

Maximum Permissible Exposure Evaluation

FCC ID: 2AXKF-C003

1. Client Information

Applicant	:	Shenzhen Xingmai Digital Co.,Ltd.
Address	:	Room 401, Building C, Huali Industrial Park, No. 404, Yu'an 2nd Road, 28 District, Xin'an Street, Bao'an District, Shenzhen, China
Manufacturer	:	Shenzhen Xingmai Digital Co.,Ltd.
Address	:	Room 401, Building C, Huali Industrial Park, No. 404, Yu'an 2nd Road, 28 District, Xin'an Street, Bao'an District, Shenzhen, China

2. General Description of EUT

EUT Name	:	Beidou+GPS tracker
Models No.	:	C003, AK-GT01, AK-GT02, AK-GT03, AK-GTZZ, X1, X2, X3, X5, X6, X7, X8, X9, X10, X11, X12, X13, X13B, X13C, X20, X21, X22, X33, X35, X36, X37, X38, X39, X50, X51, X52, X53, X55, X56, X57, X58, X59, X60, XZZ, C001, C002, C003, C005, C006, C007, C008, C009, C10, C11, C12, C13, C15, C16, C17, C18, C19, C20, C21, C22, C23, C25, C26, C27, C28, C29, C30, C31, C32, C33, C35, C36, C37, C38, C39, C50, C51, C52, C53, C55, C56, C57, C58, C59, C60, CZZ, ZZ means digital number
Model Difference	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is the appearance.
Sample ID	:	20200804-10_1-01
S/N	:	19171534261
Product Description	:	UMTS Band II: TX:1850MHz-1910MHz, RX: 1930MHz-1990MHz UMTS Band IV: TX:1710MHz-1755MHz, RX: 2110MHz-2155MHz UMTS Band V: TX: 824MHz-849MHz, RX: 869MHz-894MHz LTE Band 2:TX: 1850MHz-1910MHz, RX: 1930MHz-1990MHz LTE Band 4:TX: 1710MHz-1755MHz, RX: 2110MHz-2155MHz LTE Band 12: TX: 699MHz -716MHz, RX: 729MHz-746MHz
		Antenna Type: FPC Antenna
		Antenna Gain: 0.7dBi;
Power Rating	:	Input: DC 9V-95V or DC 3.7V by Li-ion Battery.
Software Version	:	C003_XM_808_2_9_20200702
Hardware Version	:	20200623

TB-RF-075-1.0

MPE Calculations

1. Antenna Gain:

Band	Antenna Type	Antenna Gain
UMTS Band II	FPC	0.7 dBi
UMTS Band IV	FPC	0.7 dBi
UMTS Band V	FPC	0.7 dBi
LTE Band 2	FPC	0.7 dBi
LTE Band 4	FPC	0.7 dBi
LTE Band 12	FPC	0.7 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 _{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]
WCDMA Band II	1	22.85	22±1	23	0.7	20	0.0446
WCDMA Band IV	1	22.20	22±1	23	0.7	20	0.0446
WCDMA Band V	1	21.92	22±1	23	0.7	20	0.0446
LTE Band 2	1	23.10	23±1	24	0.7	20	0.0587
LTE Band 4	1	23.64	23±1	24	0.7	20	0.0587
LTE Band 12	1	21.11	21±1	22	0.7	20	0.0370

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 $0.0446 \text{ mW} / \text{cm}^2 < \text{limit } 846.6/1500=0.5644 \text{ mW/cm}^2$. So, RF exposure limit warning or SAR test are not required.

1500-100000MHz:

The worst MPE is calculated as $0.0587 \text{ mW} / \text{cm}^2 < \text{limit } 1\text{mW/cm}^2$. 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 THE REPORT-----