

# Maximum Permissible Exposure Evaluation

## FCC ID: 2AP7K-T401

### 1. Client Information

<b>Applicant</b>	:	Shenzhen Holloo Technology Co.,Ltd.
<b>Address</b>	:	103,105, Building6, 1980 Industrial Park, Minzhi Street, Longhua New District, Shenzhen, China
<b>Manufacturer</b>	:	Shenzhen Holloo Technology Co.,Ltd.
<b>Address</b>	:	103,105, Building6, 1980 Industrial Park, Minzhi Street, Longhua New District, Shenzhen, China

### 2. General Description of EUT

<b>EUT Name</b>	:	Vehicle Wireless Terminal
<b>Models No.</b>	:	T401, T400
<b>Model Difference</b>	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name for commercial.
<b>Product Description</b>	:	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
<b>Antenna Gain</b>	:	3.8 dB Dipole Antenna
<b>Power Rating</b>	:	DC 9~36V
<b>Software Version</b>	:	HTLV201337
<b>Hardware Version</b>	:	V1.03
<b>Connecting I/O Port(S)</b>	:	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 <sub>TX</sub>	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]
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<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

**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-----