

1. MAXIMUM PERMISSIBLE EXPOSURE (MPE)

1.1 General Information

Client Information

Applicant: Shenzhen Jimi IOT Co., Ltd
Address of applicant: 3-4/F, Block A, Building #7, Shenzhen International Innovation Valley,
Dashi 1st Road, Nanshan District, Shenzhen, Guangdong, China

Applicant: Shenzhen Jimi IOT Co., Ltd
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General Description of EUT:

Product Name: GNSS Vehicle Terminal
Trade Name: JIMI
Model No.: JM-VL03
Adding Model(s): VL03L, JM-VL03M, JM-VL03E, VL03, JM-EL103, EL103,
JM-EV40, EV40, VL03MX, VL03CO
Rated Voltage: DC9-90V
FCC ID: 2AMLF-JM-VL03
Equipment Type: Mobile

Technical Characteristics of EUT:	
4G	
Support Networks:	FDD-LTE
Support Band:	FDD-LTE Band 17
Uplink Frequency:	FDD-LTE Band 17: Tx: 704-716MHz
Downlink Frequency:	FDD-LTE Band 17: Rx: 734-746MHz
RF Output Power:	FDD-LTE Band 17: 23.49dBm
Type of Emission:	FDD-LTE Band 17: 9M00G7D,9M00W7D
Type of Modulation:	QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	FDD-LTE Band 17: -0.5dBi

1.2 Standard Applicable

According to § 1.1307(b)(1) and KDB 447498 D01 General RF Exposure Guidance v06, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

(a) Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

Note: f = frequency in MHz: * = Plane-wave equivalent power density

1.3 MPE Calculation Method

$$S = (30 * P * G) / (377 * R^2)$$

S = power density (in appropriate units, e.g., mw/cm²)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

1.4 MPE Calculation Result

For FDD-LTE Band 17

Maximum Tune-Up output power: 24.0(dBm)

Maximum peak output power at antenna input terminal: 251.19 (mW)

Prediction distance: >20(cm)

Prediction frequency: 710.0(MHz)

Antenna gain: -0.5 (dBi)

Directional gain (numeric gain): 0.89

The worst case is power density at prediction frequency at 20cm: 0.0445 (mw/cm²)

MPE limit for general population exposure at prediction frequency: 0.4733 (mw/cm²)

Result: Pass