

## RF Exposure Report (FCC)

**Report No.:** WIR128006-FCC-Track-RF Exposure

**Test Model:** NGI-2002

**Received Date:** August 02, 2023

**Test Date:** August 02, 2023– August 26, 2023

**Issued Date:** August 26, 2023

**Applicant:** Trackonomy Systems

**Address:** 214 Devcon Dr, San Jose, CA 95112

**Issued By:** Eurofins Electrical and Electronic Testing NA, Inc.

**Lab Address:** 3162 Belick St. Santa Clara CA, 95054



**1. Certificate of Conformity**

**Product:** Multifunctional IoT Platform Sensor  
**Brand:** Trackonomy Systems  
**Test Model:** NGI-2002  
**FCC ID:** 2AXA8-NGI-2002  
**Series Model:** N/A  
**Sample Status:** Engineering Sample  
**Applicant:** Trackonomy Systems  
**Test Date:** August 02, 2023– August 26, 2023

**Standard:** FCC Part 2 (Section 2.1091)  
 KDB 447498 D01 General RF Exposure Guidance v06  
 IEEE C95.1-1992

*Richard Dollente*  
 Richard Dollente  
 Test Engineer, Wireless Laboratory

**Engineering Statement:** The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made.

*Gary Chou*  
 Gary Chou  
 Wireless Engineering Manager, Wireless Laboratory

Revision	Report Date	Reason for Revision
∅	August 26, 2023	Initial Issue.

## 2. RF Exposure

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	...	...	f/1500	30
1500-100,000	...	...	1.0	30

f = Frequency in MHz; \*Plane-wave equivalent power density

### 2.1 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

Where

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

## 2.2 Antenna Gain

Lora:

Antenna Manufacturer/ Model:

Molex/ 2111400100:

Antenna Type: Flexible Antenna with Cable

Antenna Gain:

1 dBi

Bluetooth:

Antenna Type: PCB Antenna

Antenna Gain: -3 dBi

### 2.3 Calculation Result worst case of Maximum Conducted Power

Type/ Band	Frequency Band (MHz)	Max Power (tune up) (dBm)	Max Power (tune up) (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
Lora	903	8.8	7.5858	1	20	0.001091	0.602
Bluetooth LE	2402	1.3	1.3490	-3	20	0.000135	1

The maximum calculations of above situations are less than the limit.  
The SAR evaluation is not required.

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

### 3. This device contains

TYPE	Model No.	FCC ID	Note
-	-	-	-

### 4. Conclusion

#### Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

#### Worse case

Total MPE Percentage for

$$\text{Lora} = 0.001812292 < 1$$

$$\text{Bluetooth LE} = 0.000135 < 1$$

Therefore, the maximum calculations of above situations are less than the "1" limit.  
The SAR evaluation is not required.