

LCLS II 2Q4W Fiducialization Report



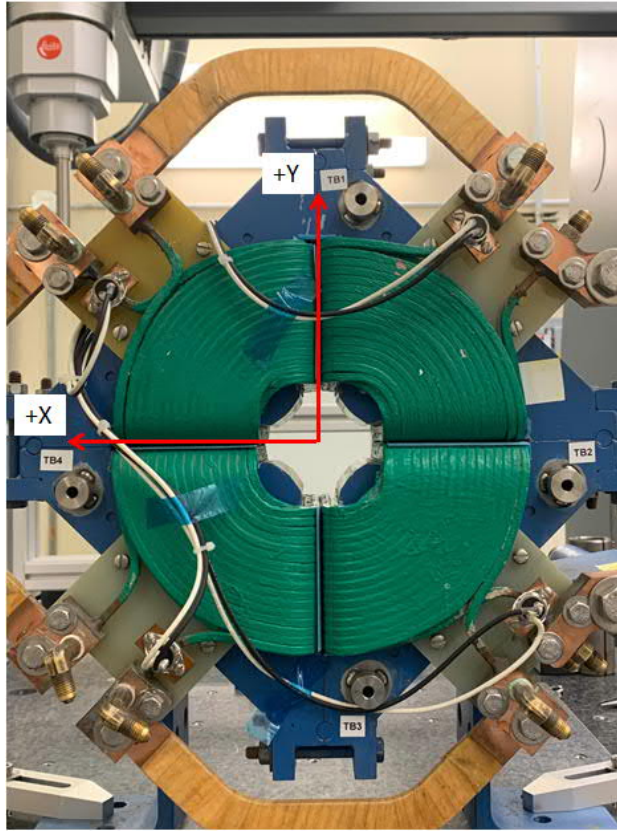
Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-344-112-08
Barcode # : 4233
Mfg. S/N : #21

Coordinate System Setup

Spatial Alignment

The Spatial Alignment of the magnet is created through a composite best-fit of the pole tips. Each pole tip scanned 0.150 inch inboard from the upstream magnet face and the downstream magnet face. A composite best-fit of the upstream poles and the downstream poles is made with the nominal pole tip shape and location. An axis is created through the two best-fit centerpoints. This axis is the spatial alignment of the magnet and defines the Z axis.

Tooling Ball Locations



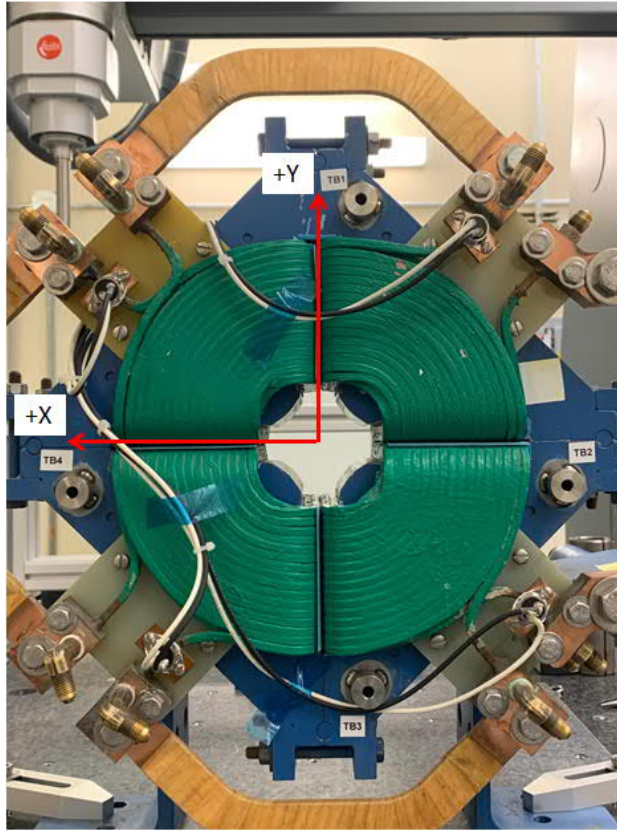
| Tooling Ball | X Coord. | Y Coord. | Z Coord. |
|--------------|----------|----------|----------|
| TB 1 | -0.9972 | 5.4977 | -3.4433 |
| TB 2 | -5.5020 | -0.9972 | -3.4441 |
| TB 3 | -1.0050 | -5.5012 | -3.4413 |
| TB 4 | 5.5027 | -1.0024 | -3.4379 |

