

# Phoenix Antenna Trace Information

Below are the parameters for the custom antenna used with the Phoenix Transmitter. The main dimensions are shown in Figure 1. The images showing dimensional information were taken from the Altium PCB design files.

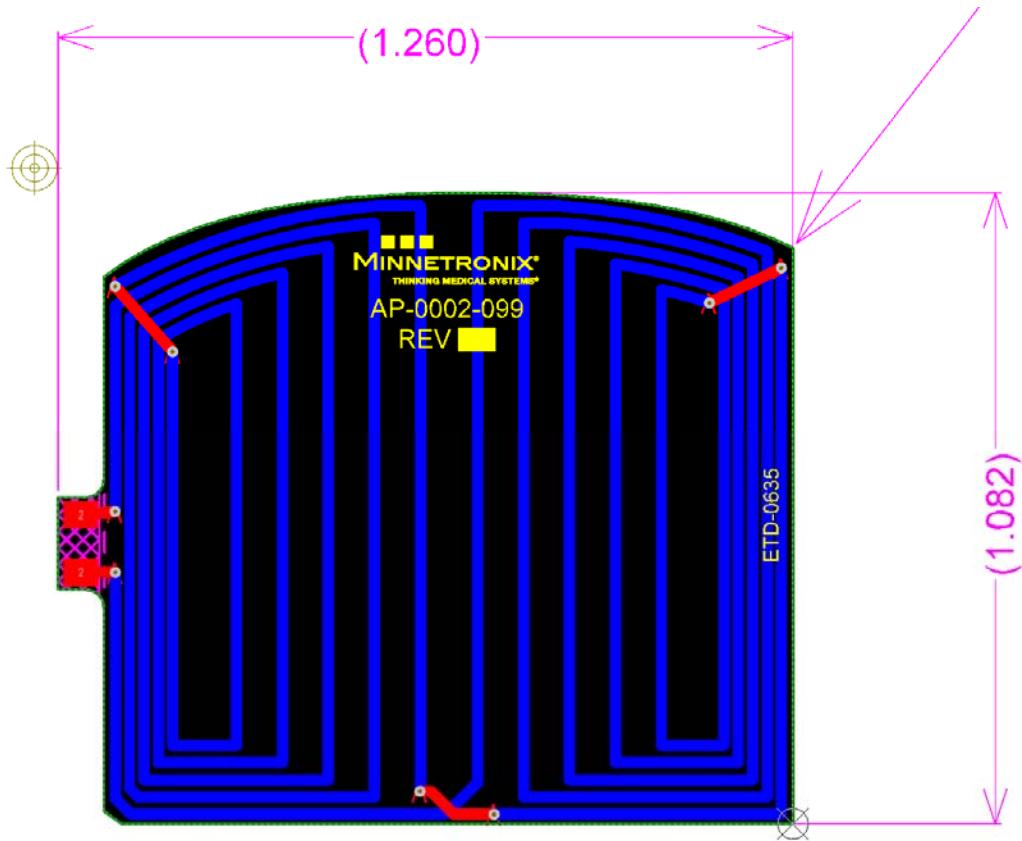


Figure 1: Detailed Antenna Dimensions

- Operation is designed for 13.567MHz.
- The antenna has a rounded top edge, designed this way in order to fit in the transmitter enclosure.
- Trace Information:
  - The largest loop is 13.22mm x 26.52mm as shown by Figure 2
  - The smallest loop size is 2.73mm x 19.87mm as shown by Figure 3.
  - The width of the trace is 0.50mm. This dimension is fixed for the entire trace length.
  - The antenna was designed to focus energy in one direction. There are 10 turns total using one trace. Figure 4 and Figure 5 show the radiation plots visually to understand the purpose of the loops.
    - 5 turns for the “positive” carrying current then the traces are jumped to the other side of the board and routed to the other edge of the antenna PCB for the 5 turns on the return path “negative” current.

