

Product Name: LTE Cat-M1 Tracker	Report No: FCC022022-05738RF14
Product Model: ATD521	Security Classification: Open
Version: V1.0	Total Page: 7

Testing Report



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FCC RF EXPOSURE REPORT

FCC ID: 2AH4HATD521

Project No. : 2022-05738
Equipment : LTE Cat-M1 Tracker
Brand Name : Mobilogix
Test Model : ATD521
Series Model : NA
Applicant : Mobilogix, Inc.
Address : 5500 Trabuco Rd Suite 150 Irvine, CA, USA
Manufacturer : Mobilogix, Inc.
Address : 5500 Trabuco Rd Suite 150 Irvine, CA, USA
Factory : Suga Electronics (Dongguan) Co., Ltd.
Address : No.8 Fulong Road, Qingxi Town, Dongguan City
Date of Receipt : Aug. 05, 2022
Date of Test : Aug. 09, 2022 ~ Aug. 30, 2022
Issued Date : Nov. 04, 2022
Report Version : V1.0
Test Sample : Engineering Sample No.: 20221103019315
Standard(s) : FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091
FCC Title 47 Part 2.1091

- The test result referred exclusively to the presented test model /sample.
- Without written approval of TIRT Inc. the test report shall not reproduced except in full.

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
FCC022022-05738RF14	V1.0	Original Report.	2022.11.04	Valid

1. TEST FACILITY

Company:	Beijing TIRT Technology Service Co.,Ltd Shenzhen
Address:	101, 3 # Factory Building, Gongjin Electronics Shatin Community, Kengzi Street, Pingshan District, Shenzhen, China
CNAS Registration Number:	CNAS L14158
A2LA Registration Number:	6049.01
FCC Accredited Lab. Designation Number:	CN1309
FCC Test Firm Registration Number:	825524
Telephone:	+86-0755-27087573

2. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi r^2} = \frac{EIRP}{4\pi r^2}$$

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

Table for Filed Antenna:

For LE:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	ethertronics	M830320	Ceramic	N/A	1.8

Note: The antenna gain is provided by the manufacturer.

For GSM:

Brand	P/N	Antenna Type	Connector	Gain (dBi)	Note
ethertronics	1004795	Internal	N/A	1.6	GSM 850
				3.1	PCS 1900

Note: The antenna gain is provided by the manufacturer.

For LTE:

Brand	P/N	Antenna Type	Connector	Gain (dBi)	Note
ethertronics	1004795	Internal	N/A	3.1	LTE Band 2
				3.1	LTE Band 4
				1.6	LTE Band 5
				1.6	LTE Band 12
				1.6	LTE Band 13
				3.1	LTE Band 25
				1.6	LTE Band 26(Part 22)
				1.6	LTE Band 26(Part 90)
				3.1	LTE Band 66
1.6	LTE Band 85				

Note: The antenna gain is provided by the manufacturer.

3. TEST RESULTS

Tune up tolerance(dBm)			
LE	GSM 850	PCS 1900	LTE
2	35	32	22

For LE:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Tune Up Power (dBm)	Max. Tune Up Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
1.8	1.5136	2	1.5849	0.00048	1	Complies

For GSM:

GSM 850	Max. Burst Averaged Power (dBm)	Max Frame Average Power (dBm)
	Channel/Frequency(MHz)	Channel/Frequency(MHz)
	128/824.2	128/824.2
GPRS/EDGE (GMSK)	35	25.81
PCS 1900	Max. Burst Averaged Power (dBm)	Max Frame Average Power (dBm)
	Channel/Frequency(MHz)	Channel/Frequency(MHz)
	512/1850.2	512/1850.2
GPRS/EDGE (GMSK)	32	22.81

Note:

- The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:

$$\text{Frame-averaged power} = 10 \times \log(\text{Burst-averaged power mW} \times \text{Slot used}/8)$$
- Max. Output Power = Max Frame Average Power

Band	Frequency (MHz)	Max. Tune Up Power (dBm)	Antenna Gain (dBi)	Antenna Gain (linear)	Output Power to Antenna	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
GSM 850	824.2	25.81	1.6	1.45	550.81	0.1096	0.5495	Complies
PCS 1900	1850.2	22.81	3.1	2.04	389.94	0.0776	1.0000	Complies

For LTE:

Band	Frequency (MHz)	Max. Tune Up Power (dBm)	Antenna Gain (dBi)	Antenna Gain (linear)	Output Power to Antenna	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
Band 2	1850.7	22	3.1	2.04	323.59	0.0644	1.0000	Complies
Band 4	1710.7	22	3.1	2.04	323.59	0.0644	1.0000	Complies
Band 5	824.7	22	1.6	1.45	229.09	0.0456	0.5498	Complies
Band 12	699.7	22	1.6	1.45	229.09	0.0456	0.4665	Complies
Band 13	779.5	22	1.6	1.45	229.09	0.0456	0.5197	Complies
Band 25	1882.5	22	3.1	2.04	323.59	0.0644	1.0000	Complies
Band 26 (Part 22)	824.7	22	1.6	1.45	229.09	0.0456	0.5498	Complies
Band 26 (Part 90)	814.7	22	1.6	1.45	229.09	0.0456	0.5431	Complies
Band 66	1710.7	22	3.1	2.04	323.59	0.0644	1.0000	Complies
Band 85	700.5	22	1.6	1.45	229.09	0.0456	0.4670	Complies

For the max simultaneous transmission MPE:

Ratio		Total	Limit of Ratio	Test Result
LE	GSM			
0.00048	0.1995	0.2000	1	Complies

Note: The calculated distance is 20 cm.
Output power including tune up tolerance.

End of Test Report