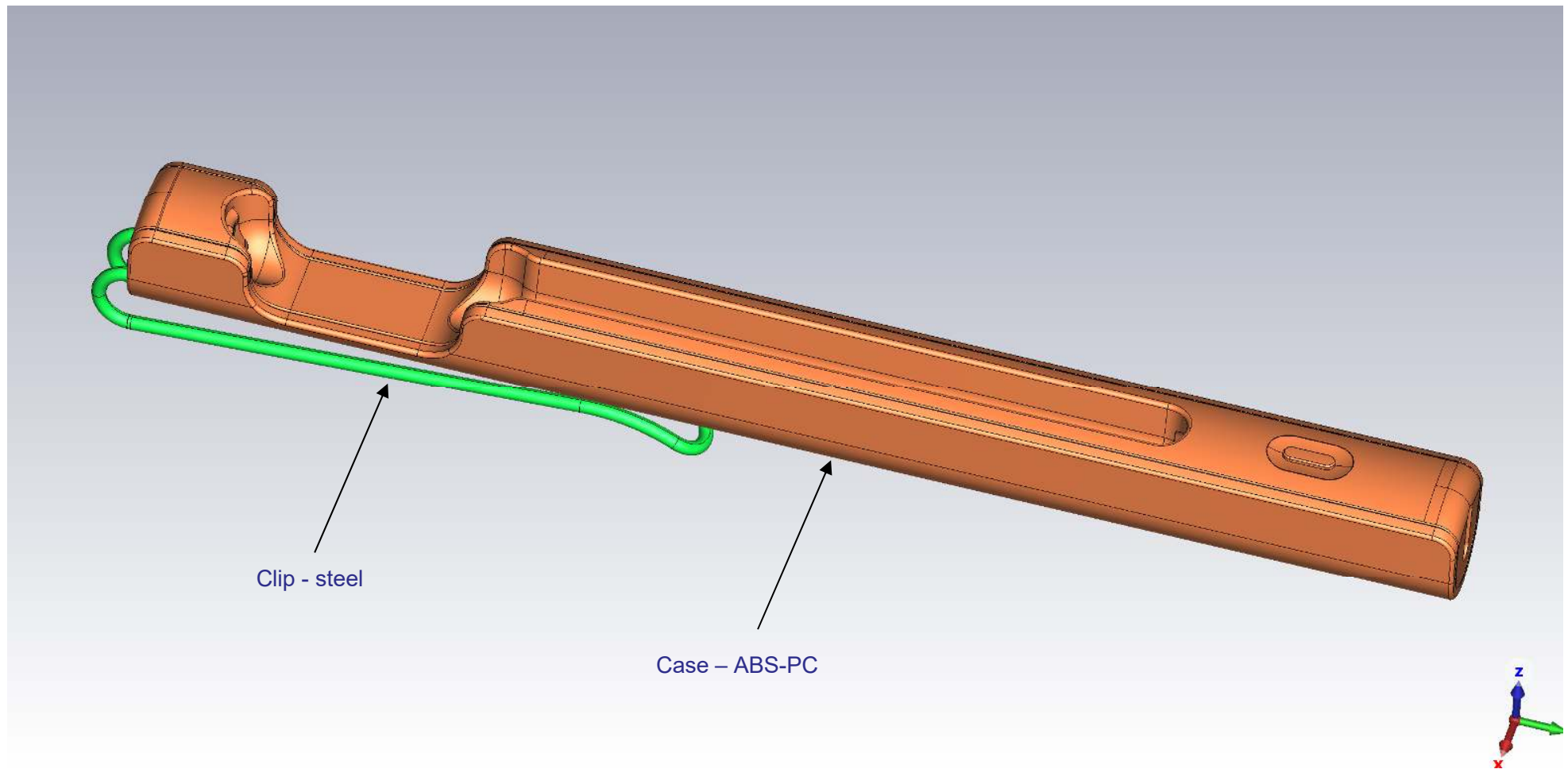


Combustion Inc. WiFi Booster: Antenna Specification

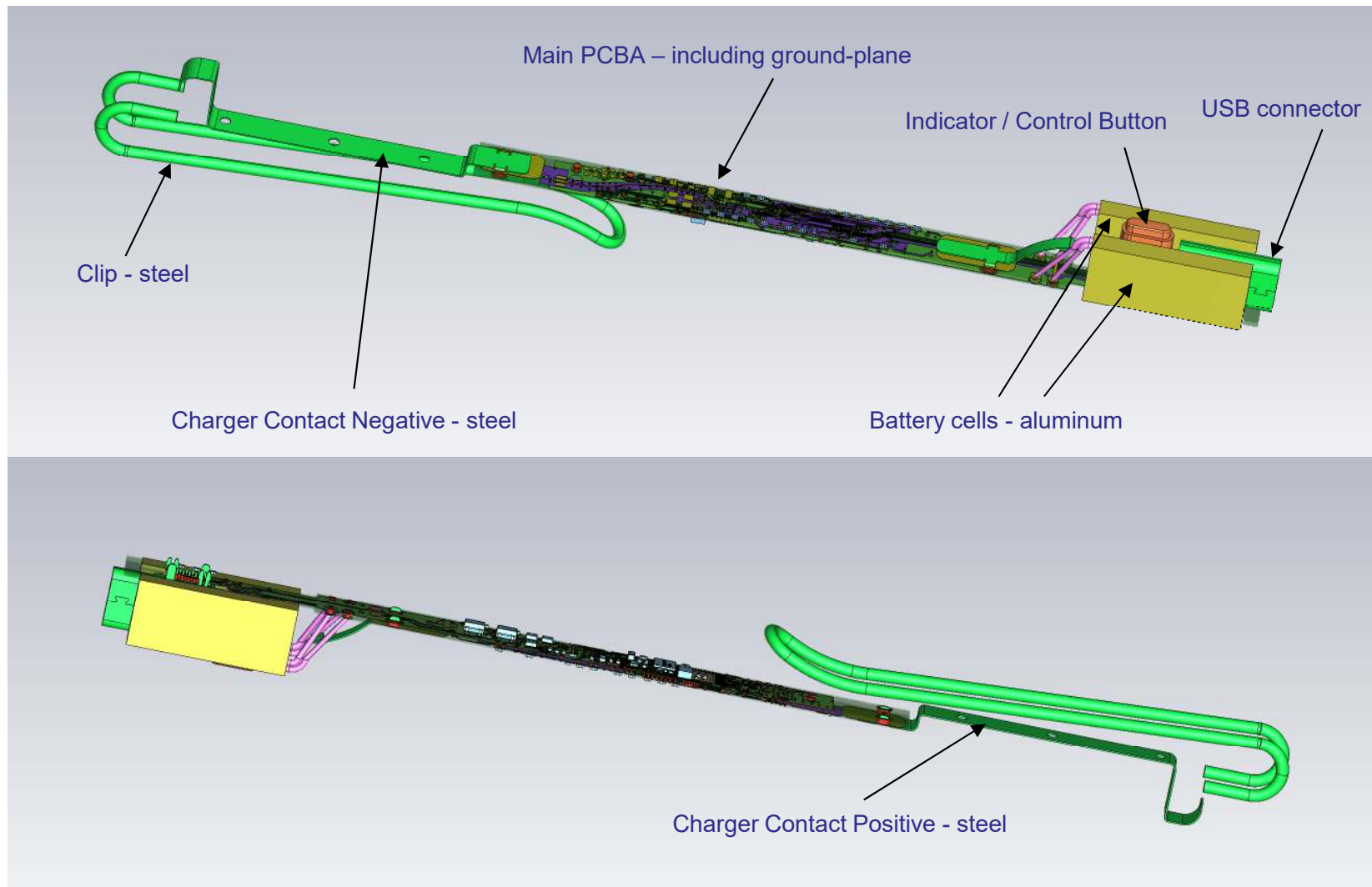
Version	Date	Description	Report
1	1-16-2025	Description of WiFi/BLE Antenna Configuration; Radiated Peak Gains	JCM-EM: Joseph C. Modro