Tooling Ball Locations are 1 inch above Tooling Ball Adapter Plane
Dimensions in Inch

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Tooling Ball Locations



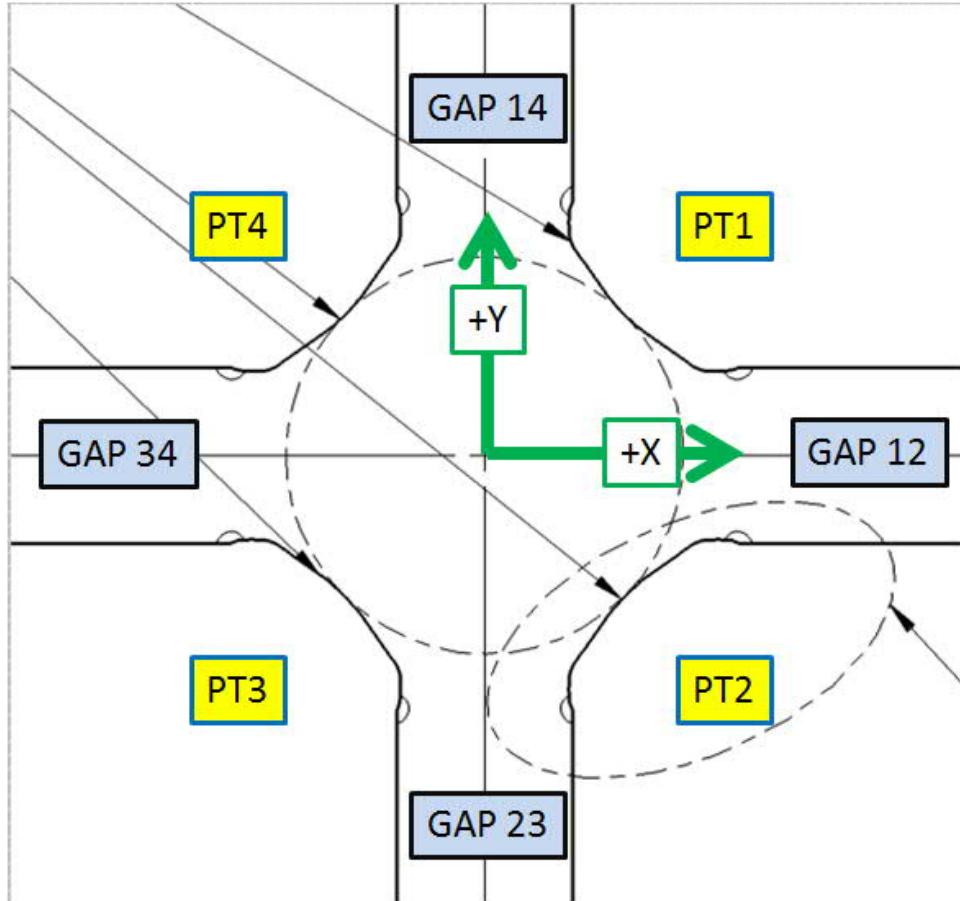
| Tooling Ball | X Coord. | Y Coord. | Z Coord. |
|--------------|----------|----------|----------|
| TB 1 | -0.9982 | 5.5001 | -2.7551 |
| TB 2 | -5.5008 | -0.9963 | -2.7566 |
| TB 3 | -1.0044 | -5.4979 | -2.7534 |
| TB 4 | 5.5022 | -1.0013 | -2.7496 |

