# RF Exposure Evaluation Report

| | | |
|---|---|---|
| **APPLICANT** | : | **Locus Solutions,LLC** |
| **EQUIPMENT** | : | **GO Tracker 1.6** |
| **BRAND NAME** | : | **Emerson** |
| **MODEL NAME** | : | **GO Tracker 1.6** |
| **FCC ID** | : | **AMH101013** |
| **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.**

Hank Huang

**Reviewed by: Hank Huang / Supervisor**

Johnny Chen

**Approved by: Johnny Chen / Manager**

ACCREDITED Cert #5145.01

***Sporton International (ShenZhen) Inc.***

***1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055***

***People's Republic of China***

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## Revision History

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---|---|---|---|
| FA0N2403 | Rev. 01 | Initial issue of report. | Apr. 27, 2021 |
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# 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<br>TEL: +86-755-86379589<br>FAX: +86-755-86379595 | |
| **Test Site No.** | **FCC Designation No.** | **FCC Test Firm Registration No.** |
| | CN1256 | 421272 |

| 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 | GO Tracker 1.6 |
| Brand Name | Emerson |
| Model Name | GO Tracker 1.6 |
| FCC ID | AMH101013 |
| Wireless Technology and Frequency Range | GSM850: 824 MHz ~ 849 MHz<br>GSM1900: 1850 MHz ~ 1910 MHz<br>LTE Category M1:<br>LTE Band 2 : 1850 MHz ~ 1910 MHz<br>LTE Band 4 : 1710 MHz ~ 1755 MHz<br>LTE Band 5 : 824 MHz ~ 849 MHz<br>LTE Band 12 : 699 MHz ~ 716 MHz<br>LTE Band 13 : 777 MHz ~ 787 MHz<br>LTE Band 26 : 814 MHz ~ 849 MHz<br>NB-IOT Category NB1 :<br>NB-IOT Band 2 : 1850 MHz ~ 1910 MHz<br>NB-IOT Band 4 : 1710 MHz ~ 1755 MHz<br>NB-IOT Band 5 : 824 MHz ~ 849 MHz<br>NB-IOT Band 12 : 699 MHz ~ 716 MHz<br>NB-IOT Band 13 : 777 MHz ~ 787 MHz<br>NB-IOT Band 26 : 814 MHz ~ 849 MHz |
| Mode | GPRS/EGPRS<br>LTE Category M1: QPSK / 16QAM<br>NB-IOT Category NB1 :BPSK / QPSK |
| HW Version | 0 |
| SW Version | 6.4.A01 |
| EUT Stage | Production Unit |

**Remark:**

**1.** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

| Comments and Explanations: |
|---|
| 1. 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. |
| 2. The maximum RF output tune up power, antenna gain and the safe distance used for evaluate RF exposure were declared by manufacturer. |

# 3. Maximum RF average output tune up power among production units

**<GSM>**

| Mode | Burst average power(dBm) | |
|---|---|---|
| | GSM 850 | GSM 1900 |
| GPRS (GMSK, 1 Tx slot) | 33.00 | 31.00 |
| GPRS (GMSK, 2 Tx slots) | 33.00 | 31.00 |
| GPRS (GMSK, 3 Tx slots) | 32.00 | 30.00 |
| GPRS (GMSK, 4 Tx slots) | 31.00 | 30.00 |
| EDGE (8PSK, 1 Tx slot) | 27.00 | 27.00 |
| EDGE (8PSK, 2 Tx slots) | 27.00 | 27.00 |
| EDGE (8PSK, 3 Tx slots) | 27.00 | 27.00 |
| EDGE (8PSK, 4 Tx slots) | 27.00 | 27.00 |

**<LTE>**

| Mode | | Maximum Average power(dBm) |
|---|---|---|
| LTE Cat M1 | Band 2 | 24.00 |
| | Band 4 | 24.00 |
| | Band 5 | 24.00 |
| | Band 12 | 24.00 |
| | Band 13 | 23.00 |
| | Band 26 | 24.00 |
| NB-IOT | Band 2 | 24.00 |
| | Band 4 | 24.00 |
| | Band 5 | 24.00 |
| | Band 12 | 24.00 |
| | Band 13 | 23.00 |
| | Band 26 | 24.00 |

