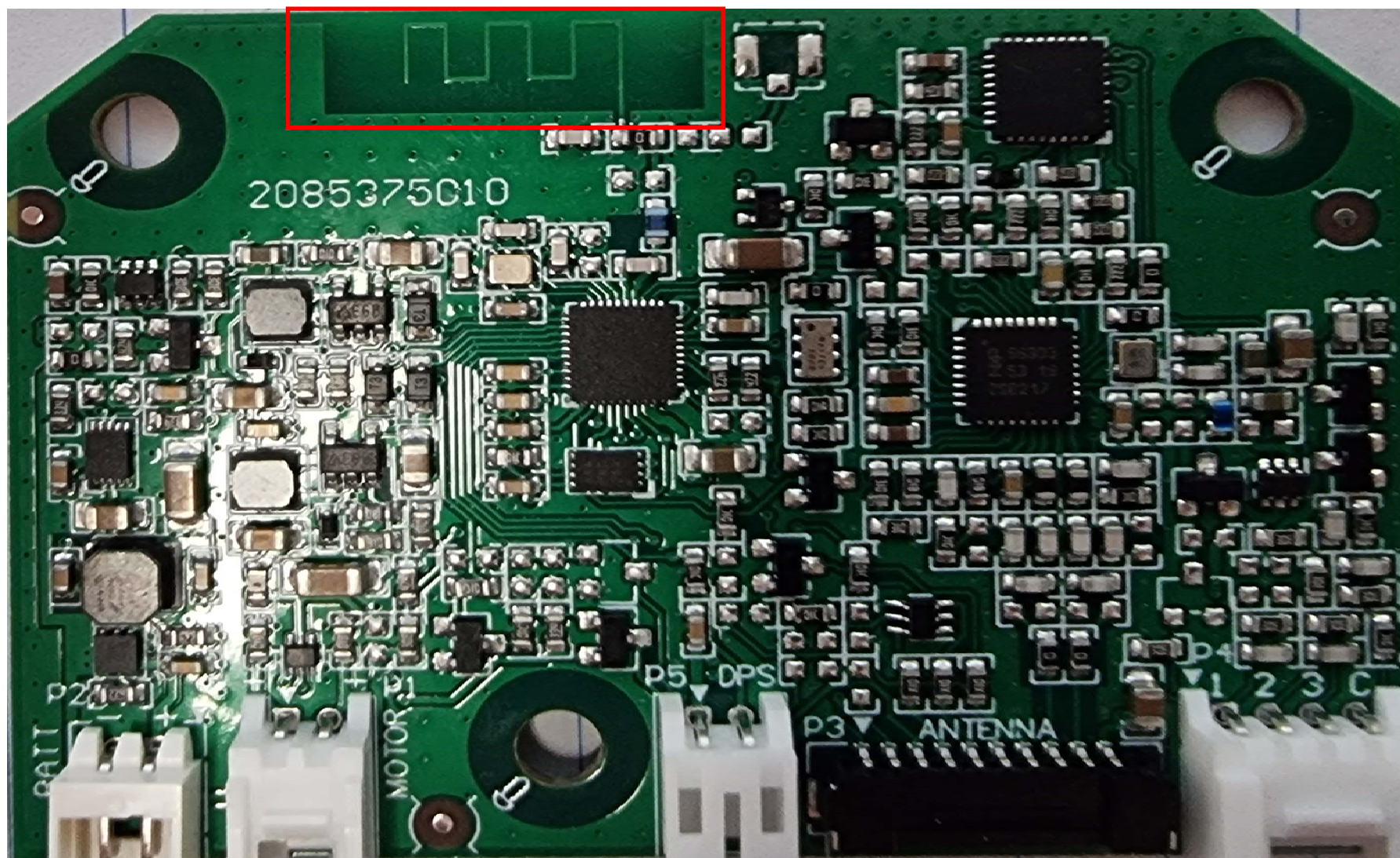




Motorized Deadbolt Bluetooth Antenna Location (Red)

4 Impedance matching

Meander-like PCB antenna can be tuned to the required $50\ \Omega$ impedance by matching the impedance circuitry with the π topology. In Figure 2, the impedance matching area is marked with a dashed line. Under nominal conditions, this antenna exhibits an impedance very close to the required nominal impedance ($50\ \Omega$).

