

RF Exposure Evaluation Report

APPLICANT : Gosafe Company Limited

EQUIPMENT : GPS tracker

BRAND NAME : GOSAFE


MODEL NAME : GAT1000

FCC ID : RSRP-RI-ME

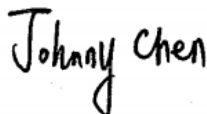
STANDARD : 47 CFR Part 2.1091

FCC KDB 447498 D01 v06

We, Sporton International (ShenZhen) Inc., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and FCC KDB 447498 D01 v06, and pass the limit. Without written approval of Sporton International (ShenZhen) Inc., the test report shall not be reproduced except in full.



Reviewed by: Long Liang / Supervisor



Approved by: Johnny Chen / Manager



Sporton International (ShenZhen) Inc.

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People's Republic of China



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**Revision History**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA9N1902	Rev. 01	Initial issue of report	Feb. 25, 2020



1. Administration Data

1.1. Testing Laboratory

Sporton International (Shenzhen) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Testing Laboratory		
Test Firm	Sporton International (Shenzhen) Inc.	
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595	
Test Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CN1256	421272

Applicant	
Company Name	Gosafe Company Limited
Address	RM 1105, the Innovation Building C1 No. 182 Kexue Avenue, Science City, Guangzhou.China

Manufacturer	
Company Name	DongGuan Smute Electronic & Technology co.,Ltd.
Address	Huangzhou Industrial Park, Puxi Economic Joint Community, Huaqiang Road,Xincheng District, Shilong Town, Dongguan ,Guangdong, P.R. China



2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	GPS tracker
Brand Name	GOSAFE
Model Name	GAT1000
FCC ID	RSRP-RI-ME
Wireless Technology and Frequency Range	WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	HSDPA HSUPA DC-HSDPA HSPA+ (16QAM uplink is not supported) LTE : QPSK / 16QAM Bluetooth LE
Antenna Type	PCB Antenna
HW Version	V3.0.0
SW Version	V2.1.12
EUT Stage	Production Unit
Remark:	
1. This device does not support voice function.	

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

3. Maximum RF average output power among production units

<WCDMA>

Mode		Maximum Average power(dBm)
WCDMA	Band II	24.00
	Band V	24.00

<LTE>

Mode	Maximum Average power(dBm)
LTE Band 2	24.00
LTE Band 4	24.00
LTE Band 5	24.00
LTE Band 17	24.00

<Bluetooth>

Mode	Maximum Average power(dBm)
Bluetooth BLE	4.00

4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	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/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

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

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
WCDMA Band 2	1852.4	3.00	24.00	27.00	0.501	501.187	0.100	1.000	0.100
WCDMA Band 5	826.4	3.00	24.00	27.00	0.501	501.187	0.100	0.551	0.181
LTE Band 2	1850.7	3.00	24.00	27.00	0.501	501.187	0.100	1.000	0.100
LTE Band 4	1710.7	3.00	24.00	27.00	0.501	501.187	0.100	1.000	0.100
LTE Band 5	824.7	3.00	24.00	27.00	0.501	501.187	0.100	0.550	0.181
LTE Band 17	706.5	3.00	24.00	27.00	0.501	501.187	0.100	0.471	0.212
Bluetooth	2402.0	2.00	4.00	6.00	0.004	3.981	0.001	1.000	0.001

Note:

1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band
2. Chose the maximum power to do MPE analysis.

**5.2. Collocated Power Density Calculation**

Max WWAN Power Density / Limit	Max Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WWAN + Bluetooth
0.212	0.001	0.213

Note:

1. For collocation analysis, LTE band 17 is chosen for summation due to the highest (power density/limit) among all WWAN wireless modes.
2. Σ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN + Bluetooth.
3. Considering the WWAN module collocation with the Bluetooth transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 2 collocated transmitters is compliant

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.