External View



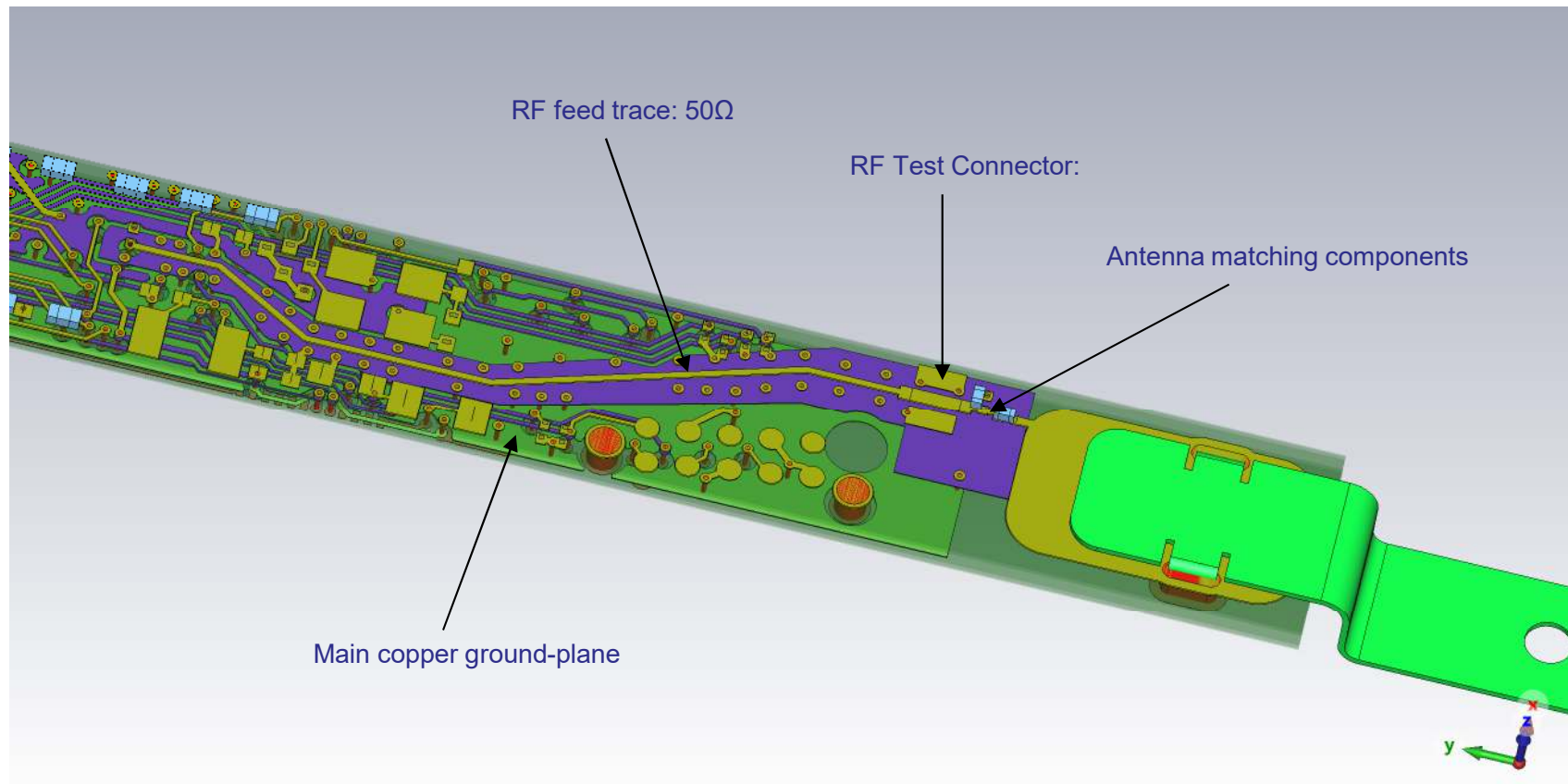
- Antenna system is fully integrated into mechanical (ME) and electrical (EE) assembly

