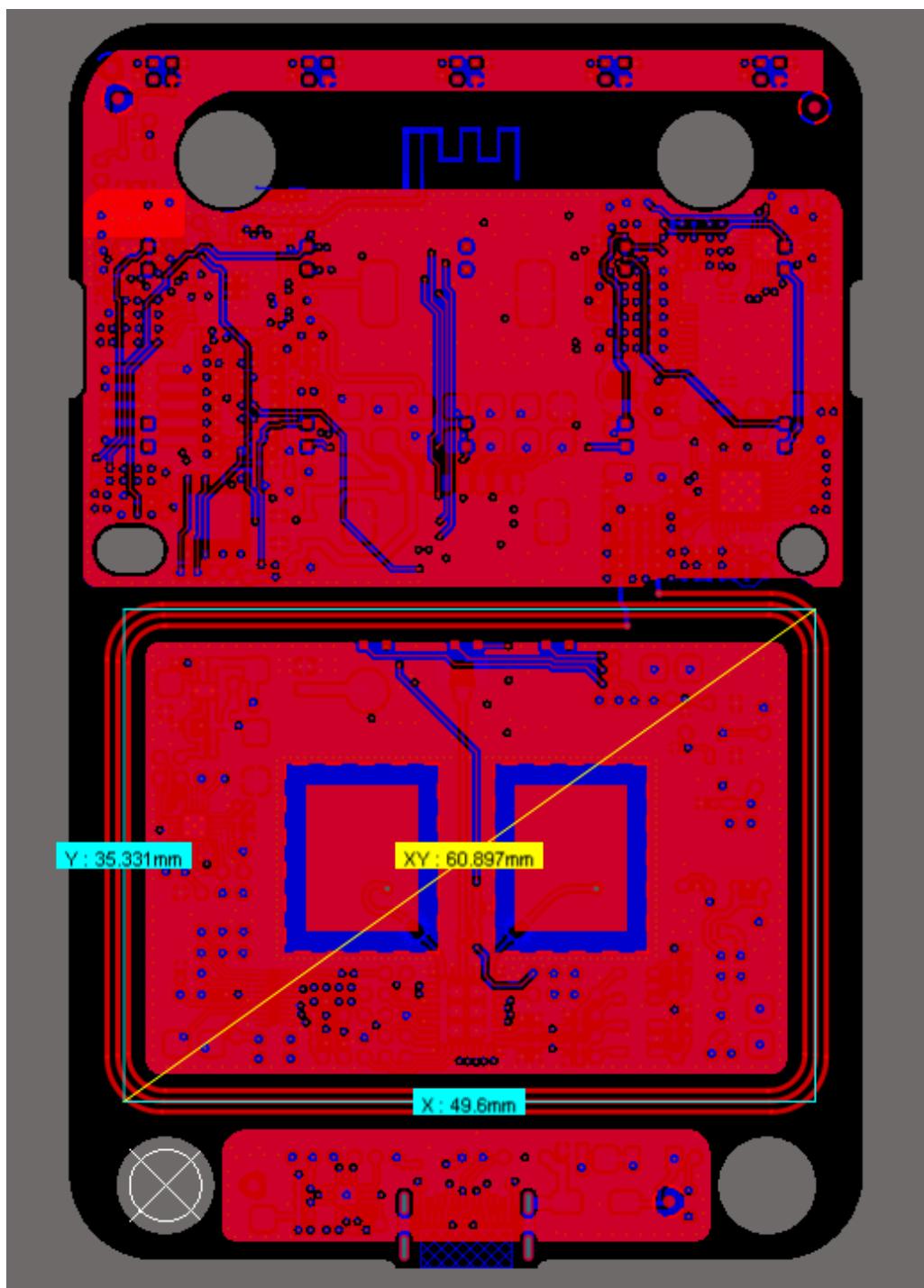


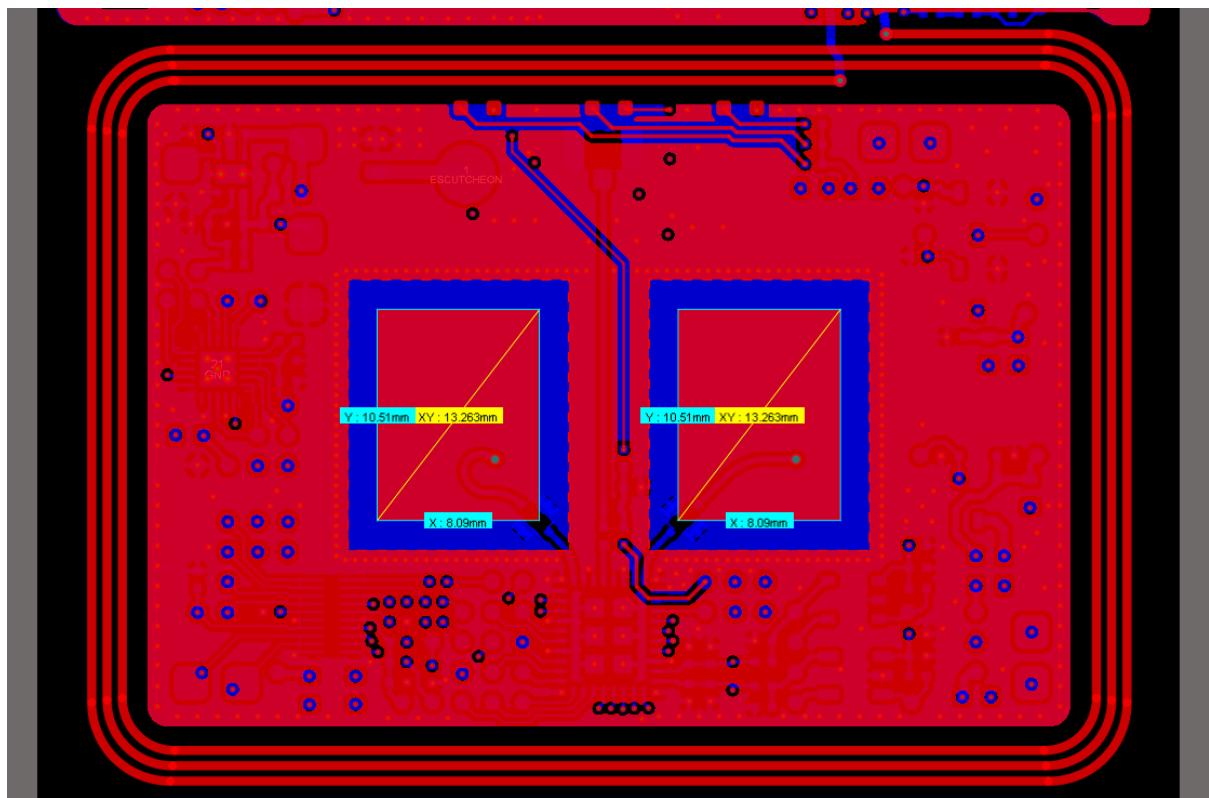
NFC Smart coil Antenna Dimensions



The Coil Antenna is dimensioned X-axis 49.6mm and Y- axis 35.331mm

