RF Exposure Report

Report Number:	208729-4 **Revision Level:** 2
Client:	Tractotomy Systems, Inc.
	214 Devcon Dr. San Jose, CA 95112
Equipment Under Test:	Multifunctional IoT Platform Sensor Device
Model Number:	FBO-2005
FCC ID:	2AXA8-FBO-2005
IC ID	27299-FBO2005
Applicable Standards:	47 CFR § 2.1091
	RSS-102, Issue 6
	FCC KDB 447498 D01 General RF Exposure Guidance v06
Report issued on:	13 June 2024
Result:	Compliant

FOR THE SCOPE OF ACCREDITATION UNDER CERTIFICATE NUMBER: 1935.01
Report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the Federal Government.

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Reviewed by: Alex Chang, Sr. Regulatory Laboratory Manager – EMC/RF

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1 General Information

1.1 *Client Information*

Name:	Trackonomy Systems, Inc.
Address:	214 Devcon Dr.
City, State, Zip, Country:	San Jose, CA 95132

1.2 *Test Laboratory*

Name:	SGS North America, Inc.
Address:	12310 World Trade Drive, Suite 106/107
City, State, Zip, Country:	San Diego, CA 92128, USA
Accrediting Body:	A2LA
Type of lab:	Testing Laboratory
Certificate Number:	1935.01
Designation ID	US1346
CAB ID:	US0236

1.3 *General Information of EUT*

Type of Product:	Multifunctional IoT Platform Sensor Device
Model Number:	FBO-2005
Serial Number:	*Sample 1* (Conducted Sample x 1)
Frequency Ranges:	2402 – 2480 MHz
Antenna Model	FBO-2005-ANT
Antenna Type	Inverted F PCB Antenna
Antenna Gain*:	1.5 dBi (max.)
Max Conducted Output Power:	10 dBm

*Data was not measured by SGS laboratory and therefore SGS is not responsible for accuracy. Data obtained via customer, specification sheet, previous filing or other.

1.4 *Operating Modes and Conditions*

Maximum power levels were utilized for all calculations. Single transmission only.

2 RF Exposure

2.1 *Test Results*

Test Description	Product Specific Standard	Test Result
RF Exposure	FCC Part 2.1091 RSS-102	Compliant

2.2 *Test Method*

The formula below calculates power density.

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

Or

Where;
S = Power density (mW/cm^2)
P = Maximum sourced based average power delivered to antenna port (mW)
G = Maximum power gain of the antenna in the direction of interest relative to an isotropic radiator (dBi) (numerical value)
R = Distance between by-stander and antenna (cm)
EIRP = Equivalent (or effective) isotropically radiated power

2.3 *Limits*

The table below shows the limits applicable for equipment subject to FCC §15.247 and §2.1091.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power Density (mW/cm^2)	Averaging Time (Minutes)
0.3 – 1.34	614	20.4	*(100)	30
1.34 - 30	824/f	26.97	*(180/f^2)	30
30 - 300	27.5	33.62	0.2	30
300 - 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

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

The table below shows the limits applicable for equipment subject to RSS-102 issue 5.

Limits for General Public/Uncontrolled Environment

Frequency Range (MHz)	Electric field strength (V_{RMS}/m)	Magnetic field strength (A_{RMS}/m)	Power Density (mW/cm²)	Averaging Time (Minutes)
10 - 20	27.46	1.63	2	6
20 - 48	$58.07/f^{0.25}$	$0.1540/f^{0.25}$	$8.944/f^{0.5}$	6
48 - 300	22.06	0.05852	1.291	6
300 - 6000	$3.142f^{0.3417}$	$0.008335f^{0.3417}$	$0.02619f^{0.6834}$	6
6000 - 15000	61.4	0.163	10	6
15000 - 150000	61.4	0.163	10	$616000/f^{1.2}$
150000 - 300000	$0.158f^{0.5}$	$4.21x10^{-4}f^{0.5}$	$6.67x10^{-5}f$	$616000/f^{1.2}$

f = frequency in MHz

2.4 *Single transmission RF Exposure Levels (mW/cm²)*

2.4 GHz band, BLE per FCC §2.1091

Freq. (MHz)	Antenna Gain		Tune up conducted power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
2402	1.5	1.41	10	10	20	0.003	1

2.4 GHz band, BLE per RSS-102

Freq. (MHz)	Antenna Gain		Tune up conducted power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
2402	1.5	1.41	10	10	20	0.003	5.35

2.5 *Simultaneous Conditions*

N/A

3 Revision History

Revision Level	Description of changes	Page Affected	Revision Date
1	Initial release	-	May 30, 2024
2	Sample serial number and Conducted power correction	3 and 5	June 12, 2024