

Antenna Manufacturer: TouchGrid Pty Ltd
Manufacturer Address: 29a Strome Road, Applecross, Perth 6153, Western Australia, Australia
Antenna Frequency: 2400-2500MHz
Antenna Gain: 1.29dBi

AN1088: Designing with an Inverted-F 2.4 GHz PCB Antenna

This document describes an Inverted-F 2.4 GHz PCB antenna designed by Silicon Labs for use with 2.4 GHz wireless chipset designs. The Inverted-F antenna is one of the more commonly used antennas at 2.4 GHz. Silicon Labs provides antenna dimensions in two different substrate thicknesses. PCB antennas are board specific, so you may need to modify the antenna dimensions for your board implementation.

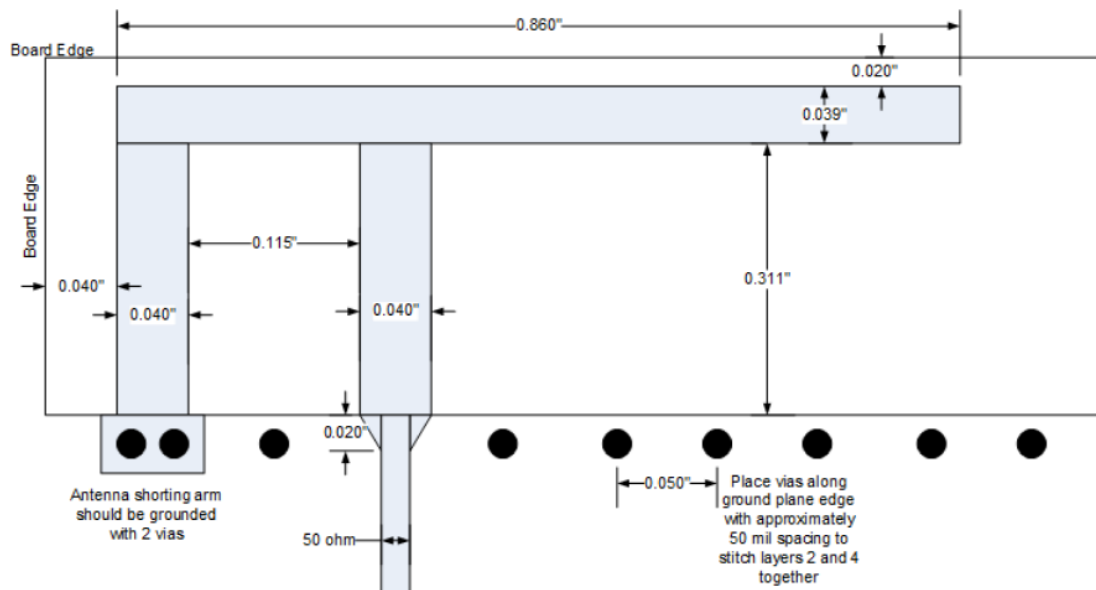
KEY POINTS

- Reference design layout
- Antenna placement and tuning
- Factors affecting antenna performance

- EM250 4-Layer Design, Inverted-F Antenna, 0.8mm thick

Inverted-F Antenna Dimensions For 0.8mm FR4 Substrate

(Antenna can be mirrored)



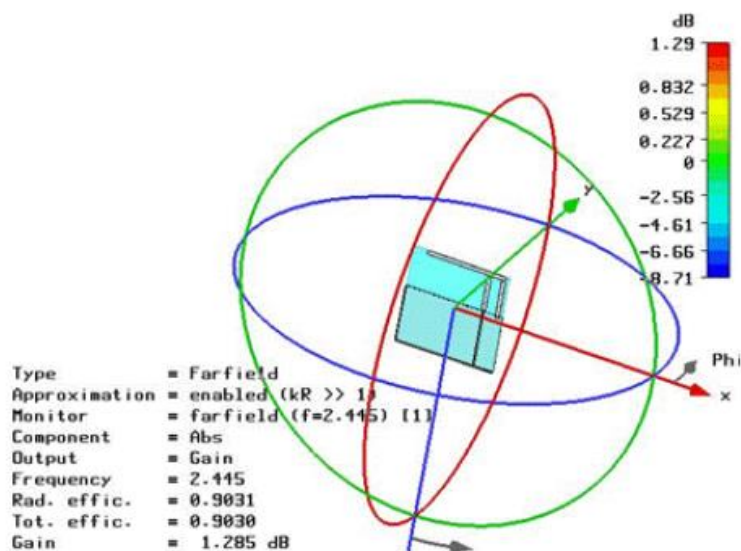
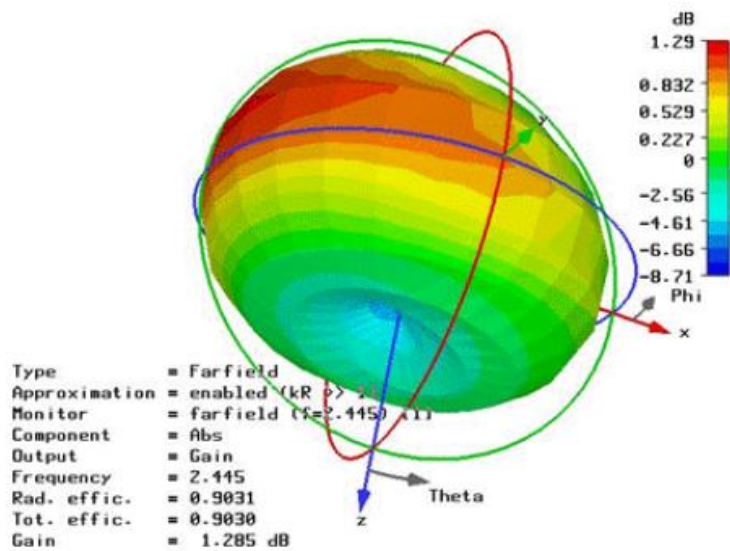
Layer Stackup

Total Thickness = 0.034" +/- 10%

Layer 1 (1/2 oz)	——		——	0.008" FR4
Layer 2 (1 oz)	——		——	0.016" FR4 ***
Layer 3 (1 oz)	——		——	0.008" FR4
Layer 4 (1/2 oz)	——		——	

*** Material thickness between Layer 2 and Layer 3 may be adjusted to meet Total Thickness requirement.

(b) Total Thickness 0.8mm



Simulation of Gain Pattern for the 0.8 mm Antenna