Internal View



- Key ME, EE parts shown labelled
- Clip forms the main antenna radiating element with major interaction with the other metallic parts

Antenna Feed Connection Detail

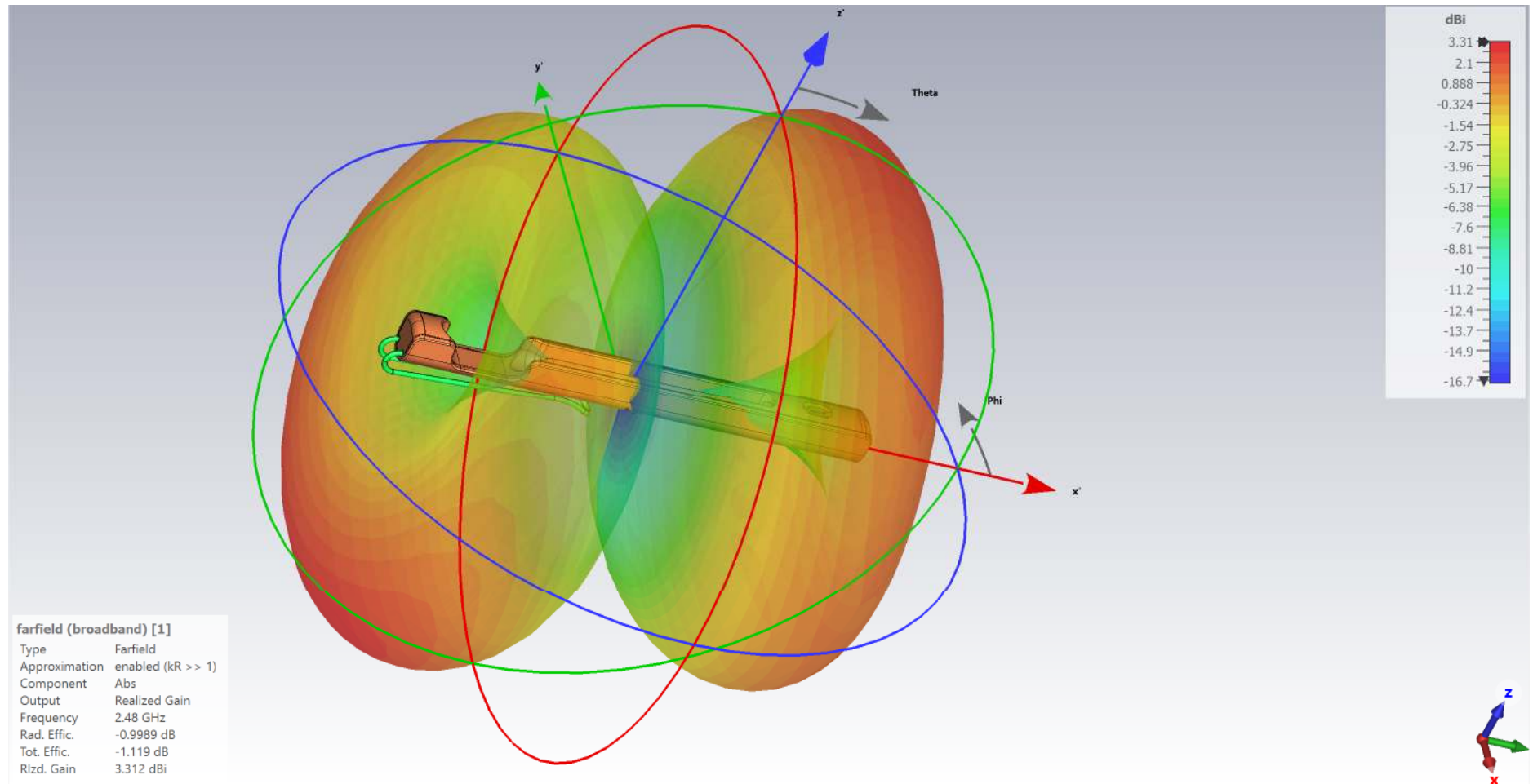


- Matching components optimize impedance match between Clip / Positive Charging Contact radiating element, and RF feed trace / Wifi/BLE chip / ground-plane: for best antenna efficiency
- RF power and efficiency measured at Test Connector