Antenna gain is not required as all measurements were performed radiated.

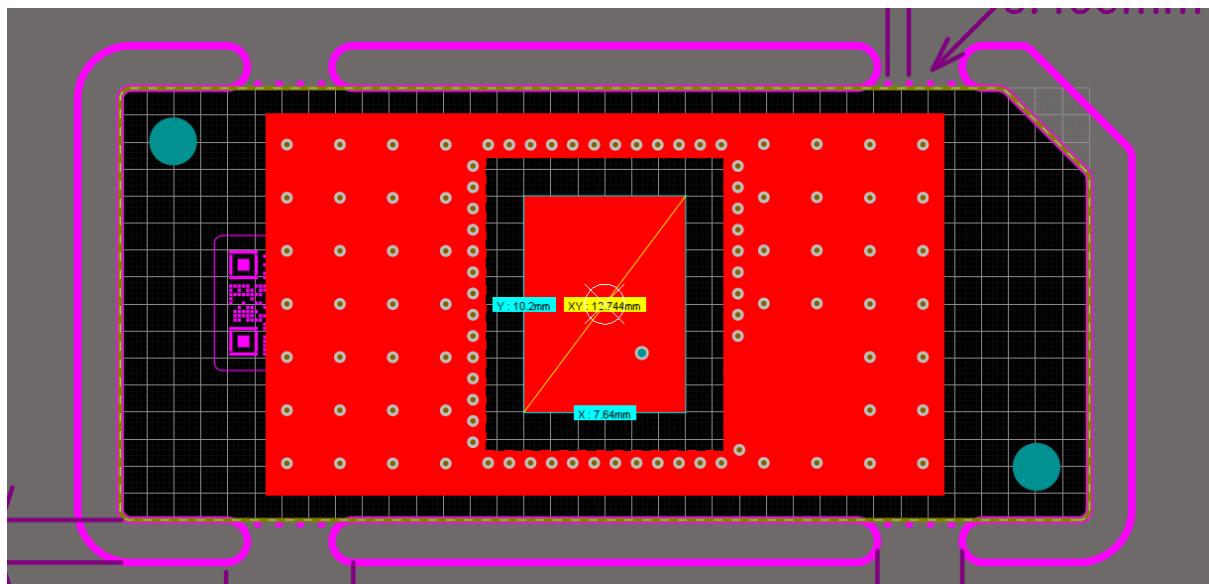
UWB Patch Antenna (ANT1 TX/RX, ANT2 RX Only)



