

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 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.

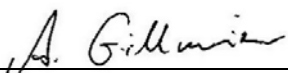
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1 General Information

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: 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.

1.4 Operating Modes and Conditions

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.

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

Where;

S = Power density (mW/cm²)

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.

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

2.3 Limits

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

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

WiFi 5GHz band per FCC KDB 447498 D01

Freq. (MHz)	Antenna Gain		Tune up conducted power		Evaluation Distance (cm)	Power Density (mW/cm ²)	Power Density / Limit Ratio	Power Density Limit (mW/cm ²)
	(dBi)	numerical	(dBm)	(mW)				
5230	6.4	4.37	17.5	56.23	25	0.031	0.031	1

LoRa band per FCC KDB 447498 D01

Freq. (MHz)	Antenna Gain		Tune up conducted power		Evaluation Distance (cm)	Power Density (mW/cm ²)	Power Density / Limit Ratio	Power Density Limit (mW/cm ²)
	(dBi)	numerical	(dBm)	(mW)				
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

Freq. (MHz)	Antenna Gain		Tune up conducted power		Evaluation Distance (cm)	Power Density / Limit Ratio	Σ (Power Density / Limit)
	(dBi)	numerical	(dBm)	(mW)			
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