

Introduction

This document outlines the performance of the antenna used for Bluetooth Low Energy (BLE) communication in the Connected Power Supply developed by Canyon Bicycles GmbH.

General Description

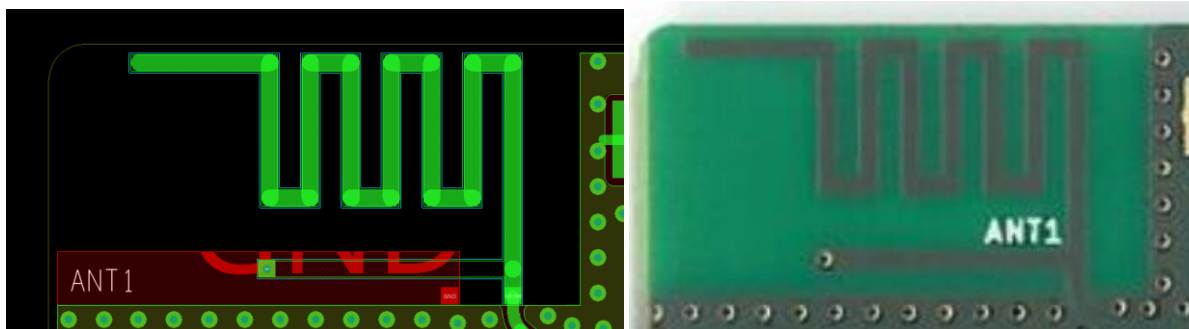
The Miniature Inverted-F Antenna (MIFA) used in the Connected Power Supply is a compact and efficient antenna specifically designed for Bluetooth applications. It provides reliable performance in the 2.4 GHz ISM band, making it ideal for wireless communication devices such as portable electronics.

The design has been adapted from an Application Note by Cypress Semiconductor.

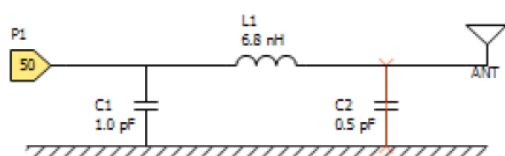
Electrical Characteristics

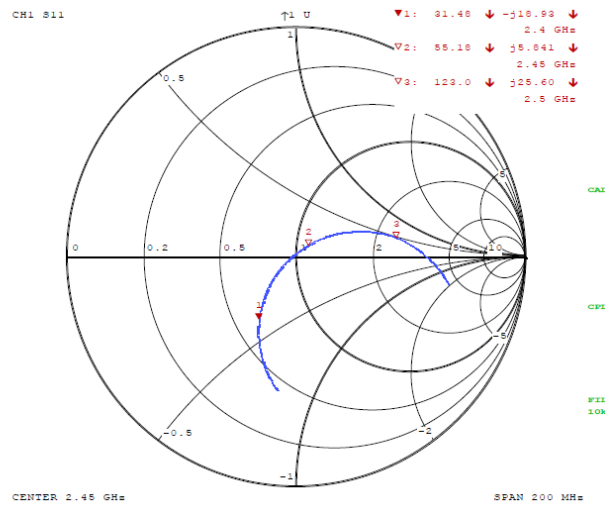
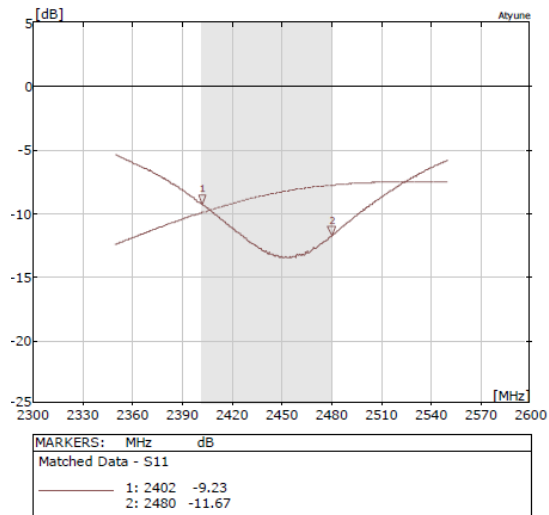
Parameter	Specification
Frequency Range	2.4 GHz to 2.485 GHz
Impedance with matching network	50 Ω
Gain	-1 dBi (max)
Polarization	Linear
Power Handling	1 W max - Limited to +8 dBm by the nRF52840

Antenna Picture in Layout and on PCB



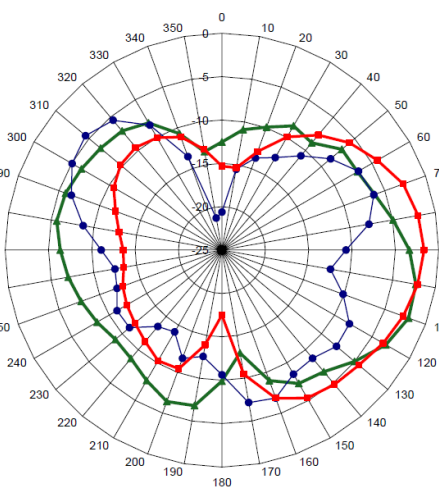
Matching Network



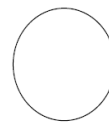


Radiation Pattern

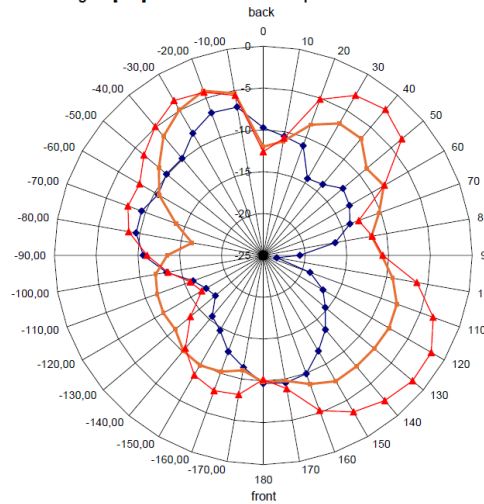
gain [dBi] vs. phi for different theta



top view



gain [dBi] vs. theta for different phi



sideview