Tooling Ball Locations are 5/16 inch above Tooling Ball Adapter Plane
Dimensions in Inch

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Pole Tip Gap Measurements



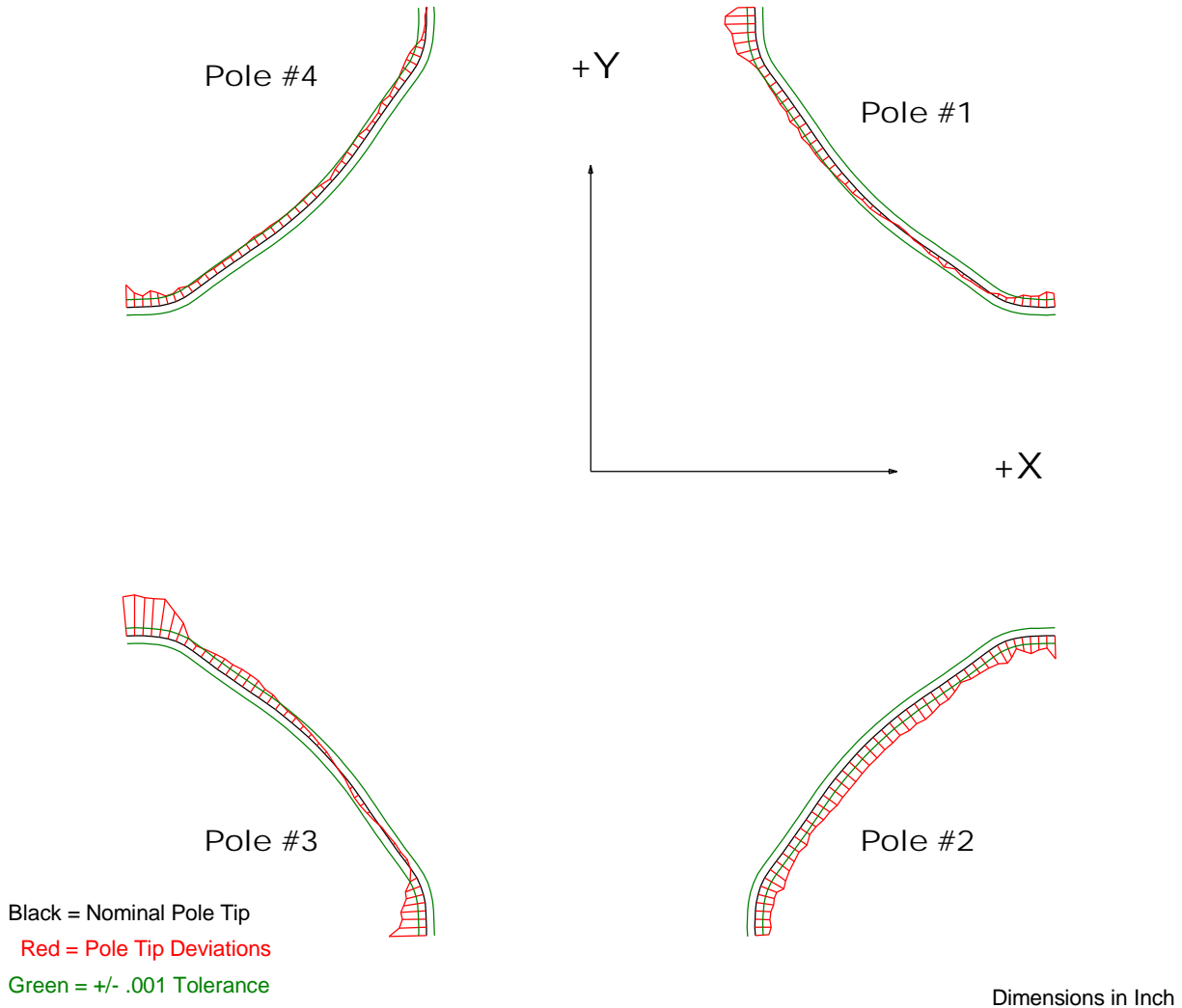
| | Nominal Distance | Downstream Pole End | Upstream Pole End |
|-----------------|------------------|---------------------|-------------------|
| PT Distance 1-3 | 2.026 | 2.0251 | 2.0277 |
| PT Distance 2-4 | 2.026 | 2.0293 | 2.0273 |
| Gap 1-2 | 0.8602 | 0.8589 | 0.8551 |
| Gap 2-3 | 0.8602 | 0.864 | 0.8607 |
| Gap 3-4 | 0.8602 | 0.8551 | 0.8557 |
| Gap 1-4 | 0.8602 | 0.855 | 0.8621 |