Summary of Antenna Properties

- Antenna Type: Integrated mechanical and PCB Antenna system
- Peak Antenna Gain: **3.31dBi @ 2.48GHz**
- Frequency Range: 2.402GHz – 2.48GHz [WiFi & BLE]

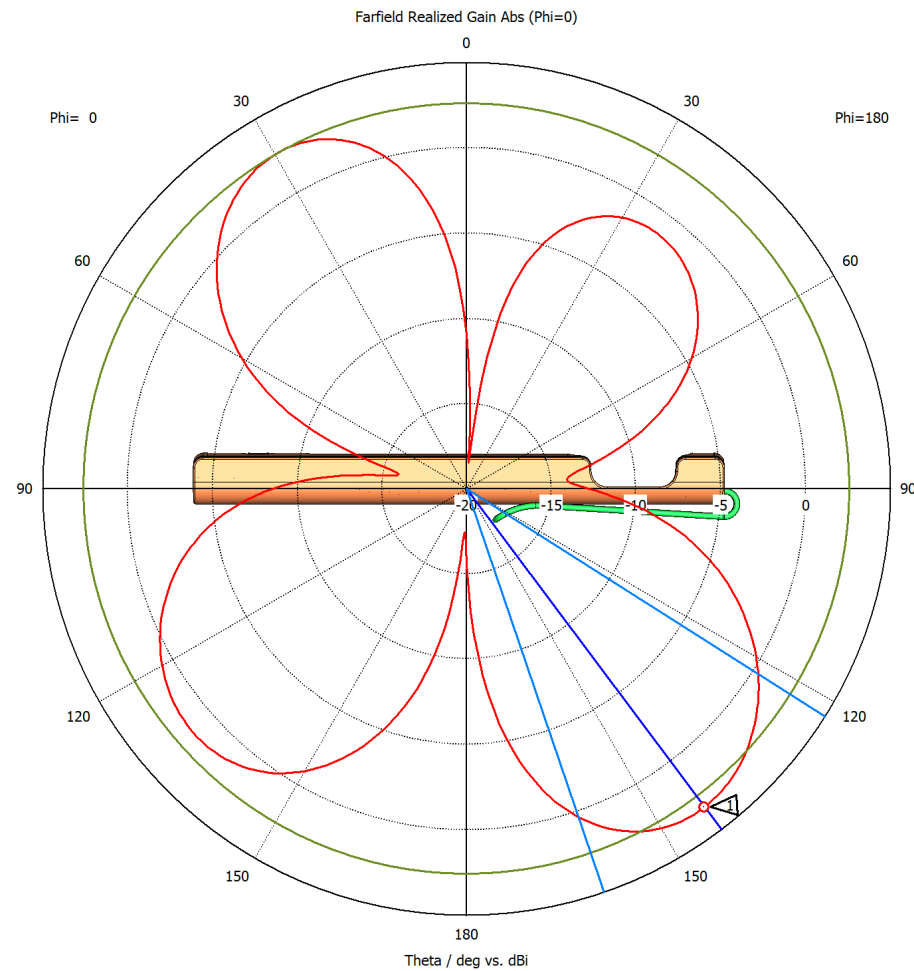
Free-Space Radiation Pattern 3D: Peak gain is at 2.48GHz



- Peak gains: [realized gain]
 - 2.402GHz: 3.26dBi
 - 2.44GHz: 3.22dBi
 - 2.48GHz: **3.31dBi**

Free-Space Radiation Pattern 2D : Vertical (Elevation) Plane

[Gain vs Theta @ Phi=0° @ 2.48GHz]

