RF Exposure Report

Report Number:	208729-6 **Revision Level:** 1
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
Applicable Standards:	47 CFR § 2.1091
	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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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:

Technology	Band	Range
LTE	2	1850 MHz – 1910 MHz
	4	1710 MHz – 1755 MHz
	5/26	824 MHz– 849 MHz
	7	2500 MHz– 2570 MHz
	8	880 MHz– 915 MHz
	12	699 MHz– 716 MHz
	13	777 MHz– 787 MHz
	25	1850 MHz – 1915 MHz
GPRS	850	824.2 MHz – 848.8 MHz
	1900	1850.2 MHz – 1909.8 MHz
EGPRS	850	824.2 MHz – 848.8 MHz
	1900	1850.2 MHz – 1909.8 MHz
WCDMA	2	1850 MHz – 1910 MHz
	5	824 MHz – 849 MHz

Antenna Model ignion
Antenna Type NN02-220
Antenna Gain*: 2.3dBi (698-960MHz)
3.1dBi (1710-2690MHz)

*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	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 §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

2.4 *Single transmission RF Exposure Levels (mW/cm²) per FCC§2.1091*

LTE Band 2

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
1882.5	3.1	2.04	24	251.19	20	0.102	1

LTE Band 4

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
1732.5	3.1	2.04	24	251.19	20	0.102	1

LTE Band 5/26

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
829	2.3	1.7	24	251.19	20	0.085	0.55

LTE Band 7

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
2535	3.1	2.04	24	251.19	20	0.102	1

LTE Band 8

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
898.2	2.3	1.7	24	251.19	20	0.085	0.6

LTE Band 12

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
707.5	2.3	1.7	24	251.19	20	0.085	0.47

LTE Band 13

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
782	2.3	1.7	24	251.19	20	0.085	0.52

LTE Band 25

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
1882.5	3.1	2.04	24	251.19	20	0.102	1

GPRS 850

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
848.8	2.3	1.7	27.5	562.34	20	0.19	0.57

Note: The maximum tune-up output power + tolerance is 33.5dBm. However, the MPE was used the source based time average power value to calculated

GPRS 1900

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
1909.8	3.1	2.04	24.5	281.84	20	0.114	1

Note: The maximum tune-up output power + tolerance is 30.5dBm. However, the MPE was used the source based time average power value to calculated

EGPRS 850

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
824.2	2.3	1.7	22	158.49	20	0.054	0.55

Note: The maximum tune-up output power + tolerance is 28dBm. However, the MPE was used the source based time average power value to calculated

EGPRS 1900

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
1909.8	3.1	2.04	21	125.89	20	0.051	1

Note: The maximum tune-up output power + tolerance is 27dBm. However, the MPE was used the source based time average power value to calculated

WCDMA B2

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
1852.4	3.1	2.04	24.5	281.84	20	0.114	1

WCDMA B5

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBi)	numerical	(dBm)	(mW)			
836.6	2.3	1.41	24.5	281.84	20	0.095	0.55

2.5 *Simultaneous Conditions*

N/A

3 Revision History

Revision Level	Description of changes	Page Affected	Revision Date
1	Initial release	-	June 13, 2024