

Test Report Number: 208745-9 Rev:1 Page: 1 of 7

# **RF Exposure Report**

Report Number:	208745-9	Revision Level: 1			
Client:	Tractotomy Systems, Inc.				
	214 Devcon Dr. San Jose, CA	95112			
Equipment Under Test:	Multifunctional IoT Platform Sensor Device				
Model Number:	GBP-3001				
FCC ID:	2AXA8-GBP-3001				
Applicable Standards:	47 CFR § 2.1091				
	FCC KDB 447498 D01 Genera	al 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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#### **General Information** 1

#### **Client Information** 1.1

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

#### **Test Laboratory** 1.2

Name: Address: City, State, Zip, Country: Accrediting Body: A2LA Certificate Number: 1935.01 Designation ID US1346 CAB ID: US0236

SGS North America, Inc. 12310 World Trade Drive, Suite 106/107 San Diego, CA 92128, USA Type of lab: Testing Laboratory

#### **General Information of EUT** 1.3

Model Number: Serial Number:

Type of Product: Multifunctional IoT Platform Sensor Device GBP-3001 20134

Technology	Freq. Range (MHz)	Antenna Model	Antenna Type	Antenna Gain (dBi)	Max Conducted Power (dBm)
LoRa	902-928	BBT- 09PA08C065	Panel, Low Profile	8 (Peak Max)	26.85 (Peak)
WiFI 5GHz U-NII-1	5150-5250	2J6C86BCFc	Radome - Screw Mount	6.4 (Peak Max)	16.5 (Avg)
WiFI 5GHz U-NII-3	5725-5835	2J6C86BCFc	Radome - Screw Mount	6.4 (Peak Max)	15.77 (Avg)

\*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.

#### **Operating Modes and Conditions** 1.4

Maximum power levels were utilized for all calculations.



# 2 RF Exposure

### 2.1 Test Results

Test Description	Product Specific Standard	Test Result
RF Exposure	FCC Part 2.1091 FCC KDB 447498 D01	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

Whepre;

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

### Note:

- 1. Σ (Power Density / Limit): This is a summation of [(Power Density for each transmitter/antenna included in the simultaneous transmission) / (corresponding MPE limit)].
- 2. Considering the collocated transmitters, the aggregated (Power Density /limit) is smaller than 1, and MPE of collocated transmitters is compliant.

$$\sum_{i=1}^{a} \frac{P_i}{P_{th,i}} + \sum_{j=1}^{b} \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^{c} \frac{Evaluated_k}{Exposure\ Limit_k} \le 1$$



### 2.3 Limits

The table below shows the limits applicable for equipment subject to FCC §2.1091 and FCC KDB 447498 D01.

Frequency Range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power Density (mW/cm²)	Averaging Time (Minutes)
0.3 – 1.34	614	20.4	*(100)	30
1.34 - 30	824/f	26.97	*(180/f²)	30
30 - 300	27.5	33.62	0.2	30
300 - 1500	/	/	f/1500	30
1500 - 100,000	/	/	1.0	30

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f = frequency in MHz

\* = Plane-wave equivalent power density



## 2.4 Single transmission RF Exposure Levels

WiFi 5GHz band per FCC KDB 447498 D01								
Freq.	Antenna Gain		Tune up conducted power		Evaluation	Power	Power Density /	Power Density
(MHz)	(dBi)	numerical	(dBm)	(mW)	(cm)	(mW/cm <sup>2</sup> )	Limit Ratio	Limit (mW/cm <sup>2</sup> )
5230	6.4	4.37	17.5	56.23	25	0.031	0.031	1

### LoRa band per FCC KDB 447498 D01

Freq.	Antenna	a Gain	Tune up conducted power		Evaluation	Power	Power Density /	Power Density
(MHz)	(dBi)	numerical	(dBm)	(mW)	(cm)	(mW/cm <sup>2</sup> )	Limit Ratio	Limit (mW/cm <sup>2</sup> )
927.25	8	6.31	27.9	616.6	25	0.495	0.8	0.618

### 2.5 Simultaneous Conditions

WiFi 5GHz and LoRa bands per FCC KDB 447498 D01

Freg.	Antenna	a Gain	Tune up conducted power		Evaluation	Power	∑ (Power
(MHz)	(dBi)	numerical	(dBm)	(mW)	(cm)	cm) Limit Ratio	
5230	6.4	4.37	17.5	56.23	25	0.031	
927.25	8	6.31	27.9	616.6	25	0.8	
					Total	0.831	1



# 3 Revision History

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