

Serene wall reader Antenna Information

RFID Antenna:

The RFID antenna used in the Serene Wall reader 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 is an 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 2.875" x 0.825", on a 0.062" Thick PCB.

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

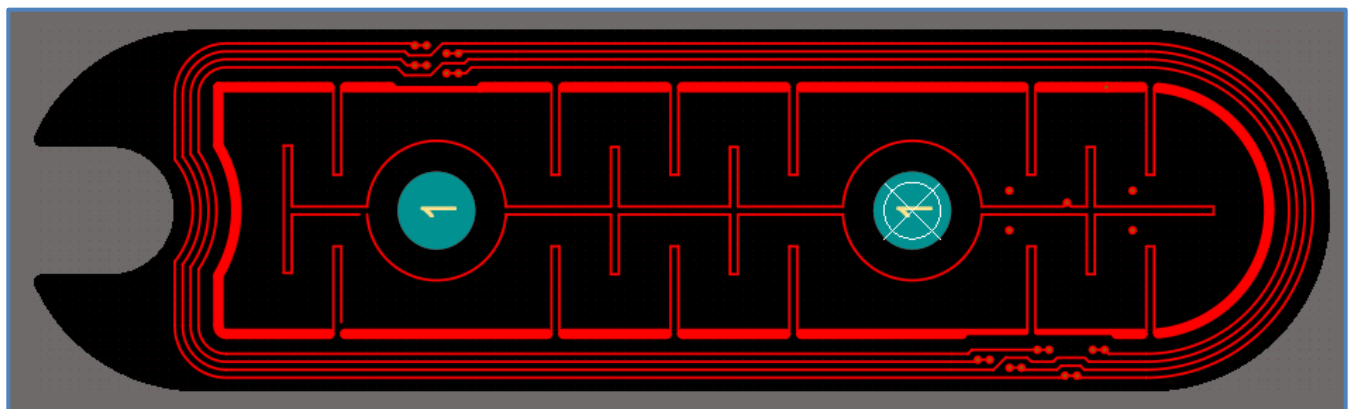


Figure 1. Top Layer Image of Antenna PCB

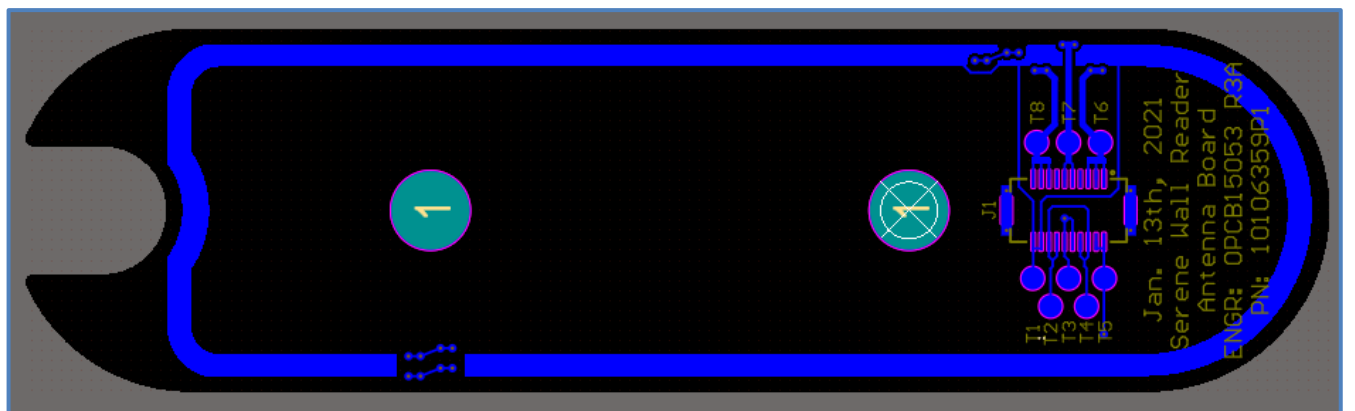


Figure 2. Bottom Layer Image of Antenna PCB

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:

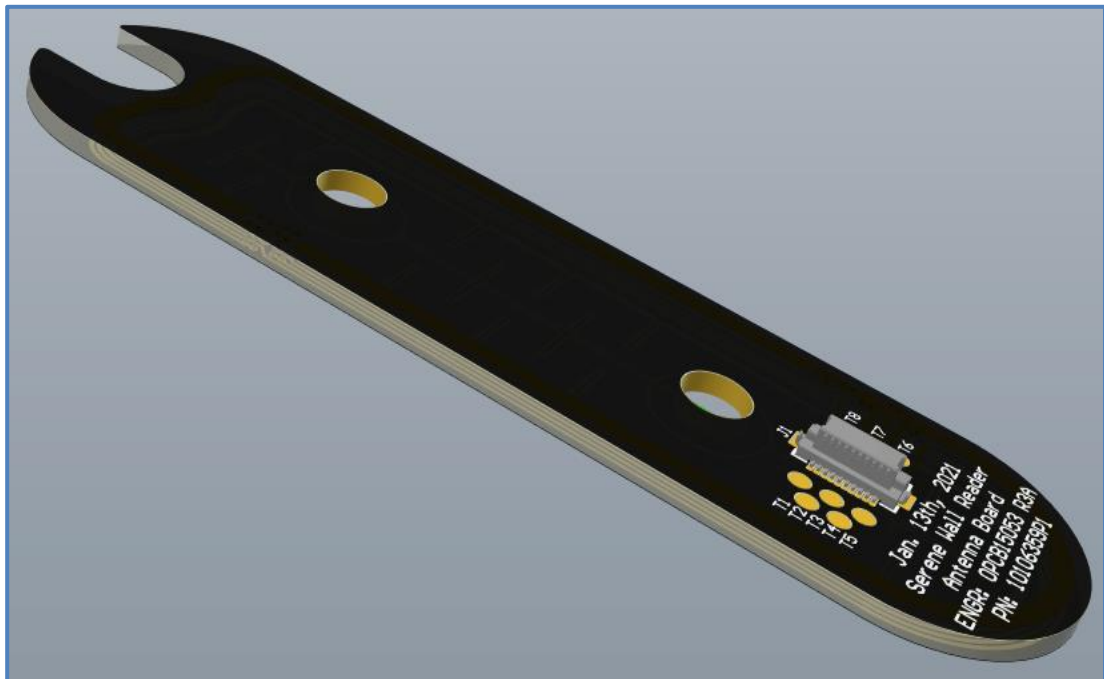


Figure 3. RFID Reader Antenna PCB electrical assembly with Connector

Bluetooth Low energy – Antenna

Antenna type: - Chip, Soldered on PCB
Part No: - Part# 2450AT18D0100
Make: - Johanson Technology, Inc
Frequency: - 2400 – 2500 MHz
Peak Gain: - 1.5 dBi

Specifications as below:

High Frequency Ceramic Solutions

AEC-Q200 Qualification Available

**2.45 GHz SMD Antenna, EIA 1206, Detuning resilient,
Edge Mount Design**


P/N 2450AT18D0100

Detail Specification: 5/26/2021 Page 1 of 7


Let us help you with the antenna design, optimization, and tuning!
<https://www.johansontechnology.com/ask-a-question>

General Specifications	
Part Number	2450AT18D0100E
Frequency (GHz)	2.4 - 2.5
Peak Gain (dBi)	1.5 typ. (XZ-total)
Average Gain (dBi)	-1.0 typ. (XZ-total)
Radiated Efficiency ¹	72%
Return Loss (dB)	10 min.
Impedance (Ω)	50
Input Power (W)	3 max. (CW)
Operating Temperature	-40 to +125°C
Recommended Storage Conditions and Period for unused Product on T&R	+5 to +35°C Humidity 45 - 75% RH 18 months max.
Reel Quantity (pcs./reel)	3,000

Top



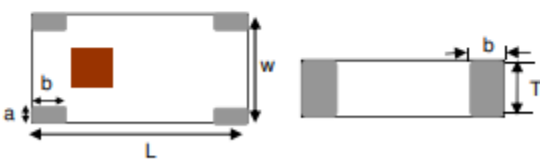
Bottom




¹Efficiency measured on Johanson's evaluation board PN 2450AT18D0100-EB1SMA

Part Number Explanation				
P/N Suffix	Packing Style	Bulk (loose pcs.)	Suffix = S	e.g. 2450AT18D0100S
		T & R	Suffix = E	e.g. 2450AT18D0100E
		100% Tin	Suffix = None	e.g. 2450AT18D0100(E or S)
Evaluation Board		2450AT18D0100-EB1SMA		

Mechanical Dimensions		
	In	mm
L	0.126 ± 0.008	3.20 ± 0.2
W	0.063 ± 0.008	1.60 ± 0.2
T	0.047 ± 0.004	1.20 ± 0.1
a	0.012 +0.004 / -0.008	0.30 +0.1 / -0.2
b	0.020 ± 0.008	0.50 ± 0.2




Terminal Configuration		
No.	Function 1	Function 2
1	FEED	GND
2	GND	GND
3	GND	GND
4	GND	FEED



Function 1: Antenna fed from left
Function 2: Antenna fed from right

Johanson Technology, Inc. reserves the right to make design changes without notice.
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Ver. 4.4

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4001 Calle Tecate • Camarillo, CA 93012 • TEL 805.389.1166 FAX 805.389.1821

