Mechanical Specifications:

Antenna Element	1.10 x 1.038 x 0.015 in
Ground	1.70 x 1.65 x 0.015 in

Electrical Specifications:

Frequency Range	2.40-2.48 GHz
Peak Gain	4.2 dB
VSWR	<1.4 across band
Polarization	Vertical
Feed	50 Ohm Coax

General:

Shown below is the PIFA (Planar Inverted F Antenna) along with part descriptions.

Figure 1: PIFA in Enclosure

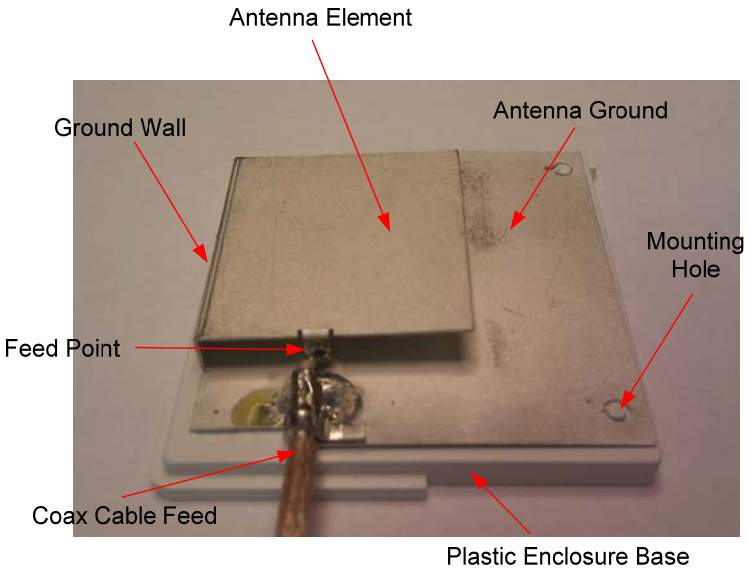


Figure 2: PIFA in Enclosure with Cover removed

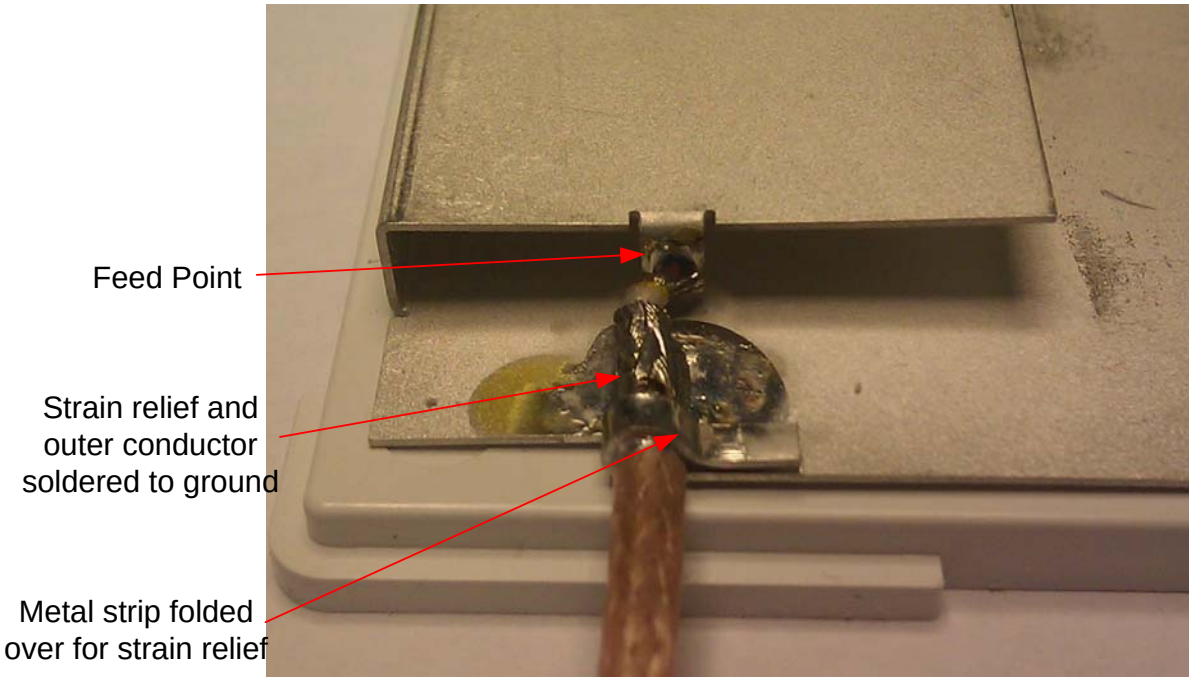


Figure 3: Metal Strip for Strain Relief

PIFA Mounting

