

Maximum Permissible Exposure Evaluation

FCC ID: 2AP7K-T401

1. Client Information

| | | |
|---------------------|---|--|
| Applicant | : | Shenzhen Holloo Technology Co.,Ltd. |
| Address | : | 103,105, Building6, 1980 Industrial Park, Minzhi Street, Longhua New District, Shenzhen, China |
| Manufacturer | : | Shenzhen Holloo Technology Co.,Ltd. |
| Address | : | 103,105, Building6, 1980 Industrial Park, Minzhi Street, Longhua New District, Shenzhen, China |

2. General Description of EUT

| | | |
|-------------------------------|---|--|
| EUT Name | : | Vehicle Wireless Terminal |
| Models No. | : | T401, T400 |
| Model Difference | : | All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name for commercial. |
| Product Description | : | Frequency Bands: Bluetooth 4.0(BLE): 2402MHz~2480MHz LTE Band 4:TX: 1710MHz-1755MHz, RX: 2110MHz-2155MHz LTE Band 13: TX: 777MHz -787MHz, RX: 746MHz-756MHz |
| Antenna Gain | : | 3.8 dB Dipole Antenna |
| Power Rating | : | DC 9~36V |
| Software Version | : | HTLV201337 |
| Hardware Version | : | V1.03 |
| Connecting I/O Port(S) | : | Please refer to the User's Manual |

Note: More test information about the EUT please refer the RF Test Report.

MPE Calculations for GSM

1. Antenna Gain:

3.8dBi Dipole Antenna

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

$$S = (P \cdot G) / (4\pi R^2)$$

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} | 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] |
| LTE BAND 4 | 1 | 22.68 | 23±1 | 24 | 3.8 | 20 | 0.1199 |
| LTE BAND 13 | 1 | 23.00 | 23±1 | 24 | 3.8 | 20 | 0.1199 |
| BLE | 1 | -2.185 | -2±1 | -1 | 3.8 | 20 | 0.0004 |

Note:

(1) N_{TX}= 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 ²) |
|-----------------------|--------------------------------------|
| 300-1,500 | F/1500 |
| 1,500-100,000 | 1.0 |

300-1500MHz:

The worst MPE is calculated as $0.1199 \text{ mW/cm}^2 < \text{limit } 824.0/1500=0.5494 \text{ mW/cm}^2$. So, RF exposure limit warning or SAR test are not required.

1500-100000MHz:

The worst MPE is calculated as $0.1199 \text{ mW/cm}^2 < \text{limit } 1\text{mW/cm}^2$. So, RF exposure limit warning or SAR test are not required.

The BLE and LTE can be operated simultaneously, So the worst MPE is:

$$(0.1199+0.0004)\text{mW/cm}^2=0.1203\text{mW/cm}^2 < \text{limit } 1\text{mW/cm}^2$$

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.

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