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	:	HLTV201337
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.

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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

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

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_{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 mW / cm^2 < limit 824.0/1500=0.5494 mW/cm^2***. So, RF exposure limit warning or SAR test are not required.

1500-100000MHz:

The worst MPE is calculated as ***0.1199 mW / cm^2 < limit 1mW/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)mW/cm^2=0.1203mW/cm^2 < limit 1mW/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-----