In general, the tuning and radiation pattern of the PIFA antenna can be dramatically affected by its surroundings. Mounting components, separation distance from other materials and orientation will determine the final performance.

The PIFA should be mounted as shown in Figures 4 and 5. Figure 6 demonstrates incorrect mounting of the antenna.

The PIFA can be placed on top of any material. However, objects should not be placed alongside and on top of the PIFA.

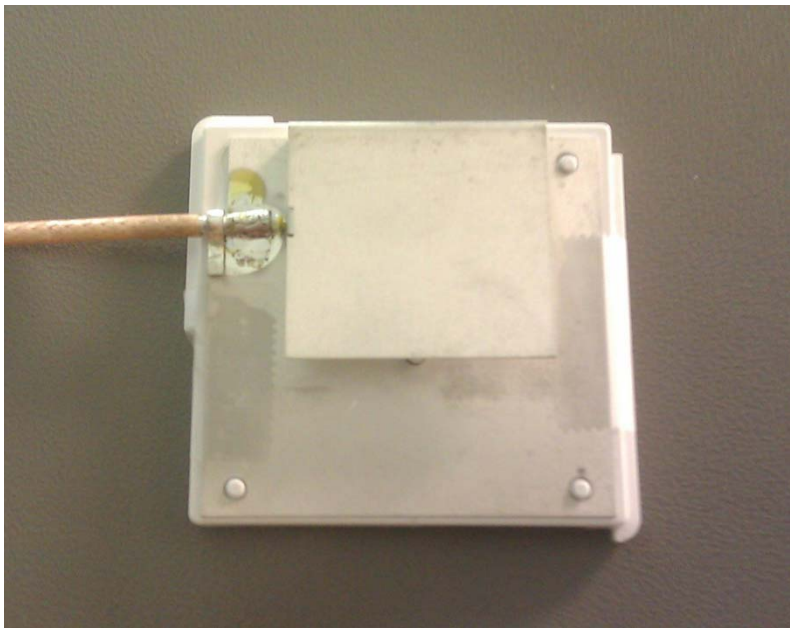


Figure 4: PIFA mounted near the top of an appliance (Cover removed). Open end pointed down.

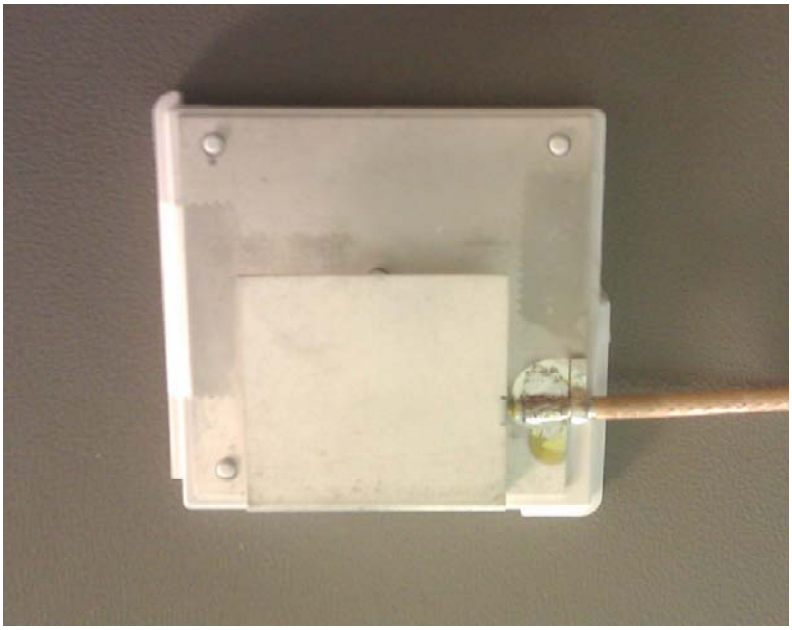


Figure 5: PIFA mounted near the bottom of an appliance (Cover removed). Open end pointed up.

