

RF Exposure Evaluation Report

APPLICANT : Locus Solutions,LLC
EQUIPMENT : 2G/3G Tracker
BRAND NAME : Emerson
MODEL NAME : GO Real-Time 2G/3G
FCC ID : AMH101009
STANDARD : 47 CFR Part 2.1091

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



Approved by: Mark Qu / Manager



Sporton International (Shenzhen) Inc.

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA830506	Rev. 01	Initial issue of report	Jun. 21, 2018



1. Administration Data

1.1. Testing Laboratory

Testing Laboratory	
Test Site	Sporton International (Shenzhen) Inc.
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan Shenzhen City Guangdong Province 518055 China TEL: +86-755-8637-9589 FAX: +86-755-8637-9595

Applicant	
Company Name	Locus Solutions,LLC
Address	7121 Fairway Dr. Suite #400 Palm Beach Gardens, FL 33418 USA

Manufacturer	
Company Name	Shenzhen Zhenhua Communication Equipment Co.Ltd
Address	Zhenhua Industrial Park, No.44, Tiezai Rd., Xixiang Town,BaoAn, Shenzhen, Guang Dong, China

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	2G/3G Tracker
Brand Name	Emerson
Model Name	GO Real-Time 2G/3G
FCC ID	AMH101009
IMEI Code	357520073065811
Wireless Technology and Frequency Range	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz
Mode	GPRS/EGPRS RMC/AMR 12.2Kbps HSDPA HSUPA
HW Version	BV0
SW Version	ENG3606
EUT Stage	Identical Prototype
Remark: 1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description. 2. The device supports GPRS/EGPRS Class 12. 3. There are two types of EUT: Sample1 uses the 5400mA battery pack, Sample2 uses the 5400mA battery pack.	

3. Maximum RF average output power among production units

<GSM>

Mode	Burst Average Power (dBm)	
	GSM 850	GSM 1900
GPRS 1 Tx slot	33.00	30.00
GPRS 2 Tx slots	33.00	30.00
GPRS 3 Tx slots	32.50	29.00
GPRS 4 Tx slots	31.50	28.00
EDGE 1 Tx slot	28.00	26.00
EDGE 2 Tx slots	28.00	26.00
EDGE 3 Tx slots	27.00	25.50
EDGE 4 Tx slots	26.00	24.00

<WCDMA>

Mode	Average Power (dBm)	
	WCDMA Band II	WCDMA Band V
RMC 12.2Kbps	24.00	24.00
HSDPA Subtest-1	23.00	23.00
HSDPA Subtest-2	23.00	23.00
HSDPA Subtest-3	22.50	22.50
HSDPA Subtest-4	22.50	22.50
HSUPA Subtest-1	23.00	23.00
HSUPA Subtest-2	21.00	21.00
HSUPA Subtest-3	22.00	22.00
HSUPA Subtest-4	21.00	21.00
HSUPA Subtest-5	23.00	23.00

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)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)
GPRS850 (1 Tx slot)	824.2	-1.00	33.00	32.000	199.526	0.040	0.549
GPRS850 (2 Tx slots)	824.2	-1.00	33.00	32.000	398.107	0.079	0.549
GPRS850 (3 Tx slots)	824.2	-1.00	32.50	31.500	529.663	0.105	0.549
GPRS850 (4 Tx slots)	824.2	-1.00	31.50	30.500	562.341	0.112	0.549
EGPRS850 (1 Tx slot)	824.2	-1.00	28.00	27.000	63.096	0.013	0.549
EGPRS850 (2 Tx slots)	824.2	-1.00	28.00	27.000	125.893	0.025	0.549
EGPRS850 (3 Tx slots)	824.2	-1.00	27.00	26.000	149.279	0.030	0.549
EGPRS850 (4 Tx slots)	824.2	-1.00	26.00	25.000	158.489	0.032	0.549
GPRS1900 (1 Tx slot)	1850.2	-1.00	30.00	29.000	100.000	0.020	1.000
GPRS1900 (2 Tx slots)	1850.2	-1.00	30.00	29.000	199.526	0.040	1.000
GPRS1900 (3 Tx slots)	1850.2	-1.00	29.00	28.000	236.592	0.047	1.000
GPRS1900 (4 Tx slots)	1850.2	-1.00	28.00	27.000	251.189	0.050	1.000
EGPRS1900 (1 Tx slot)	1850.2	-1.00	26.00	25.000	39.811	0.008	1.000
EGPRS1900 (2 Tx slots)	1850.2	-1.00	26.00	25.000	79.433	0.016	1.000
EGPRS1900 (3 Tx slots)	1850.2	-1.00	25.50	24.500	105.682	0.021	1.000
EGPRS1900 (4 Tx slots)	1850.2	-1.00	24.00	23.000	100.000	0.020	1.000
WCDMA Band II	1852.4	-1.00	24.00	23.000	199.526	0.040	1.000
WCDMA Band V	826.4	-1.00	24.00	23.000	199.526	0.040	0.551

Note: For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band

Conclusion:

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