2 X patch Antenna X-Axis 8.09mm Y-axis 10.51mm

Antenna gain is not required as all measurements were performed radiated.

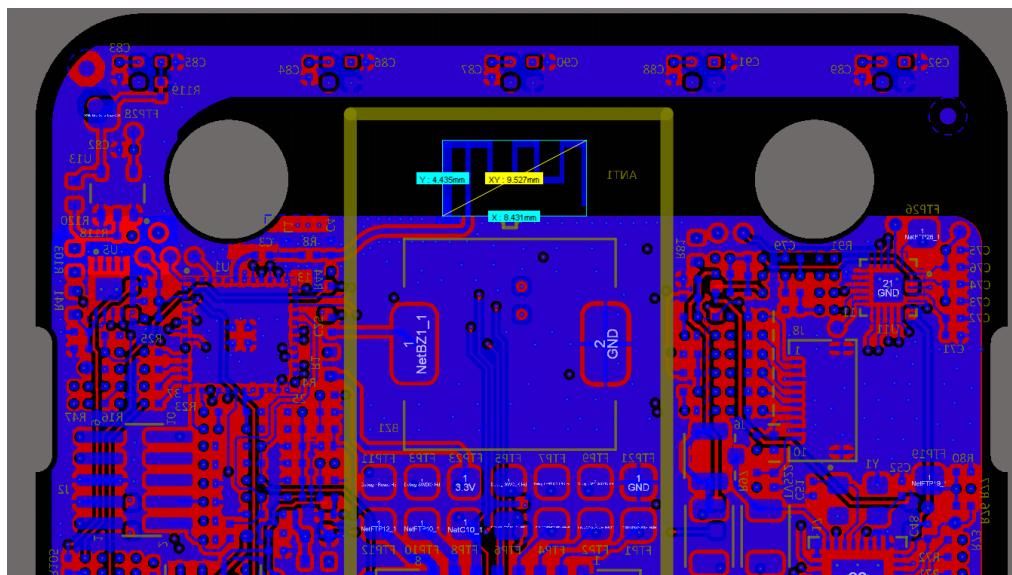
Inside Board Patch Antenna (ANT3, RX ONLY)



Patch Antenna X-axis 7.64mm & Y-axis 10.2mm

Antenna gain is not required as all measurements were performed radiated.

BLE PIFA Antenna Dimensions



The BLE Antenna is dimensioned X- axis 8.431mm and Y-axis 4.435mm

BLE Antenna Study

Date: October 28, 2024

Location: Willow Run Test Labs., Inc.

Engineer: John Nantz

Equipment:

| Description | Manufacturer | Calibration Info. |
|-------------------------------|-----------------------------|-------------------|
| Semi-anechoic Tapered Chamber | Willow Run Test Labs., Inc. | On use |
| FSV30 Signal Analyzer | Rohde & Schwarz | April 2025 |
| Quad Ridge Horn | Singer A6100 | August 2025 |
| CAB018WHT 3.5mm Coax | WRTL | March 2025 |

