



# **WillowBee**

## **SI328100009- Coil Antenna**

### **Dual-Band 868/915**

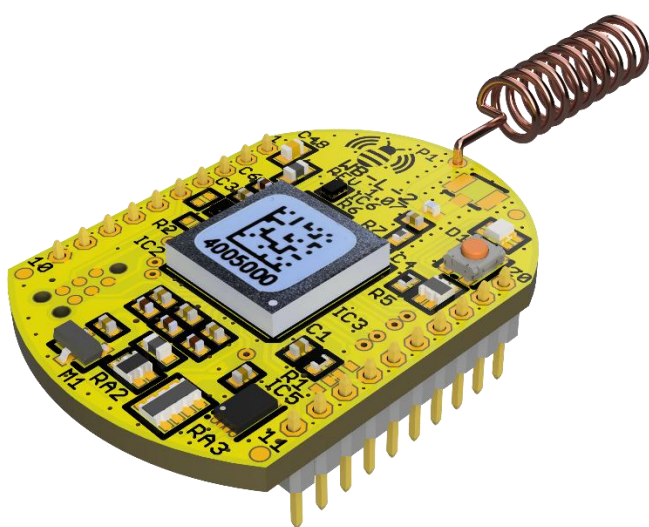
**Date: 14 June 2025**

**Document Revision: 1.01**



## INTRODUCTION

A special wire (coil) antenna was designed for use with WillowBee in 868 MHz and 915 MHz LoRaWAN applications. This antenna is soldered directly to WillowBee and has a 15 nanoHenry series inductor as the matching network. This inductor allows achieving proper antenna matching.