# 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/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 |

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) |
|---|---|---|---|---|---|---|---|
| GPRS 850 (1 Tx slot) | 824.2 | -5.51 | 33.00 | 27.490 | 70.632 | 0.014 | 0.549 |
| GPRS 850 (2 Tx slots) | 824.2 | -5.51 | 33.00 | 27.490 | 140.929 | 0.028 | 0.549 |
| GPRS 850 (3 Tx slots) | 824.2 | -5.51 | 32.00 | 26.490 | 167.109 | 0.033 | 0.549 |
| GPRS 850 (4 Tx slots) | 824.2 | -5.51 | 31.00 | 25.490 | 177.419 | 0.035 | 0.549 |
| EGPRS 850 (1 Tx slot) | 824.2 | -5.51 | 27.00 | 21.490 | 17.742 | 0.004 | 0.549 |
| EGPRS 850 (2 Tx slots) | 824.2 | -5.51 | 27.00 | 21.490 | 35.400 | 0.007 | 0.549 |
| EGPRS 850 (3 Tx slots) | 824.2 | -5.51 | 27.00 | 21.490 | 52.845 | 0.011 | 0.549 |
| EGPRS 850 (4 Tx slots) | 824.2 | -5.51 | 27.00 | 21.490 | 70.632 | 0.014 | 0.549 |
| GPRS 1900 (1 Tx slot) | 1850.2 | -4.12 | 31.00 | 26.880 | 61.376 | 0.012 | 1.000 |
| GPRS 1900 (2 Tx slots) | 1850.2 | -4.12 | 31.00 | 26.880 | 122.462 | 0.024 | 1.000 |
| GPRS 1900 (3 Tx slots) | 1850.2 | -4.12 | 30.00 | 25.880 | 145.211 | 0.029 | 1.000 |
| GPRS 1900 (4 Tx slots) | 1850.2 | -4.12 | 30.00 | 25.880 | 194.089 | 0.039 | 1.000 |
| EGPRS 1900 (1 Tx slot) | 1850.2 | -4.12 | 27.00 | 22.880 | 24.434 | 0.005 | 1.000 |
| EGPRS 1900 (2 Tx slots) | 1850.2 | -4.12 | 27.00 | 22.880 | 48.753 | 0.010 | 1.000 |
| EGPRS 1900 (3 Tx slots) | 1850.2 | -4.12 | 27.00 | 22.880 | 72.778 | 0.014 | 1.000 |
| EGPRS 1900 (4 Tx slots) | 1850.2 | -4.12 | 27.00 | 22.880 | 97.275 | 0.019 | 1.000 |
| LTE Band 2 | 1850.7 | -4.12 | 24.00 | 19.880 | 97.275 | 0.019 | 1.000 |
| LTE Band 4 | 1710.7 | -4.11 | 24.00 | 19.890 | 97.499 | 0.019 | 1.000 |
| LTE Band 5 | 824.7 | -5.51 | 24.00 | 18.490 | 70.632 | 0.014 | 0.550 |
| LTE Band 12 | 699.7 | -7.41 | 24.00 | 16.590 | 45.604 | 0.009 | 0.466 |
| LTE Band 13 | 779.5 | -10.34 | 23.00 | 12.660 | 18.450 | 0.004 | 0.520 |
| LTE Band 26 | 814.7 | -5.51 | 24.00 | 18.490 | 70.632 | 0.014 | 0.543 |
| NB-IOT Band 2 | 1850.7 | -4.12 | 24.00 | 19.880 | 97.275 | 0.019 | 1.000 |
| NB-IOT Band 4 | 1710.7 | -4.11 | 24.00 | 19.890 | 97.499 | 0.019 | 1.000 |
| NB-IOT Band 5 | 824.7 | -5.51 | 24.00 | 18.490 | 70.632 | 0.014 | 0.550 |
| NB-IOT Band 12 | 699.7 | -7.41 | 24.00 | 16.590 | 45.604 | 0.009 | 0.466 |
| NB-IOT Band 13 | 779.5 | -10.34 | 23.00 | 12.660 | 18.450 | 0.004 | 0.520 |
| NB-IOT Band 26 | 814.7 | -5.51 | 24.00 | 18.490 | 70.632 | 0.014 | 0.543 |

**Note:**

1. 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.

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