

# Maximum Permissible Exposure Evaluation

## ***FCC ID: 2AJK2TYPE-C***

### 1. Client Information

**Applicant** : Zhuhai Tianqin IT Co.,Ltd.  
**Address** : No.87 Xinghua Road, Xiangzhou District, Zhuhai, Guangdong, China  
**Manufacturer** : Zhuhai Tianqin IT Co.,Ltd.  
**Address** : No.87 Xinghua Road, Xiangzhou District, Zhuhai, Guangdong, China

### 2. General Description of EUT

|                                |   |                                                                                    |                                   |
|--------------------------------|---|------------------------------------------------------------------------------------|-----------------------------------|
| <b>EUT Name</b>                | : | GPS/BD GPS TRACKER                                                                 |                                   |
| <b>Models No.</b>              | : | TYPE-C                                                                             |                                   |
| <b>Brand Name</b>              | : | Roadcool                                                                           |                                   |
| <b>Model Difference</b>        | : | N/A                                                                                |                                   |
| <b>Product Description</b>     | : | Frequency Bands:<br>GSM 850: 824.20MHz-848.80MHz<br>PCS1900: 1850.20MHz-1909.80MHz |                                   |
|                                |   | GSM 850 Power :                                                                    | Cond:31.70 dBm ERP:30.68 dBm      |
|                                |   | PCS 1900 Power :                                                                   | Cond:28.45 dBm EIRP:26.97 dBm     |
|                                |   | Antenna Gain:                                                                      | GSM 850: 2 dBi<br>PCS 1900: 2 dBi |
|                                |   | Modulation Type:                                                                   | GSM/GPRS:GMSK                     |
| <b>FCC Operating Frequency</b> | : | GSM 850: 824.20MHz-848.80MHz<br>PCS1900: 1850.20MHz-1909.80MHz                     |                                   |
| <b>Emission Designator</b>     | : | GSM 850: 247KGXW, PCS 1900: 246KGXW<br>GPRS 850: 245KG7W, GPRS 1900: 246KG7W       |                                   |

***TB-RF-075-1.0***

|                               |   |                                                                     |
|-------------------------------|---|---------------------------------------------------------------------|
| <b>Power Supply</b>           | : | DC Voltage supplied from DC battery.<br>DC power by Li-ion Battery. |
| <b>Power Rating</b>           | : | DC 12V by DC battery.<br>DC 3.7V by Li-ion Battery.                 |
| <b>Connecting I/O Port(S)</b> | : | Please refer to the User's Manual                                   |

## MPE Calculations for WIFI

### 1. Antenna Gain:

GSM Antenna: 2 dBi.

### 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

$$S=(PG)/4\pi R^2$$

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

### 4. Test Result:

| Worst Maximum MPE Result |                 |                            |                          |                                       |                         |                                                   |
|--------------------------|-----------------|----------------------------|--------------------------|---------------------------------------|-------------------------|---------------------------------------------------|
| Mode                     | N <sub>TX</sub> | Power(max)<br>(dBm)<br>[P] | ANT Gain<br>(dBi)<br>[G] | Turn-up<br>Power<br>Tolerance<br>(dB) | Distance<br>(cm)<br>[R] | Power<br>Density<br>(mW/ cm <sup>2</sup> )<br>[S] |
| GSM 850                  | 1               | 31.70                      | 2                        | ±1                                    | 20                      | 0.587                                             |
| PCS 1900                 | 1               | 28.45                      | 2                        | ±2                                    | 20                      | 0.350                                             |

Note:  
 (1) N<sub>TX</sub>= Number of Transmit Antennas  
 (2) 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<br>(MHz) | Power density<br>(mW/ cm <sup>2</sup> ) |
|--------------------------|-----------------------------------------|
| 300-1,500                | F/1500                                  |
| 1,500-100,000            | 1.0                                     |

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

The MPE is calculated as 0.587 mW / cm<sup>2</sup> < limit 1 mW / 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.

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