Dimensions in Inch

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Composite Best-fit of Pole Tips, Downstream



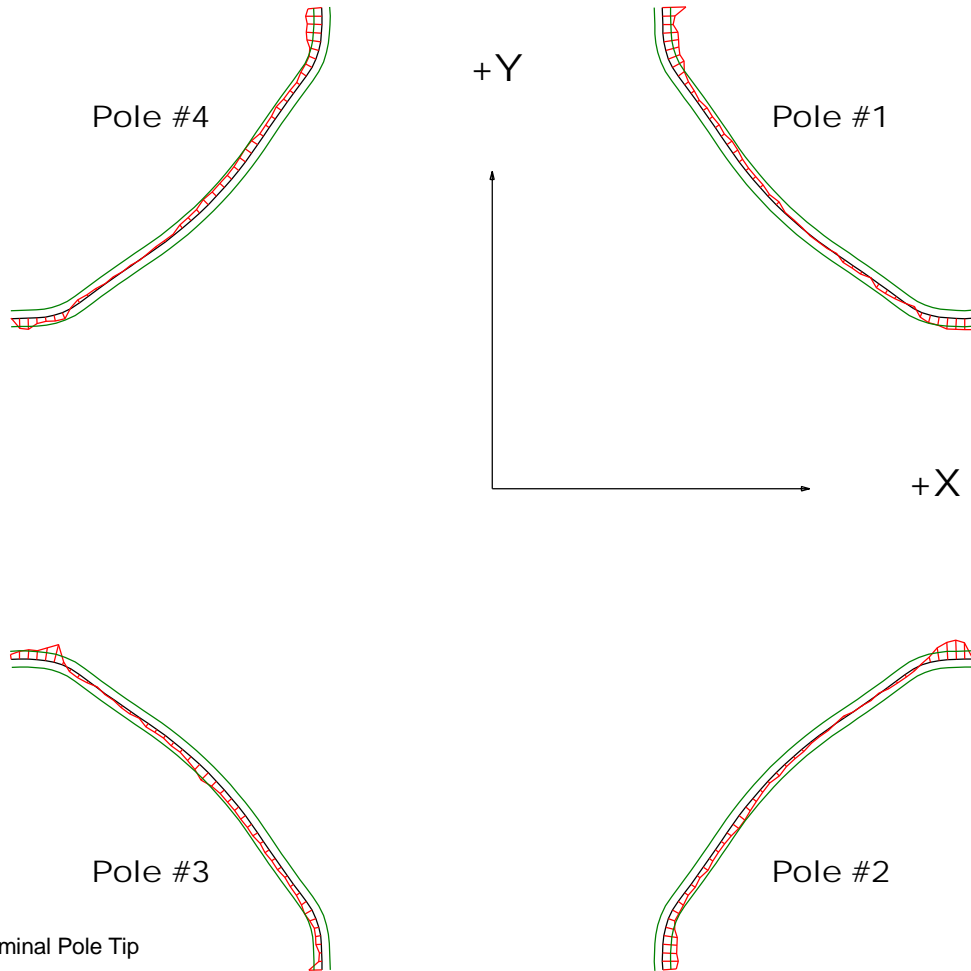
Pole Tip Deviations

| Pole Tip | #1 | #2 | #3 | #4 |
|-----------|--------|---------|---------|---------|
| Min. Dev. | -0.002 | -0.003 | -0.0048 | -0.0029 |
| Max. Dev. | 0.0039 | -0.0012 | 0.0052 | 0.0002 |

