Onity, Inc.
4001 Fairview Industrial Drive SE
Salem, OR 97302
(800) 547-0252

Trillium 2.0 Lock Antenna Information

RFID Antenna:

The RFID antenna used in the Trillium 2.0 Lock is an inductive loop antenna formed on a PCB that is connected to a separate Controller PCB containing the RFID drive circuitry & MCU. This antenna isan integral part of the RFID drive circuitry.

The antenna consists of 4 interwoven loops of copper trace along the edges of the top layer of the antenna PCB. The PCB trace loops of 0.01” each & the outer dimension of the loop is 2.300” x 1.825”, on a 0.008" Thick Flexible PCB.

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Below images (Figure 1&2) shows the PCB design for RFID antenna:

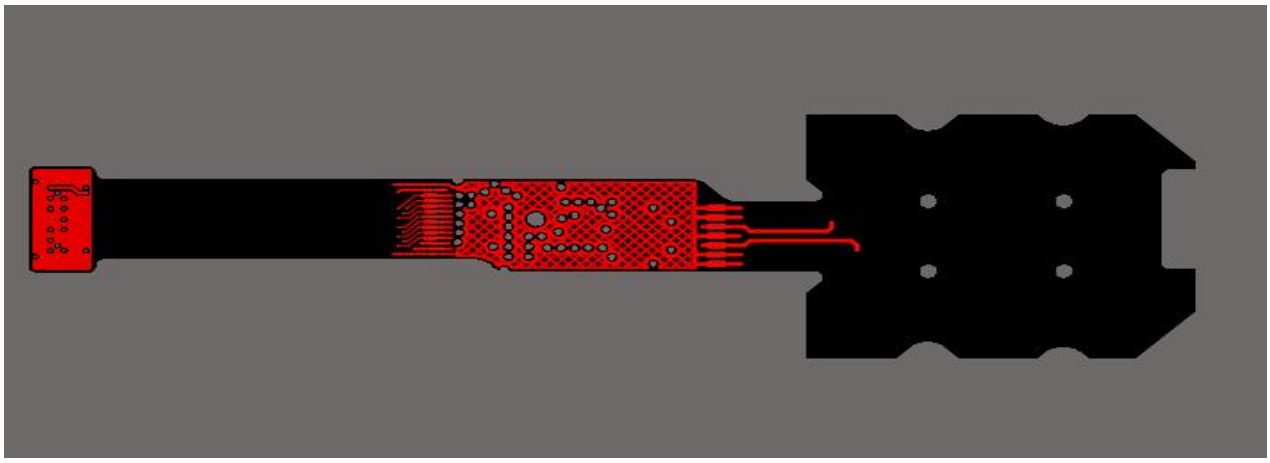

Figure 1. Top Layer Image of Antenna PCB

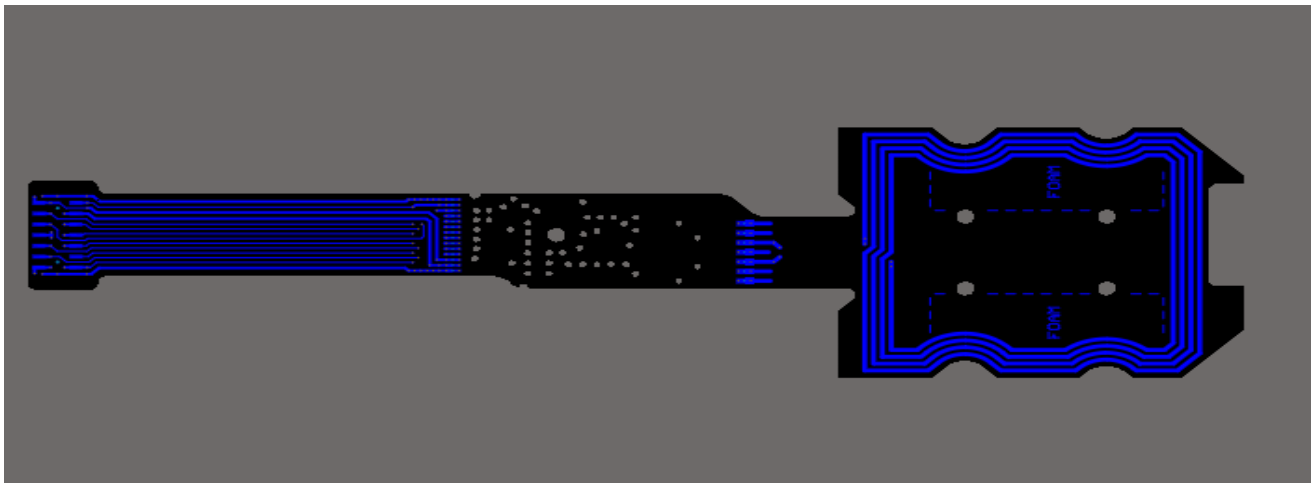

Figure 2. Bottom Layer Image of Antenna PCB

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In product assembly, the antenna PCB is Connected to the controller reader PCB using a SMT PCB to PCB connector to maintain proper spacing between boards. and the assembly looks like Figure 3 below:

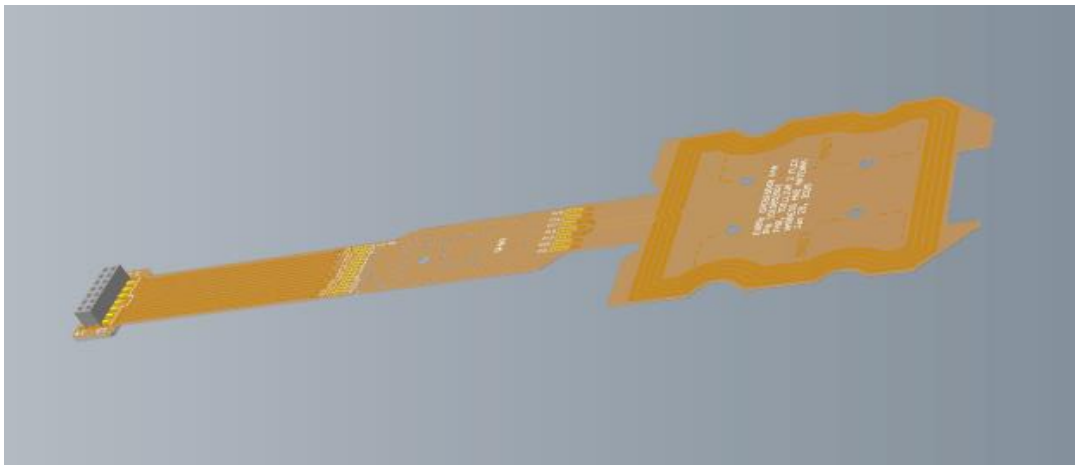

Figure 3. RFID Reader Antenna PCB electrical assembly with Connector

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Bluetooth Low energy – Antenna

Antenna type: - Chip, Soldered on PCB
Part No: - Part# 2450AT18D0100001E
Make: - Johanson Technology, Inc
PASS BAND Frequency: - 2400 – 2480 MHz
Peak Gain: - 1.5 dBi

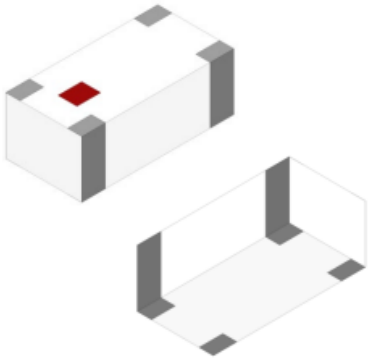
Specifications as below:

JOHANSON TECHNOLOGY

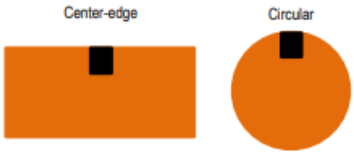
2450AT18D0100001E
Legacy P/N: 2450AT18D0100

2.4GHz, EIA 1206, Bluetooth/WiFi/Zigbee

Johanson Technology, Inc. (JTI) miniature RF ceramic chip antennas are made using Low Temperature Co-fired Ceramic (LTCC) technology which has the ability to embed low and high dielectric constants inside our antenna. This enables our components to have high detuning resilience and stability over extreme temperatures (−2ppm).



Recommended mounting locations for this antenna



General Specifications[1,2]

Passband Frequency (MHz)	**2400 - 2480**
Peak Gain (dBi)	1.5
Average Gain (dBi)	-1.0
Radiated Efficiency	72%
Return Loss (dB)	10 min.
Impedance (Ω)	50

Maximum Ratings

Power Capacity (W)	2 max. (CW)
Operating Temperature	-40 to +125°C
Recommended Storage Conditions post-installation (°C)	-40 to +85
Recommended Storage Conditions and Period for Unused T&R Product	45% - 75% RH +5 to +35 °C 18 Months Max.

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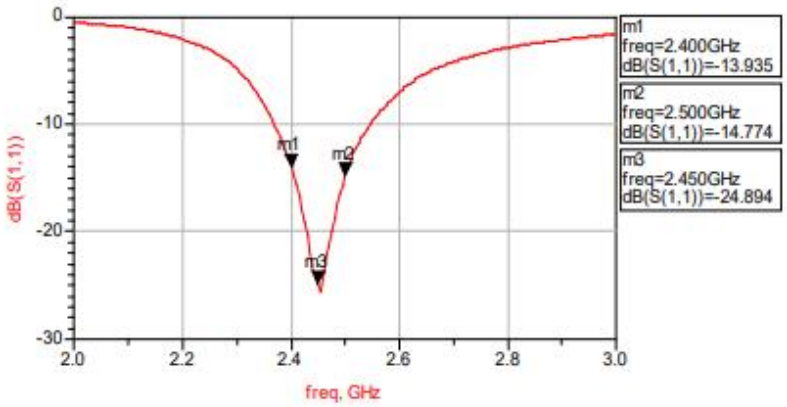
JOHANSON TECHNOLOGY

2450AT18D0100001E
Legacy P/N: 2450AT18D0100

Evaluation Board Return Loss Measurement



Evaluation Board 2D Radiation Patterns