit-$P_{th}$ [mW] | IC Limit [mW] |
|---|---|---|---|---|---|---|---|---|
| Bluetooth BR/EDR | 2.402 | 7.1 | 1.5 | 7.24 | 4.42 | 1.2 | 14.68 | 10.82 |
| 2.4GHz proprietary | 2.404 | 8.3 | 1.5 | 9.55 | 5.82 | 1.2 | 14.68 | 10.81 |

Note:
Bluetooth RF Output Power: Refer CN257R99 001
2.4GHz proprietary RF Output Power: Refer CN25UU5E 001
2.4GHz proprietary and Bluetooth share the same RF IC and antenna, so no need to evaluation simultaneous transmission.

**Conclusion**

The minimum distance between antenna and enclosure of the product is 2.961cm which is larger than 1.2cm.




Therefore, the maximum calculations result of above are meet the requirement of Radio Frequency Exposure limit.