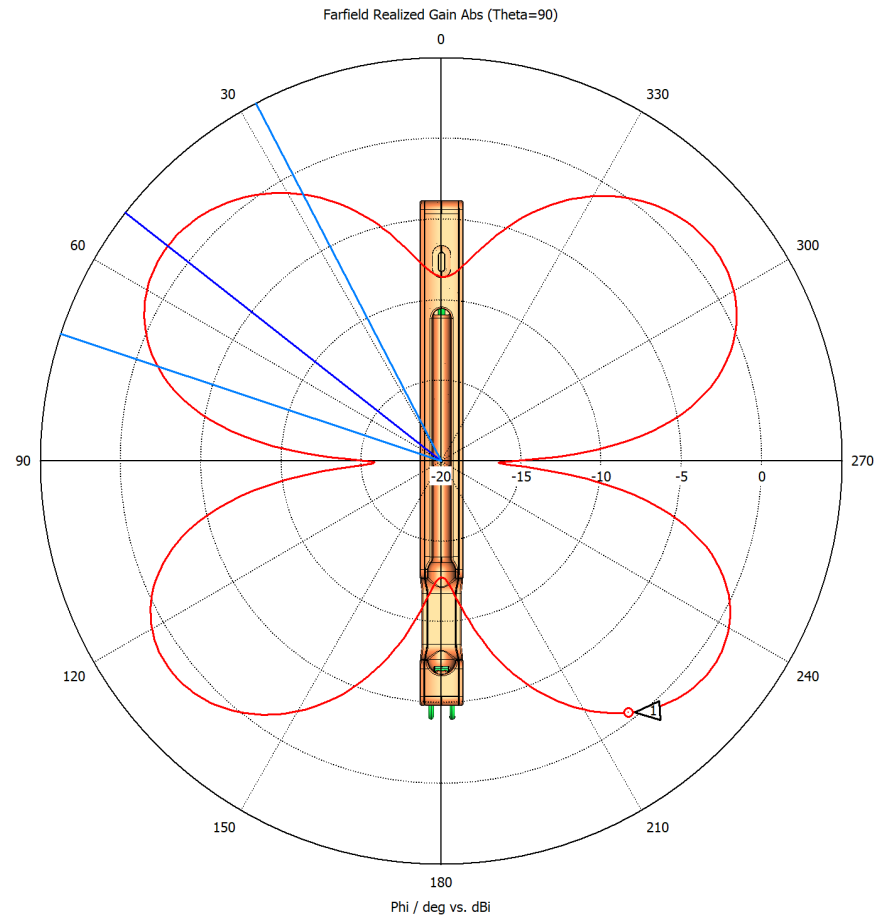


Q (143.179, 3.32919)

Frequency = 2.48 GHz
Main lobe magnitude = 3.33 dBi
Main lobe direction = 143.0 deg.
Angular width (3 dB) = 38.8 deg.
Side lobe level = -0.7 dB