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Composite Best-fit of Pole Tips, Upstream



Black = Nominal Pole Tip
 Red = Pole Tip Deviations
 Green = +/- .001 Tolerance

Dimensions in Inch

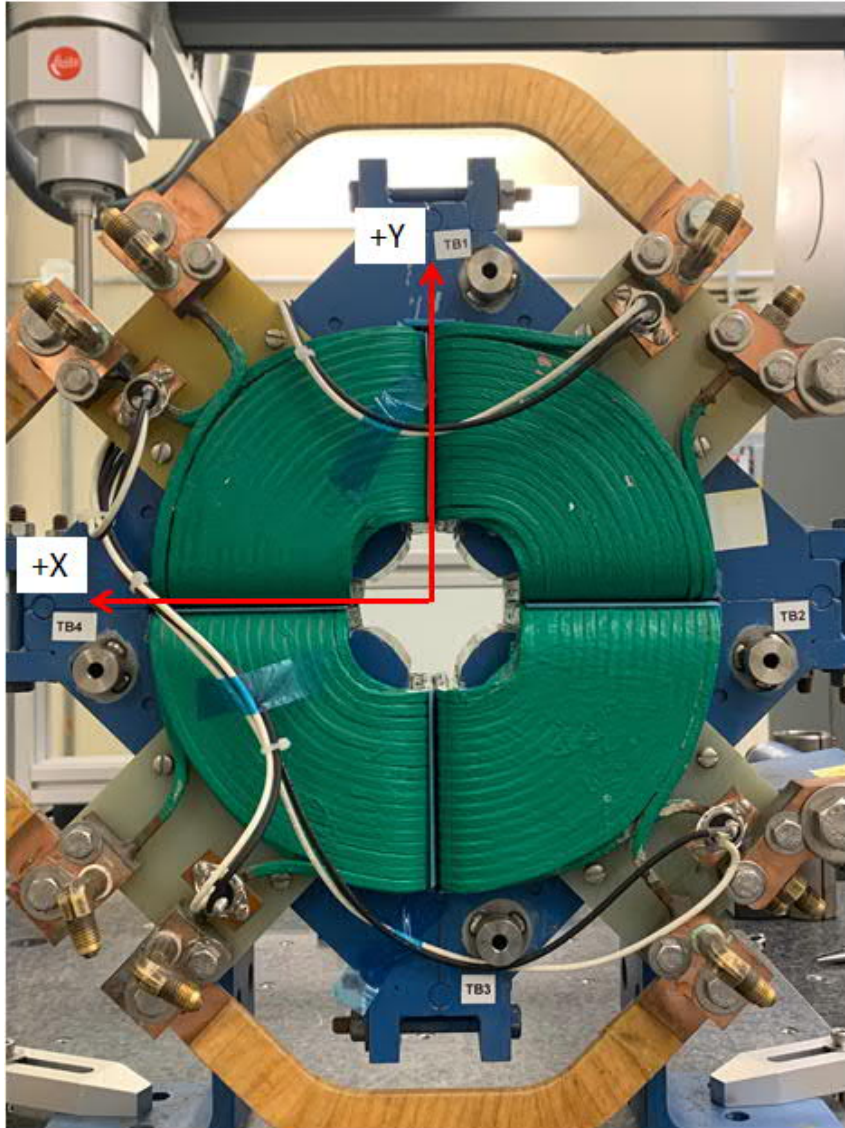
Pole Tip Deviations

| Pole Tip | #1 | #2 | #3 | #4 |
|-----------|---------|--------|---------|--------|
| Min. Dev. | -0.0029 | -0.002 | -0.0016 | -0.002 |
| Max. Dev. | 0.0014 | 0.0024 | 0.0022 | 0.0014 |

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Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° :