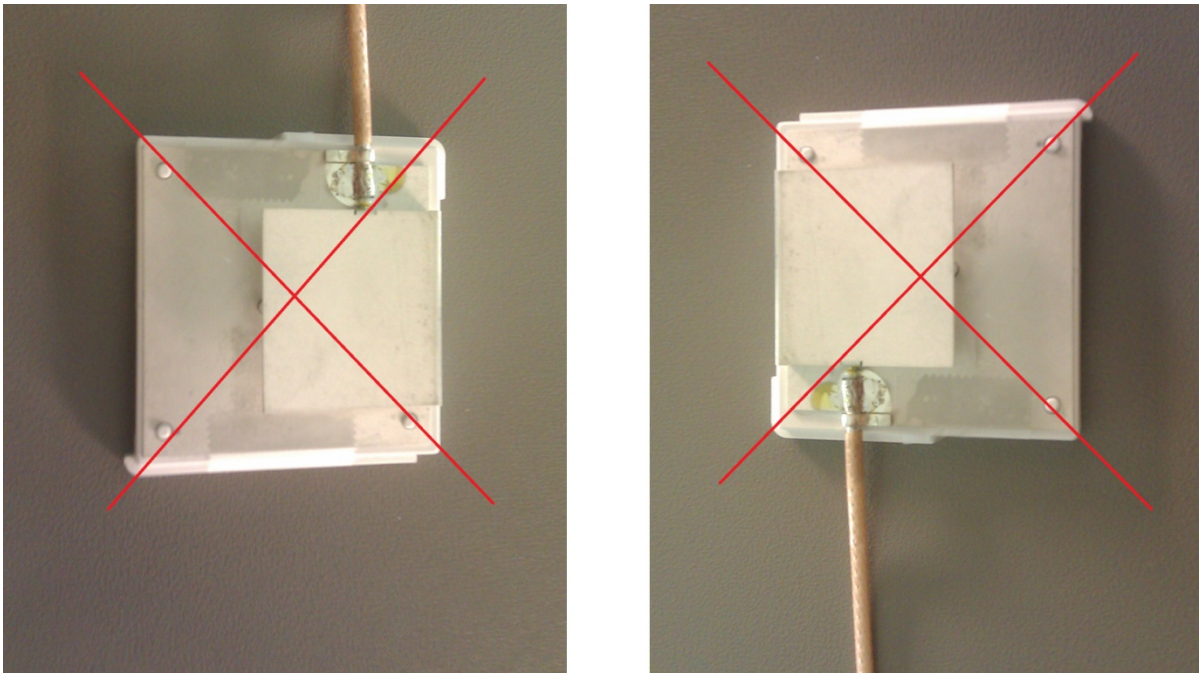


Figure 6: INCORRECT PIFA Mounting

PIFA Dimensioning for Single Sheet Metal Cut-Out

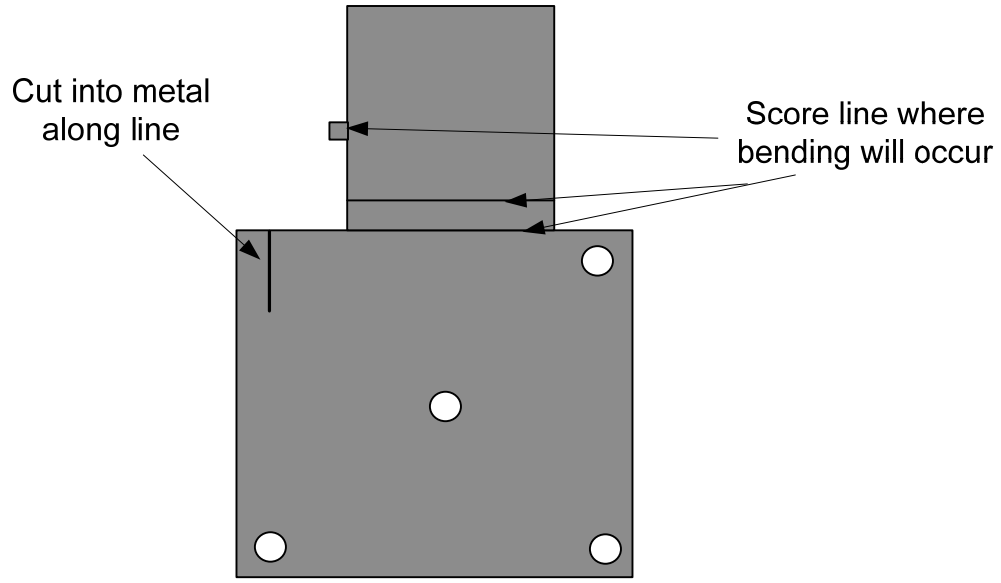
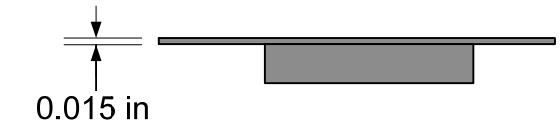