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2.45 GHz SMD Antenna, EIA 1206, Detuning resilient,
Edge Mount Design

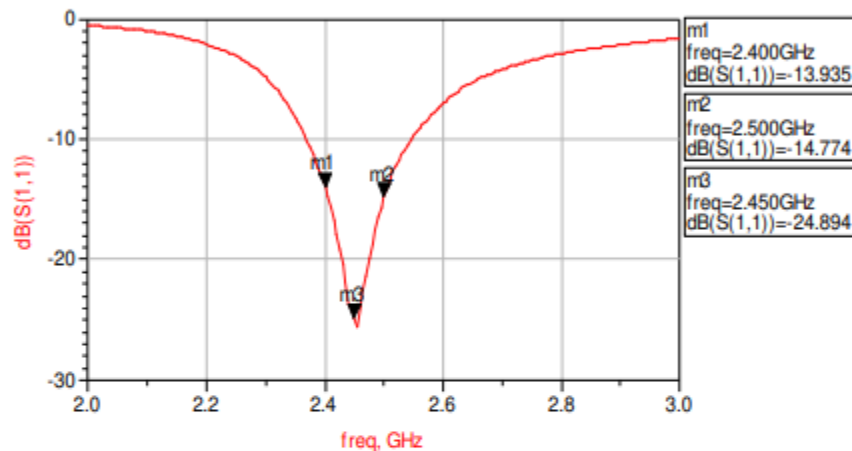
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Mounting Considerations 1: Electrical Performance @25°C

Measured Return Loss



Would you like the antenna layout? Have antenna tuning issues?
Please contact us if you have any questions regarding the implementation of this antenna in your PCB's layout. We'll be happy to guide you to maximize the antenna's performance.
Contact our applications engineers at:
<https://www.johansontechnology.com/ask-a-question>

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High Frequency Ceramic Solutions

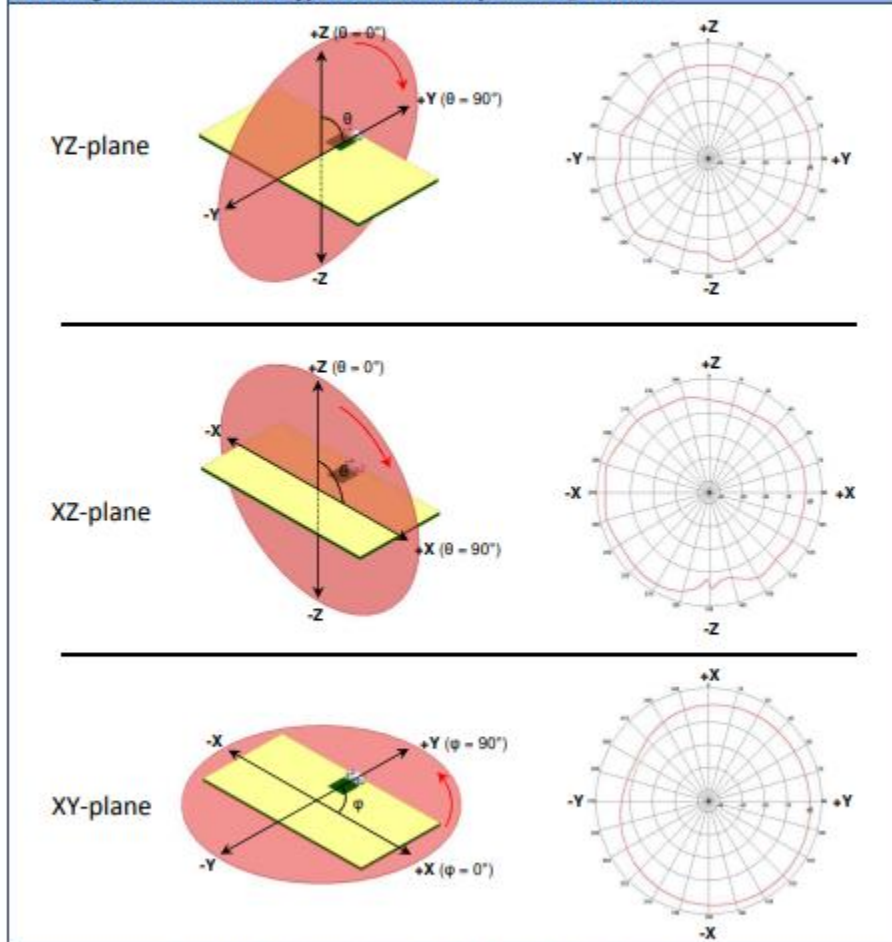
2.45 GHz SMD Antenna, EIA 1206, Detuning resilient,
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Mounting Considerations 1: Typical 2D radiation patterns @ 2.44GHz



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