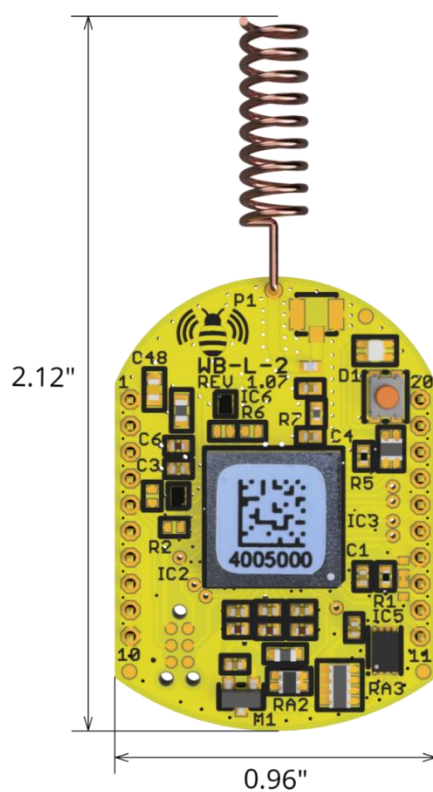


## DEVICE VIEW

SI328100009-Coil

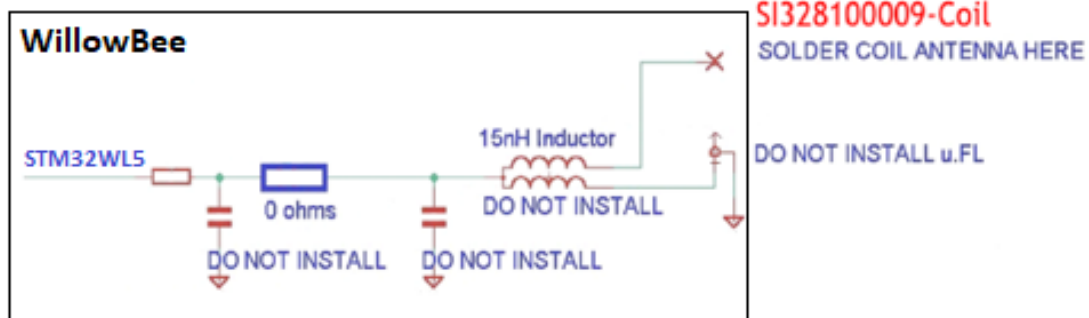
Coil Monopole Antenna

Through-hole 22.8 x Ø 5.5mm

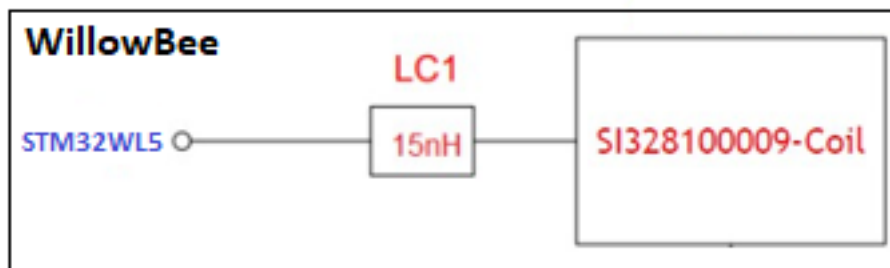




