

Integrated PCB Antenna Specification

Bluetooth Low Energy (BLE) Product

1. Antenna Description

Antenna Type:

Integrated PCB Inverted-F Antenna (IFA)

Integration Method:

The antenna is directly printed on the main product PCB and is permanently integrated into the device.

User Accessibility:

The antenna is not accessible to the end user and cannot be replaced or modified.

2. Electrical Characteristics

Operating Frequency Band	2400 MHz – 2483.5 MHz
Radio Technology	Bluetooth Low Energy (BLE)
Maximum Antenna Gain	0 dBi (maximum, conservative)
Radiation Pattern	Quasi-omnidirectional
Polarization	Linear
Nominal Input Impedance	50 Ω
VSWR	≤ 2.0 (after impedance matching)

3. Antenna Manufacturer

Name: - Sitting Pelican LLC

Address: - 151 Calle de San Francisco, Ste 200

San Juan, Puerto Rico 00901, USA

Model number: - IFA-2400

3. Antenna Connection

RF Feed Method:

Direct 50-ohm RF trace connection from BLE SoC

(No external RF connector provided)

Matching Network:

Discrete impedance matching network placed close to RF feed point (used for antenna tuning during development).

4. Compliance Declaration

The antenna used in this product is an integrated PCB Inverted-F antenna.

Due to its compact size and PCB integration, the maximum antenna gain has been conservatively defined as 0 dBi, which is consistent with industry-standard performance of

similar integrated PCB antennas operating in the 2.4 GHz BLE frequency band.

This conservative gain declaration is used for regulatory compliance evaluation and ensures that actual radiated emissions remain within the applicable limits under all operating conditions.

The antenna is permanently integrated into the device and cannot be replaced or modified by the end user.

5. Intended Regulatory Use

This antenna specification is applicable for compliance evaluation under:

- FCC Part 15
- EU RED (2014/53/EU)
- Other regions adopting equivalent RF emission and exposure requirements.

Figure 1 – Integrated PCB Inverted-F Antenna Layout (Illustrative)

A simplified illustration showing antenna placement on PCB:

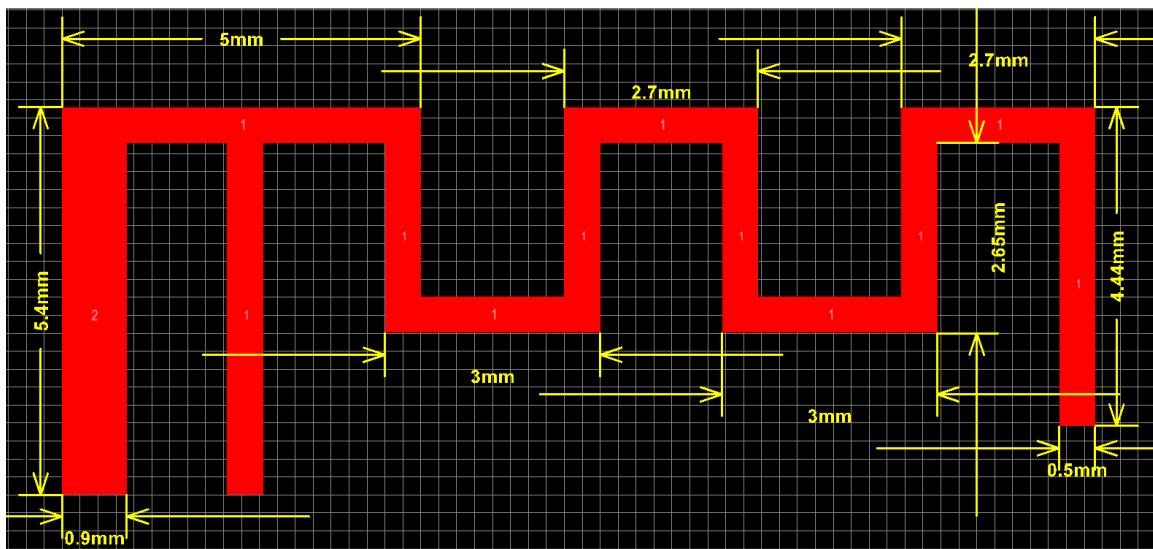


Figure Notes:

- Antenna implemented on PCB top layer
- Ground clearance maintained below radiating element
- Shorting via connected to main ground plane
- Feed point connected via controlled-impedance RF trace