Figure 7: Sheet Metal Cut-Out



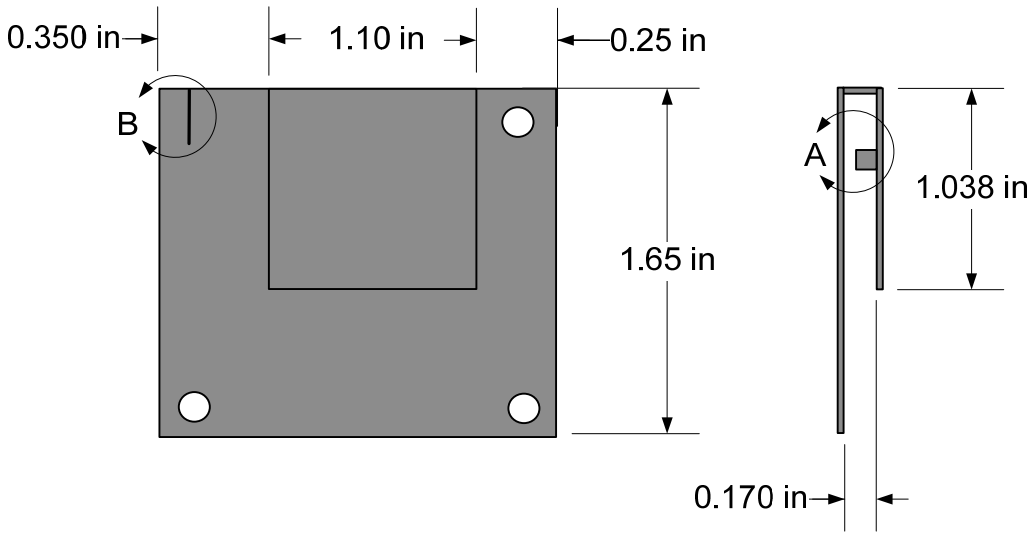


Figure 8: Dimensions

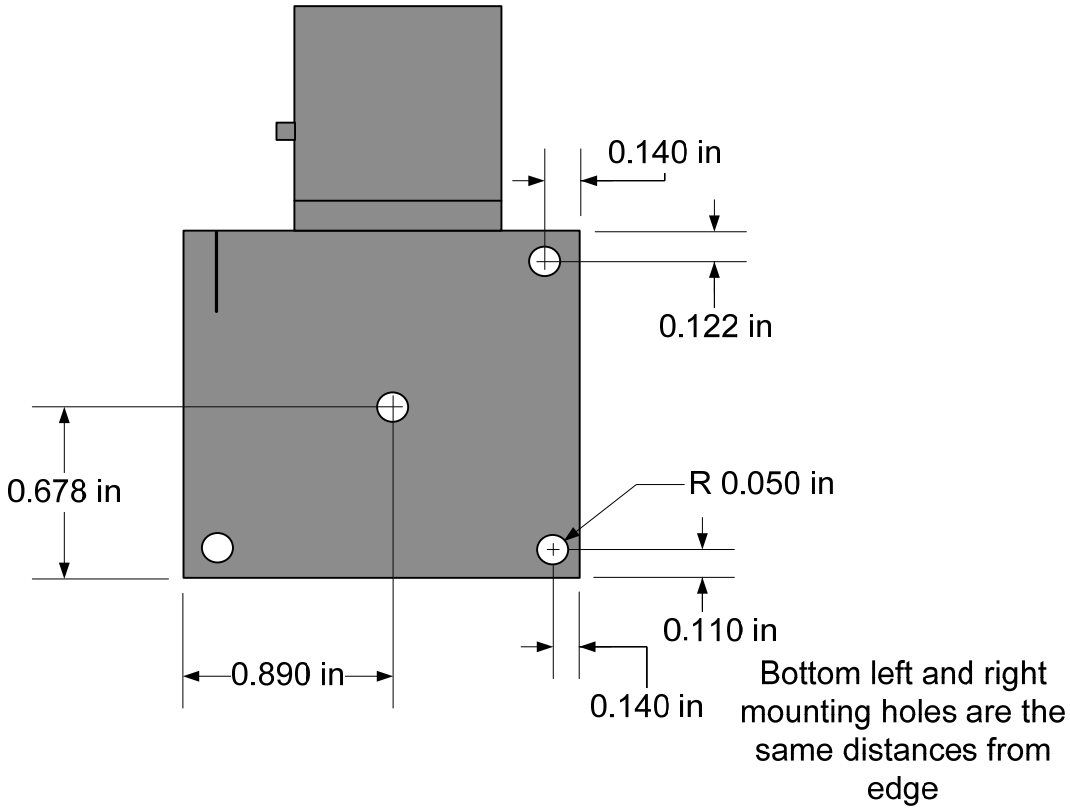


Figure 9: Locations of Mounting Holes

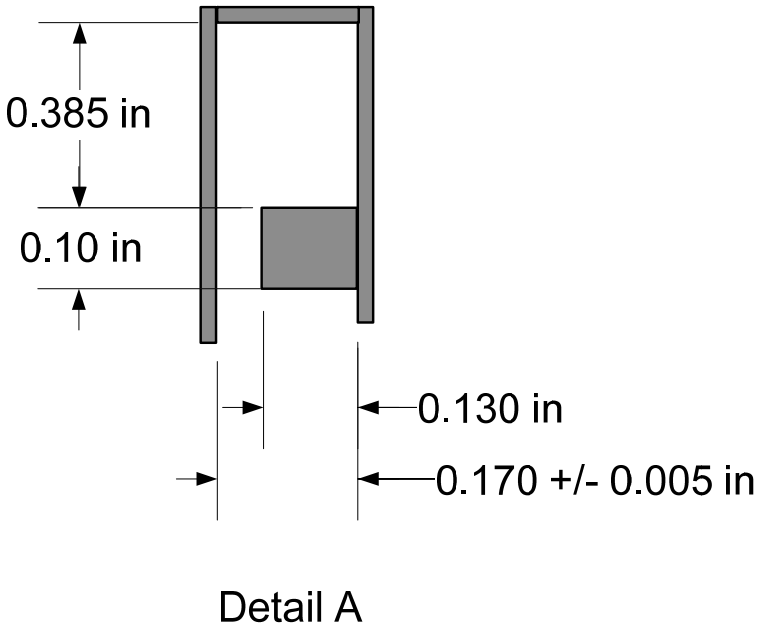


Figure 10: Dimensions of Detail A

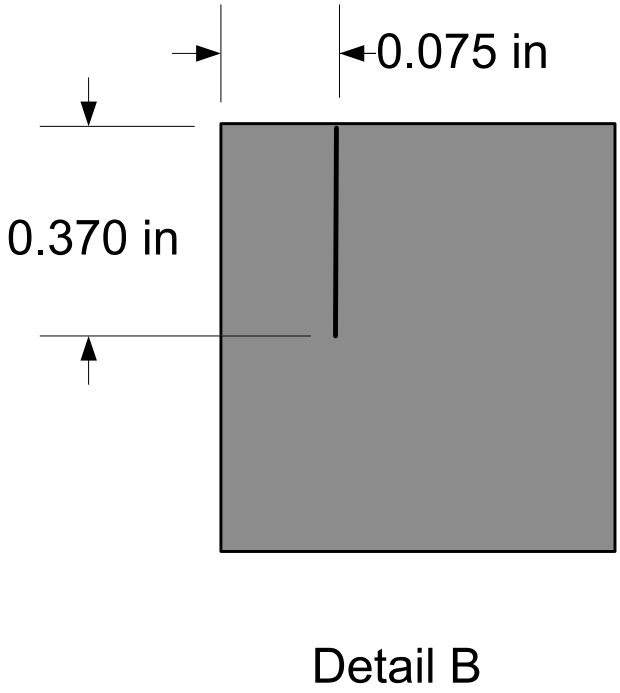


Figure 11: Dimensions of Detail B – Slit for Cable Mounting

*__Note__: The slit in Detail B is cut all the way through the sheet metal and should have a width no greater than 0.020 in (the width may be less without affecting the antenna).

*__Note__: All dimensions in Figures 8 – 10 are held within +/- 0.002 inch tolerance unless specifically stated in the figure.