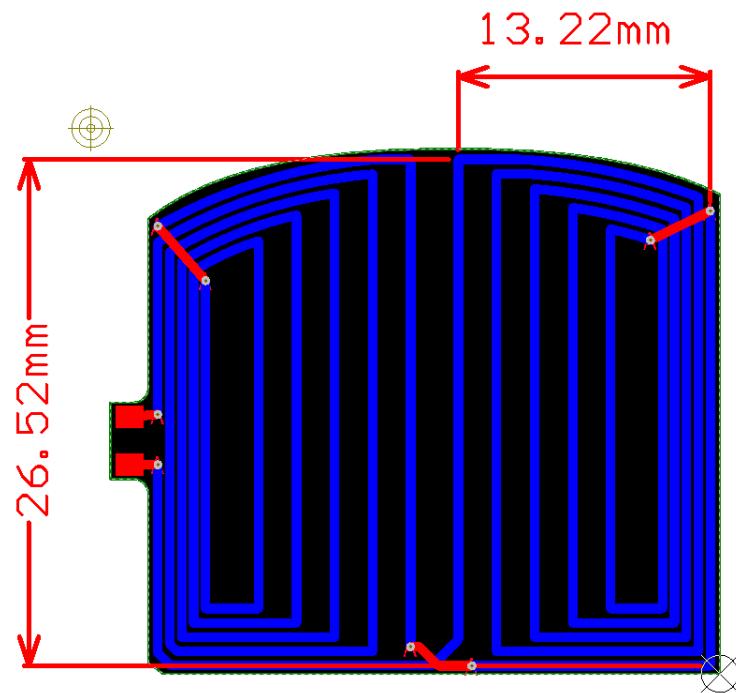


Figure 2: Largest Loop Dimensions

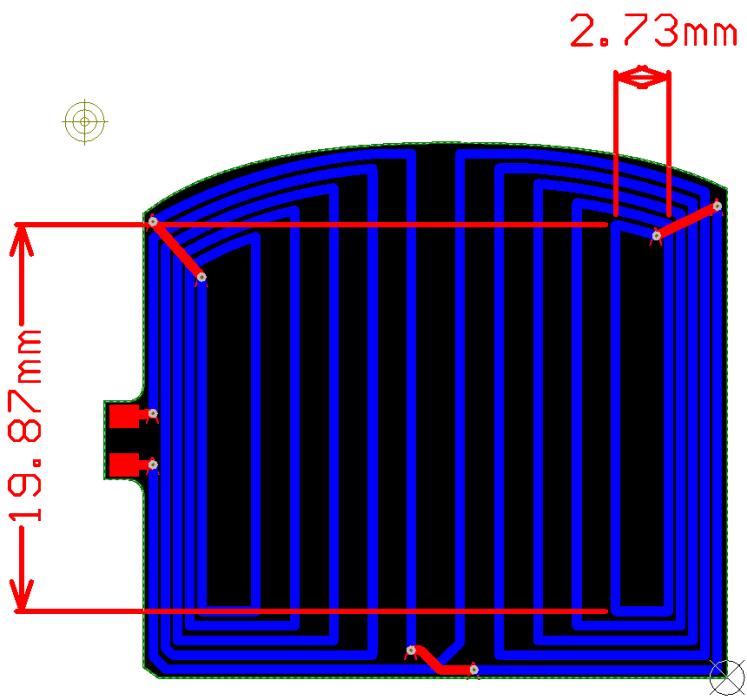


Figure 3: Smallest Loop Dimensions

## H-field Contour Plot (XZ plane – Planar Antenna-A)

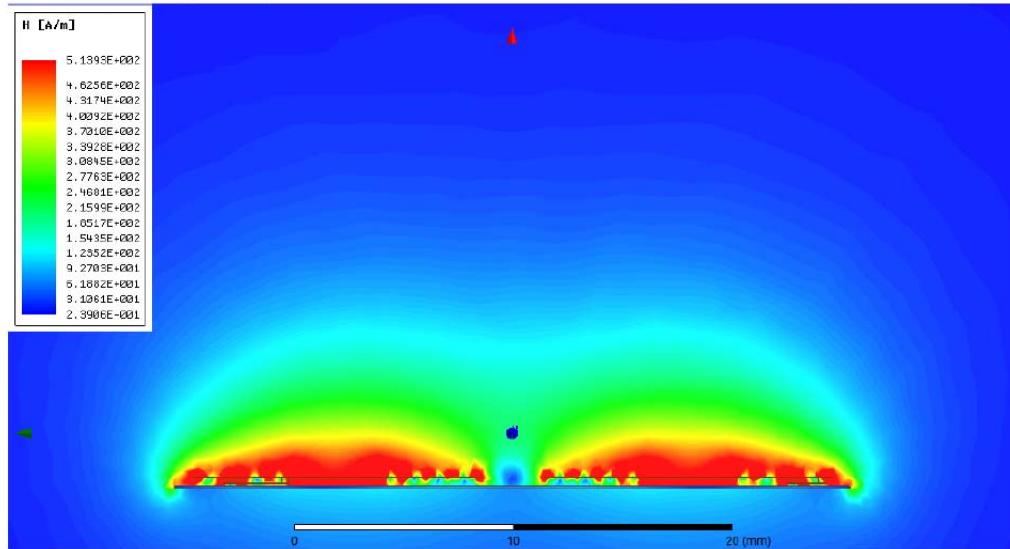


Figure 4: H-Field Contour Plot

## H-field Vector Plot (XZ plane – Planar Antenna-A)

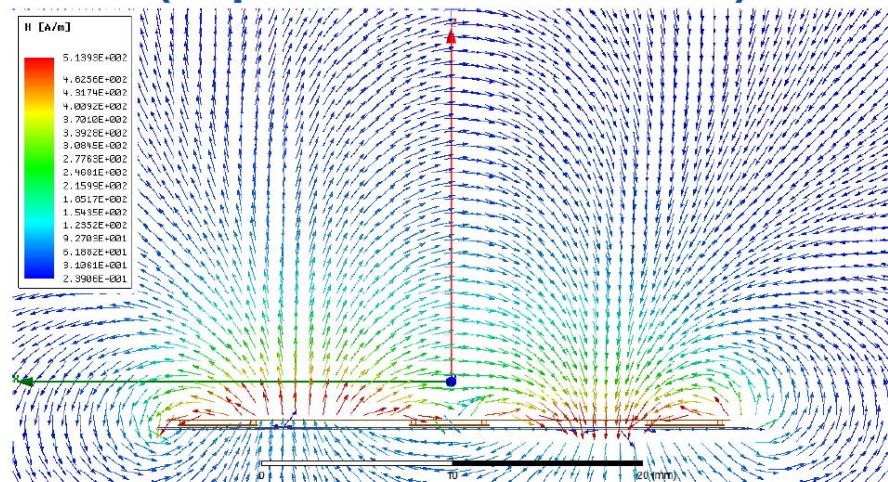


Figure 5: H-Field Vector Plot