## MATCHING NETWORK FOR COIL ANTENNA

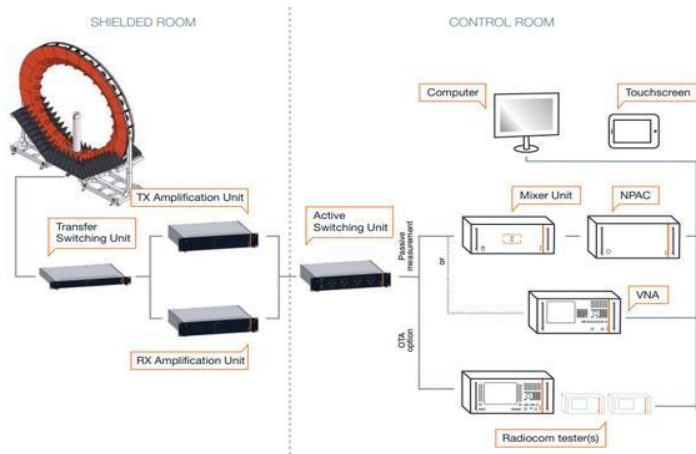


## SIMPLIFIED EQUIVALENT





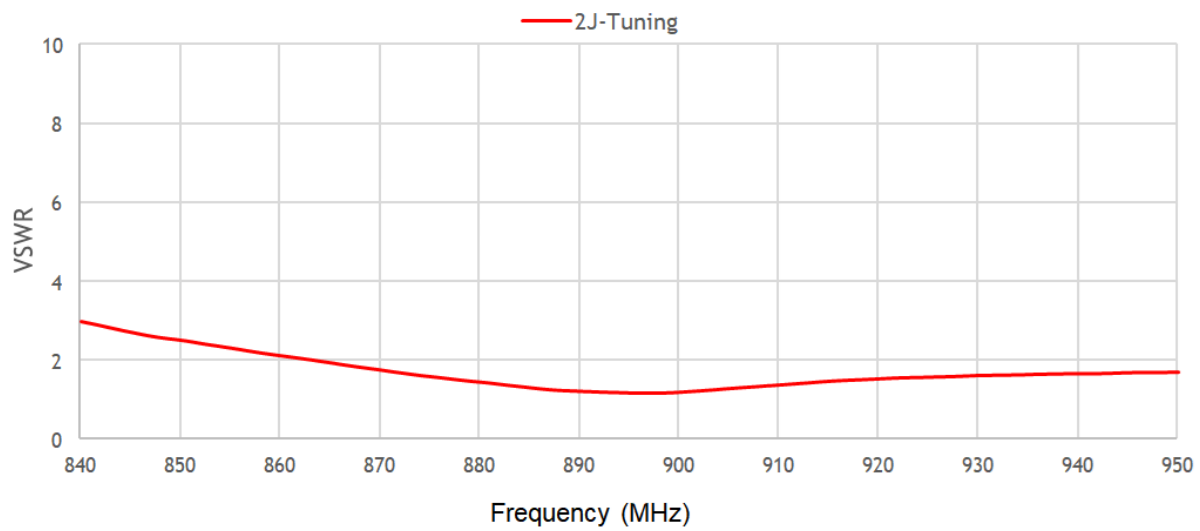
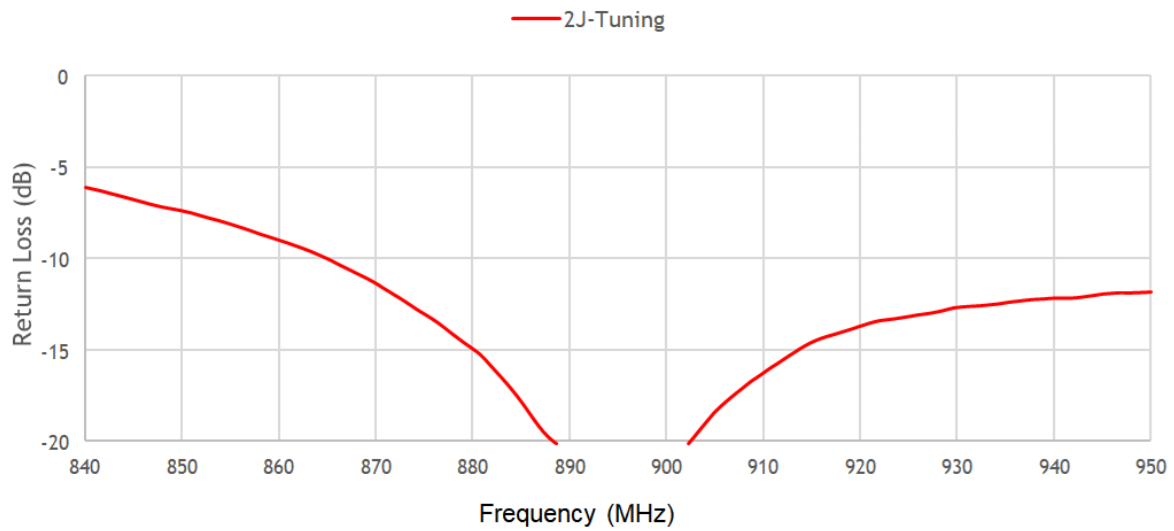
## MEASUREMENT SETUP