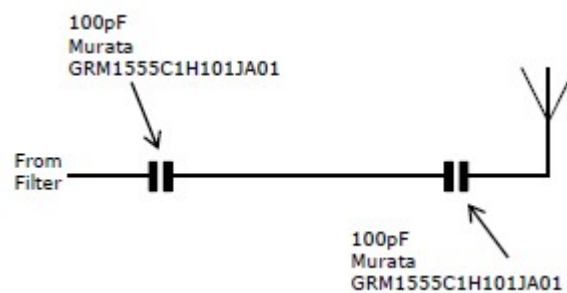
To check the performance of this design, a sample antenna was manufactured (according to the specifications covered by this document). The figure below shows this antenna.

Figure 4. Part of 802.15.4 and BLE PCB with meander-like antenna (scale around 4:1)

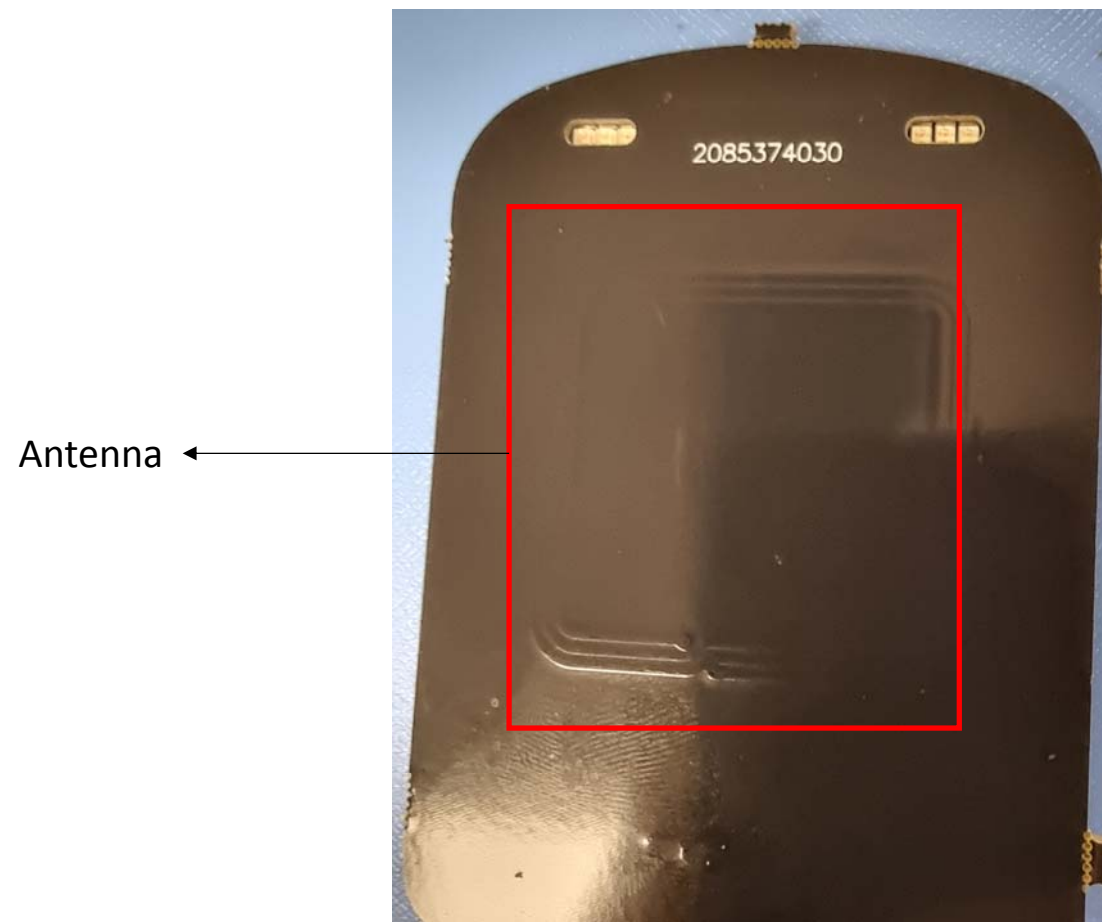


Assuming that the manufactured sample exhibits the expected performance (no impedance matching necessary), the impedance matching circuitry is bypassed by two $100\ \text{pF}$ capacitors connected in series, as shown in the figure below.

Figure 5. Bypassing impedance matching circuitry - Direct RF connection



All electrical parameters of the meander-like antenna have been measured at connection to the band-pass filter (BPF) with the frequency span covering frequencies from $2.4\ \text{GHz}$ to $2.5\ \text{GHz}$.



13.560 MHz Antenna, Motorized Deadbolt.