Max gain: Horizontal Polarization: 1.3 dBi, Vertical Polarization: 0.1 dBi

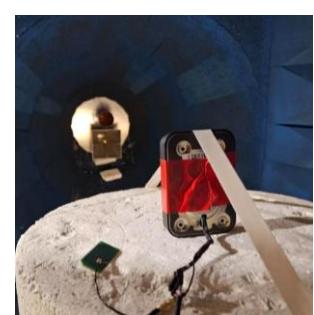
YX Cut

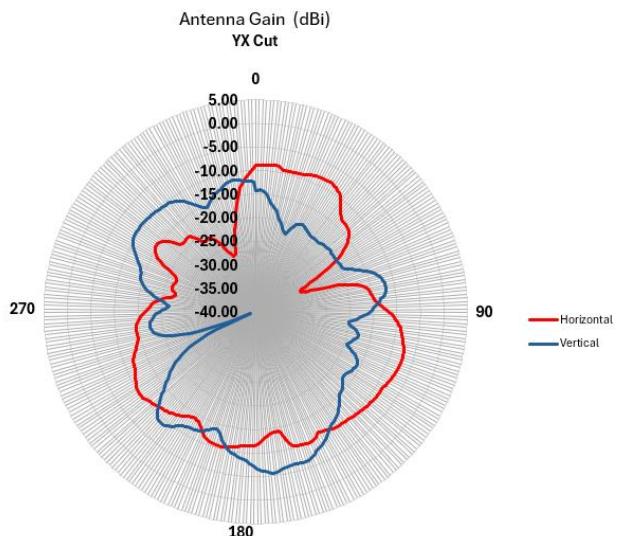


YZ Cut

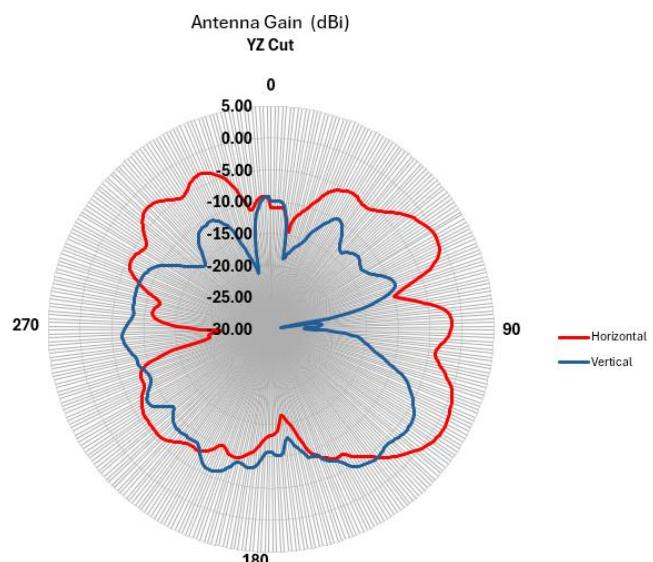


ZX Cut

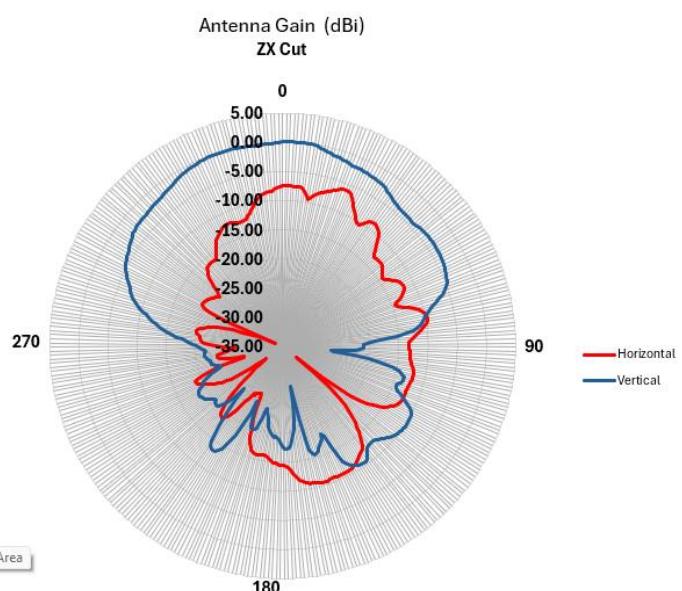




| Parameter | Gain (dBi) | |
|-----------|------------|----------|
| | Horizontal | Vertical |
| Min | -29.48 | -38.83 |
| Max | -7.27 | -5.59 |



| Parameter | Gain (dBi) | |
|-----------|------------|----------|
| | Horizontal | Vertical |
| Min | -22.14 | -28.51 |
| Max | 1.32 | -3.43 |



| Parameter | Gain (dBi) | |
|-----------|------------|----------|
| | Horizontal | Vertical |
| Min | -33.77 | -27.98 |
| Max | -6.05 | 0.09 |