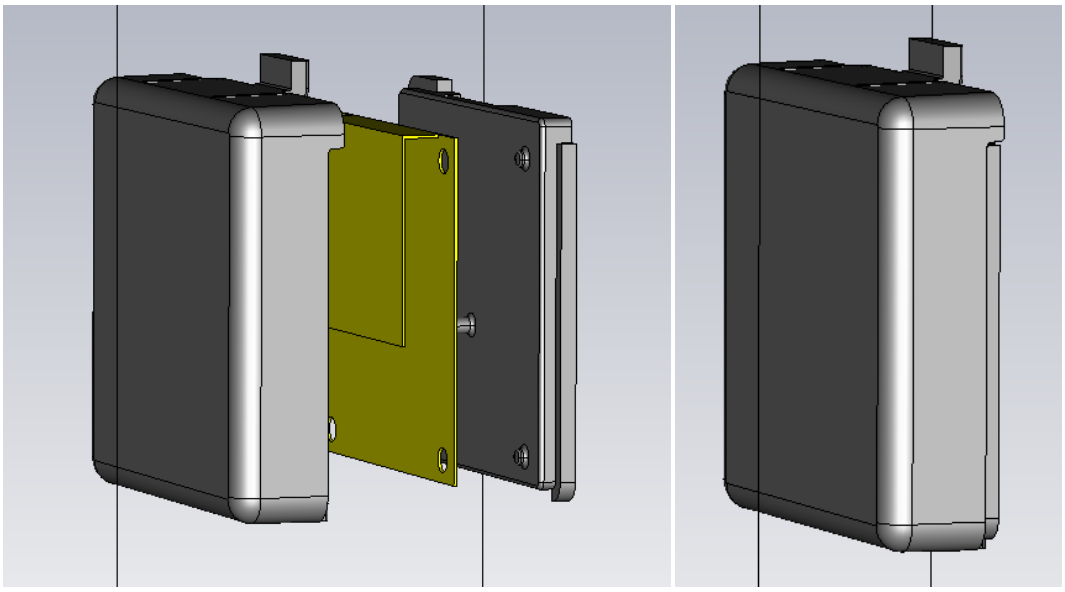


Figure 12: Perspective View of PIFA and Enclosure

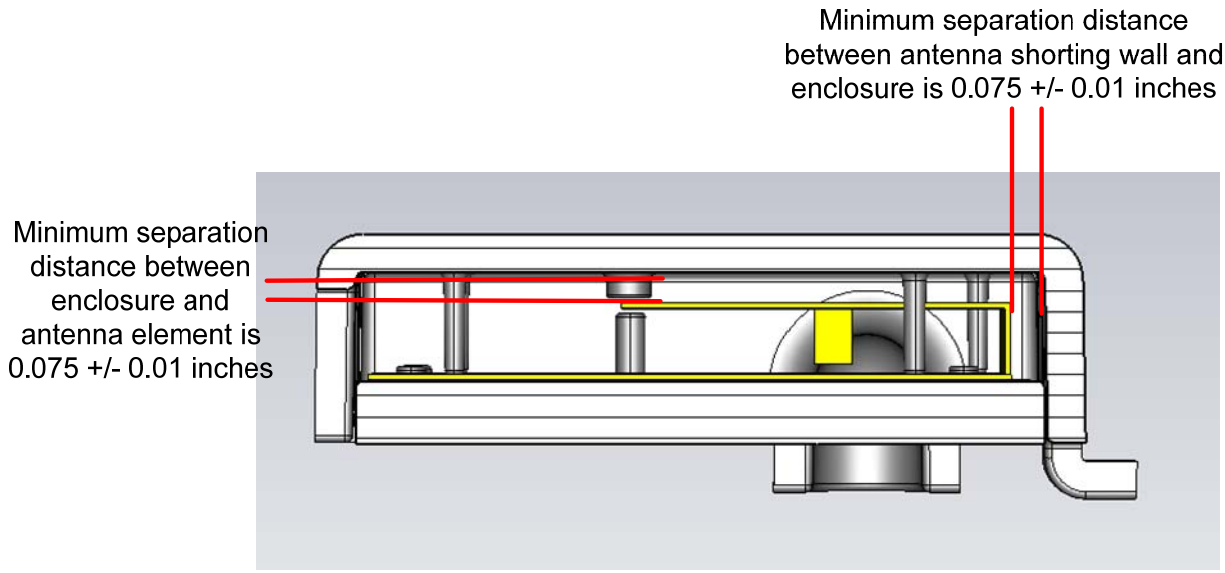


Figure 13: Enclosure View

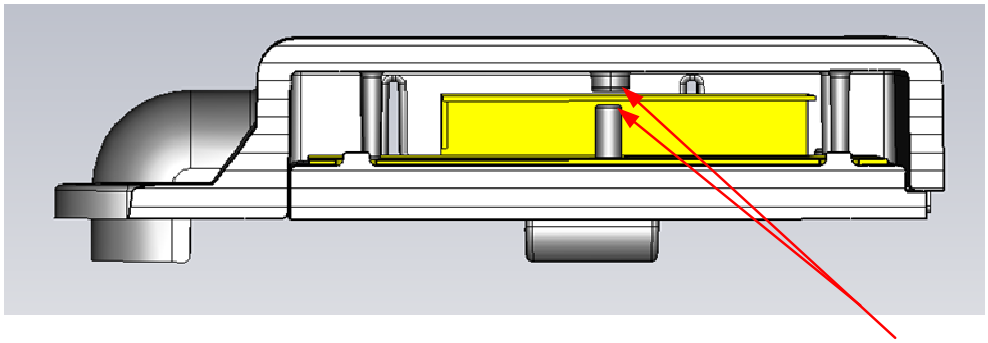


Figure 14: Enclosure View

PIFA Sheet Metal

Material:	Phosphor Bronze 510
Thickness:	0.015 inches
Heat Treating:	None
Finish:	50-150 matte tin plated
Temper/Hardness:	½ hard

Enclosure Material: PVC – Supplied by Whirlpool

Estimated Relative Permittivity of Enclosure Material: 3.25

Change Log:

Rev H	Added change log. Changed mounting hole radius from 60 to 50 mils. Upper right mounting hole vertical distance from edge changed from 120 to 122 mils. Added note regarding the slit dimensions in Detail B.
Rev J	Updated Figures 1 through 5 with SLS enclosures from Whirlpool. Enclosure material properties changed to TBD. Updated Mechanical Specifications.
Rev K	Added type of metal used for antenna above Sheet Metal Composition table.
Rev L	Changed antenna element length from 1.050 in to 1.038 in. Estimated permittivity of the PVC.
Rev M	Added tolerance note on page 6, added tolerances to Figure 12 on page 7.
Rev P	Added tolerance to page 5, updated PIFA photos, updated sheet metal composition.
Rev Q	Corrected dimensions on Figure 10. Changed permittivity to 3.25.