Measurement setup inside of Satimo StarGate 24

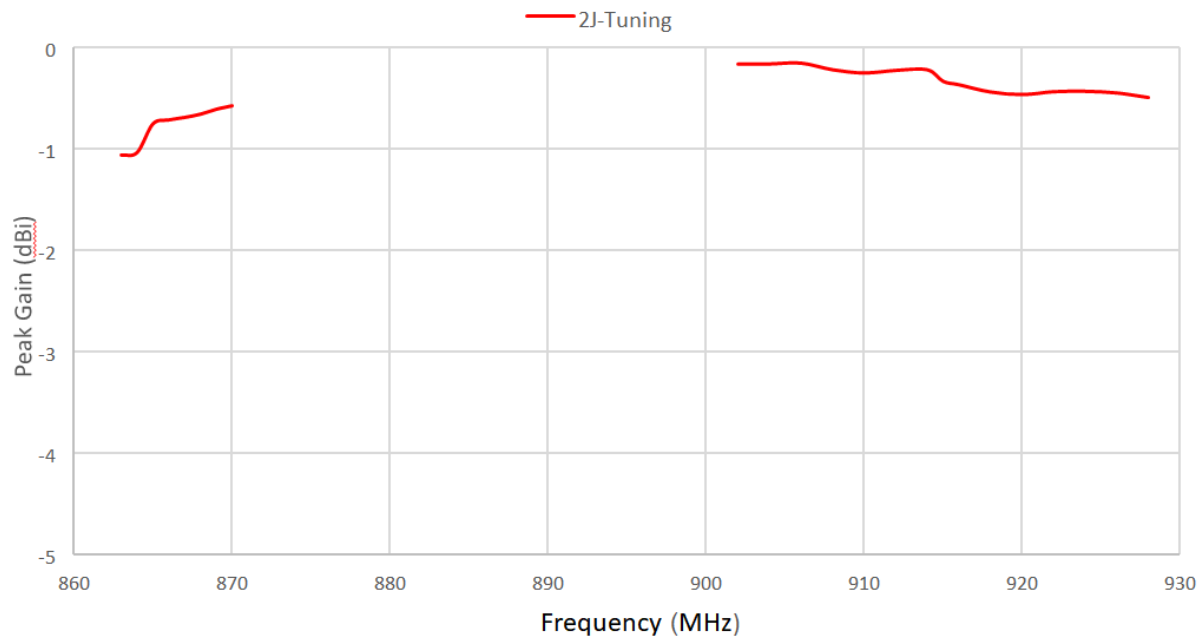


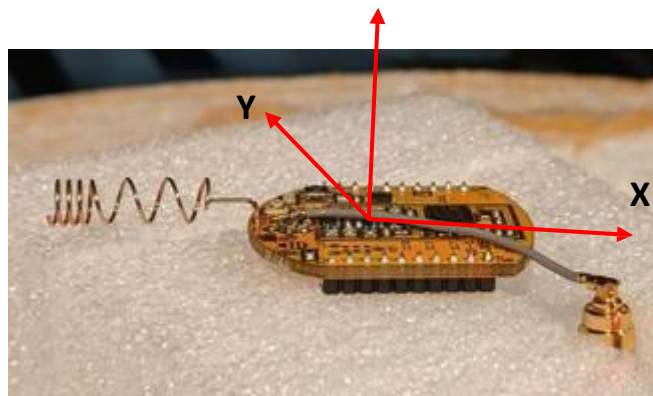
## IMPEDANCE PERFORMANCE



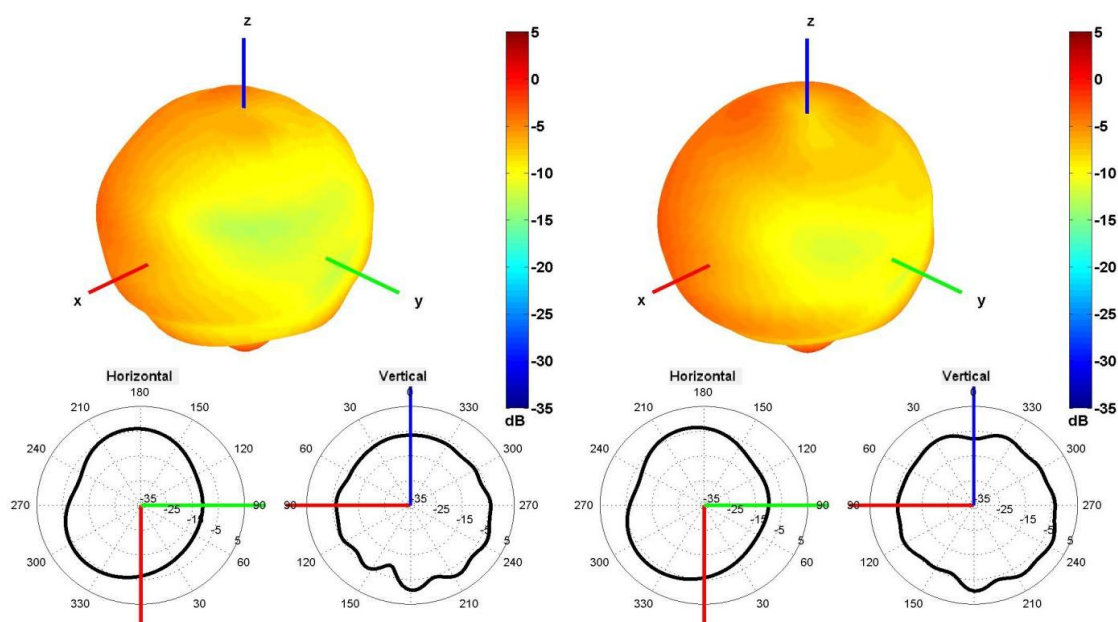


## PEAK GAIN PERFORMANCE





RADIATION PATTERN REFERENCE



868 AND 915 MHz RADIATION PATTERN



**ANTENNA AND ELECTRICAL SPECIFICATIONS**

Parameters	868/915 MHz ISM Antenna	
Standards	ZigBee, ISM, SigFox, LoRa	
Band (MHz)	868	915
Frequency (MHz)	863-870	902-928
Return Loss (dB)	~-10.4	~-15.2
VSWR	~1.8:1	~1.4:1
Peak Gain (dBi)	~-0.7	~-0.3
Impedance (Ohm)	50	
Polarization	Linear	
Radiation Pattern	Omni-Directional	
Max Input Power (W)	25	

**MECHANICAL AND ENVIRONMENTAL SPECIFICATIONS**

Specification	SI328100009
Mounting Type	Thru-Hole Mount
Dimensions (mm)	22.8 x Ø 5.5
Operating Temperature (C)	-40 to +85
Storage Temperature (C)	-40 to +85
Ingress Protection	IP56
Substance Compliance	RoHS



## ANTENNA IMAGES