Free-Space Radiation Pattern 2D: Horizontal (Azimuth) Plane

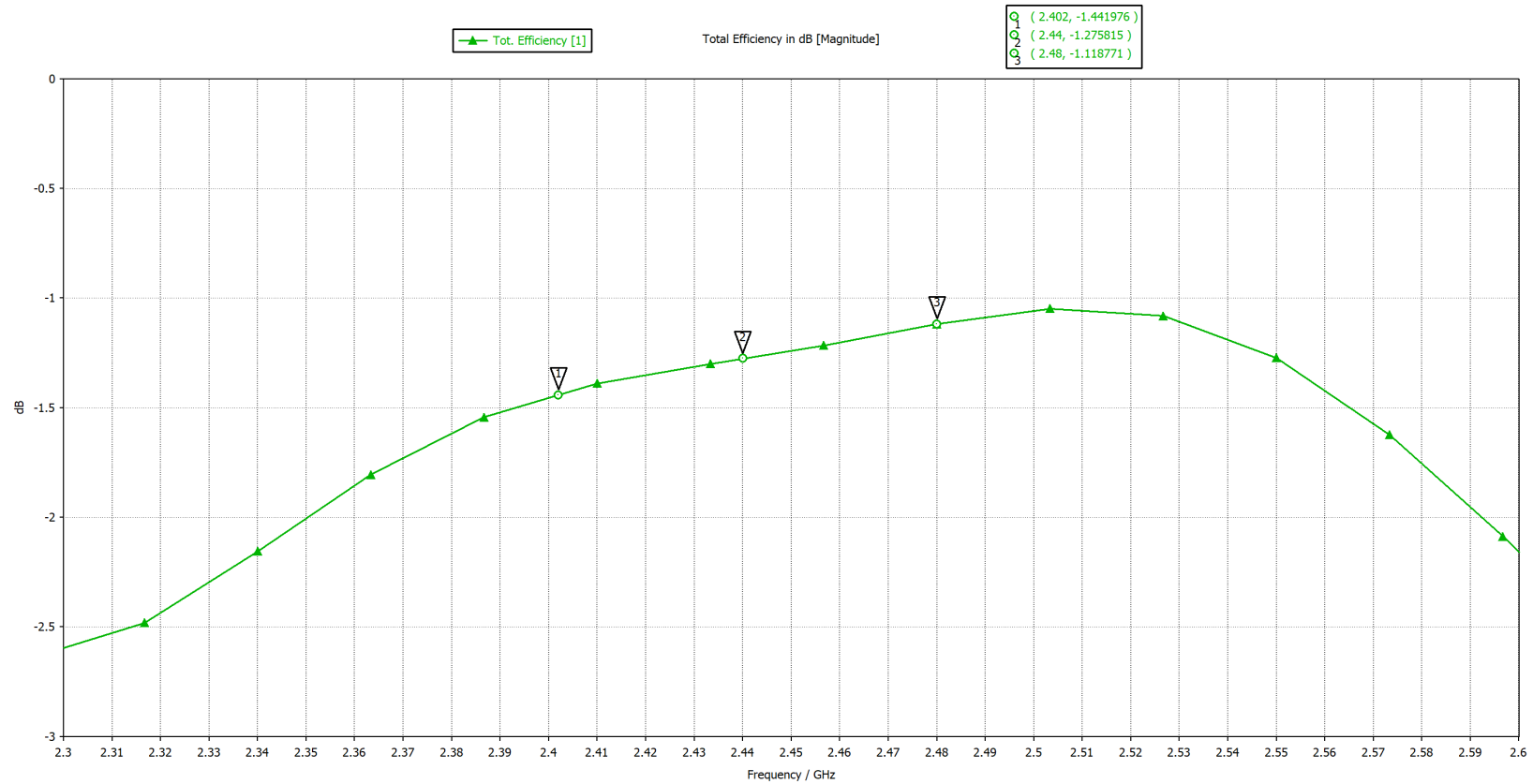
[Gain vs. Phi @ Theta=90° @ 2.48GHz]



— farfield (broadband) [1]

Frequency = 2.48 GHz
Main lobe magnitude = 1.62 dBi
Main lobe direction = 52.0 deg.
Angular width (3 dB) = 44.1 deg.

Total Efficiency vs Frequency

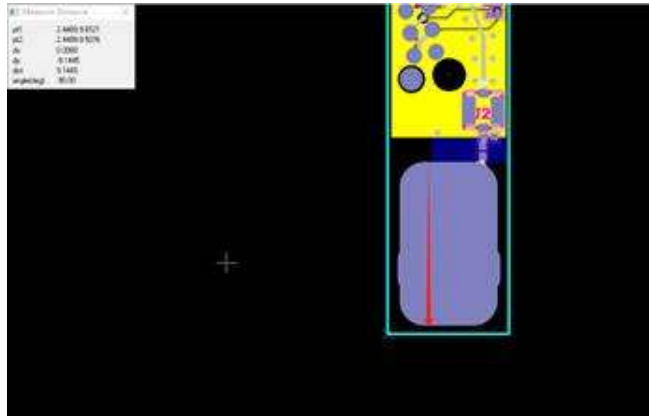


- Peak efficiency @ 2.48GHz: -1.12dB

天线的尺寸

Booster:

长: 9.1445mm 宽 (带耳朵): 5.7311mm 宽 (不带耳朵): 5.5010mm



Length: 9.1445mm
Width (with ears): 5.7311mm
Width (without ears): 5.5010mm

