MPE TEST REPORT

Applicant	Spireon Inc
FCC ID	O9YFULI
Product	GPS Tracker
Brand	Spireon
Model	FULI
Report No.	R2303A0244-M1
Issue Date	April 17, 2023

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC 47 CFR Part 1 1.1310.** The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Wei Fangying

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Table of Contents

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1 Test Laboratory

1.1 Notes of the Test Report

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1.2 Test Facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City:	Shanghai
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1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

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2 Description of Equipment Under Test

Client Information

Applicant	Spireon Inc
Applicant address	18881 Von Karman Ave., Suite #1500, Irvine, CA 92612, United States
Manufacturer	Asiatelco Technologies Co.
Manufacturer address	No. 68 Huatuo Road, Building-8, Zhangjiang Hi-Tech Park, Pudong, Shanghai 201203, China

General Technologies

Model	FULI
SN	MPY22KR02028372
Hardware Version	3.0.0
Software Version	3.8.15.13
Date of Sample Received	March 14, 2023
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. 2. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.	

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3 Maximum Tune up and Antenna Gain

The numeric gain (G) of the antenna with a gain specified in dB is determined by
Numeric gain (G)=10^(antenna gain/10)

Band	Maximum Tune up Power		Antenna Gain (dBi)	Numeric Gain
	(dBm)	(mW)		
LTE-M Band 2	25.000	316.228	1.1	1.288
LTE-M Band 4	25.000	316.228	1.2	1.318
LTE-M Band 5	25.000	316.228	1.0	1.259
LTE-M Band 12	25.000	316.228	0.2	1.047
LTE-M Band 13	25.000	316.228	0.4	1.096

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4 Test Result

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following.

TABLE 1 – LIMITS FOR MAXIMUN PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Averaging Time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

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

Note1. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

Note2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

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The maximum permissible exposure for 300~1500 MHz is f/1500, for 1500~100,000MHz is 1.0. So

Band	The Maximum Permissible Exposure (mW/cm^2)
LTE-M Band 2	1.000
LTE-M Band 4	1.000
LTE-M Band 5	0.549
LTE-M Band 12	0.466
LTE-M Band 13	0.518

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RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided. This calculation is based on the conducted power, considering maximum power and antenna gain. The formula shown in KDB 447498 D01 is used in the calculation.

Equation from KDB 447498 D01 General RF Exposure Guidance v06 (10/23/2015) is:

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

Where: S = power density (in appropriate units, e.g. mW/cm^2)

P = Time-average maximum tune up procedure (in appropriate units, e.g., mW)

G = the numeric gain of the antenna

R = distance to the center of radiation of the antenna (20 cm = limit for MPE)

Band	Maximum Tune up (dBm)	Antenna Gain (dBi)	Maximum EIRP (dBm)	PG (mW)	Test Result (mW/cm^2)	Limit Value (mW/cm^2)
LTE-M Band 2	25.000	1.1	26.100	407.380	0.081	1.000
LTE-M Band 4	25.000	1.2	26.200	416.869	0.083	1.000
LTE-M Band 5	25.000	1.0	26.000	398.107	0.079	0.549
LTE-M Band 12	25.000	0.2	25.200	331.131	0.066	0.466
LTE-M Band 13	25.000	0.4	25.400	346.737	0.069	0.518
Note: **R** = 20cm **π**= 3.1416						

Note: For transmitters, minimum separation distance is 20cm, even if calculations indicate MPE distance is less.

********END OF REPORT ********

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ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

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