

# RF Exposure Report

**Report Number:** 208745-10**Revision Level:** 1**Client:** Tractotomy Systems, Inc.

214 Devcon Dr. San Jose, CA 95112

**Equipment Under Test:** Multi-Functional IoT Platform Sensor Gateway**Model Number:** GBP-3001**FCC ID:** 2AXA8-GBP-3001**Applicable Standards:** 47 CFR § 2.1091

FCC KDB 447498 D01 General RF Exposure Guidance v06

**Report issued on:** June 25, 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:** GBP-3001  
**Serial Number:** 20121  
**Frequency Ranges:**

Technology	Band	Range
LTE	2	1850 MHz – 1910 MHz
	4	1710 MHz – 1755 MHz
	5	824 MHz – 849 MHz
	12	699 MHz – 716 MHz
	13	777 MHz – 787 MHz
	66	1710 MHz – 1780 MHz
	71	663 MHz – 698 MHz
WCDMA	II	1850 MHz – 1910 MHz
	IV	1710 MHz – 1755 MHz
	V	824 MHz – 849 MHz

**Data Modes:** QPSK as worst case  
**Antenna Manufacturer:** 2J-antennas  
**Antenna Model:** 2J6C86BCFc  
**Antenna Gain\*:** 4G LTE/3G WCDMA: 2.5dBi (617-960MHz)  
4G LTE/3G WCDMA: 5.0dBi (1427-2690MHz)

\*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.

$$S = \frac{PG}{4\pi R^2} \quad \text{Or} \quad S = \frac{EIRP}{4\pi R^2}$$

Where;

S = Power density (mW/cm<sup>2</sup>)

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 <sup>2</sup> )	Averaging Time (Minutes)
0.3 – 1.34	614	20.4	*(100)	30
1.34 - 30	824/f	26.97	*(180/f <sup>2</sup> )	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/cm<sup>2</sup>) per FCC§2.1091

LTE Band 2

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
	(dBi)	numerical	(dBm)	(mW)			
1880	5.0	3.16	25	316.23	25	0.127	1

LTE Band 4

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
	(dBi)	numerical	(dBm)	(mW)			
1753.5	5.0	3.16	25	316.23	25	0.127	1

LTE Band 5

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
	(dBi)	numerical	(dBm)	(mW)			
836.5	2.5	1.78	25	316.23	25	0.072	0.56

LTE Band 12

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
	(dBi)	numerical	(dBm)	(mW)			
714.5	2.5	1.78	25	316.23	25	0.072	0.48

LTE Band 13

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
	(dBi)	numerical	(dBm)	(mW)			
782	2.5	1.78	25	316.23	25	0.072	0.52

LTE Band 66

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
	(dBi)	numerical	(dBm)	(mW)			
1745	5.0	3.16	25	316.23	25	0.127	1

LTE Band 71

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
	(dBi)	numerical	(dBm)	(mW)			
668	2.5	1.78	25	316.23	25	0.072	0.45

WCDMA B2

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
	(dBi)	numerical	(dBm)	(mW)			
1852.4	5.0	3.16	25	316.23	25	0.127	1

#### WCDMA B4

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
	(dBi)	numerical	(dBm)	(mW)			
1712.4	5.0	3.16	25	316.23	25	0.127	1

#### WCDMA B5

Freq. (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
	(dBi)	numerical	(dBm)	(mW)			
826.4	2.5	1.78	25	316.23	25	0.072	0.55

## 2.5 Simultaneous Conditions

N/A

### 3 Revision History

Revision Level	Description of changes	Revision Date
1	Initial release	June 25, 2024