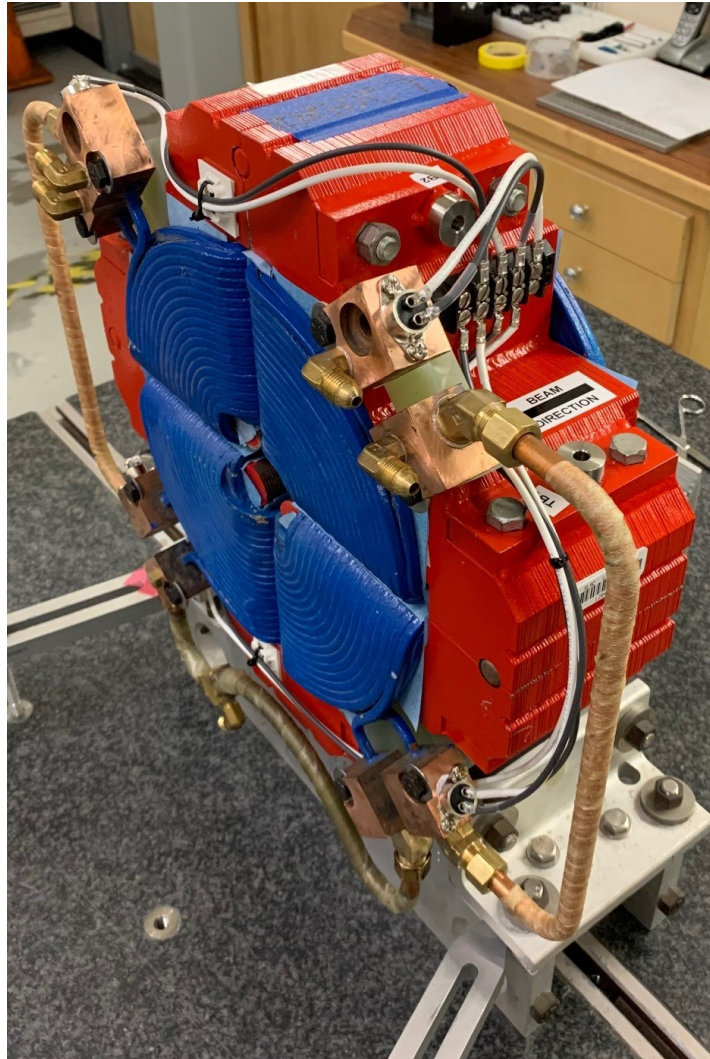


LCLS II 1.085Q4.31 Fiducialization Report



Inspector : K. Caban
Engineer : E. Kraft
Drawing No. : SA-902-675-01
Barcode # :L204244
Mfg. S/N :

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 0.100 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.

Planar Alignment

The Planar Alignment of the magnet is the created by averaging the rotations of the composite best-fits of the upstream pole tips and downstream pole tips. This direction defines the Y and X directions of the magnet.

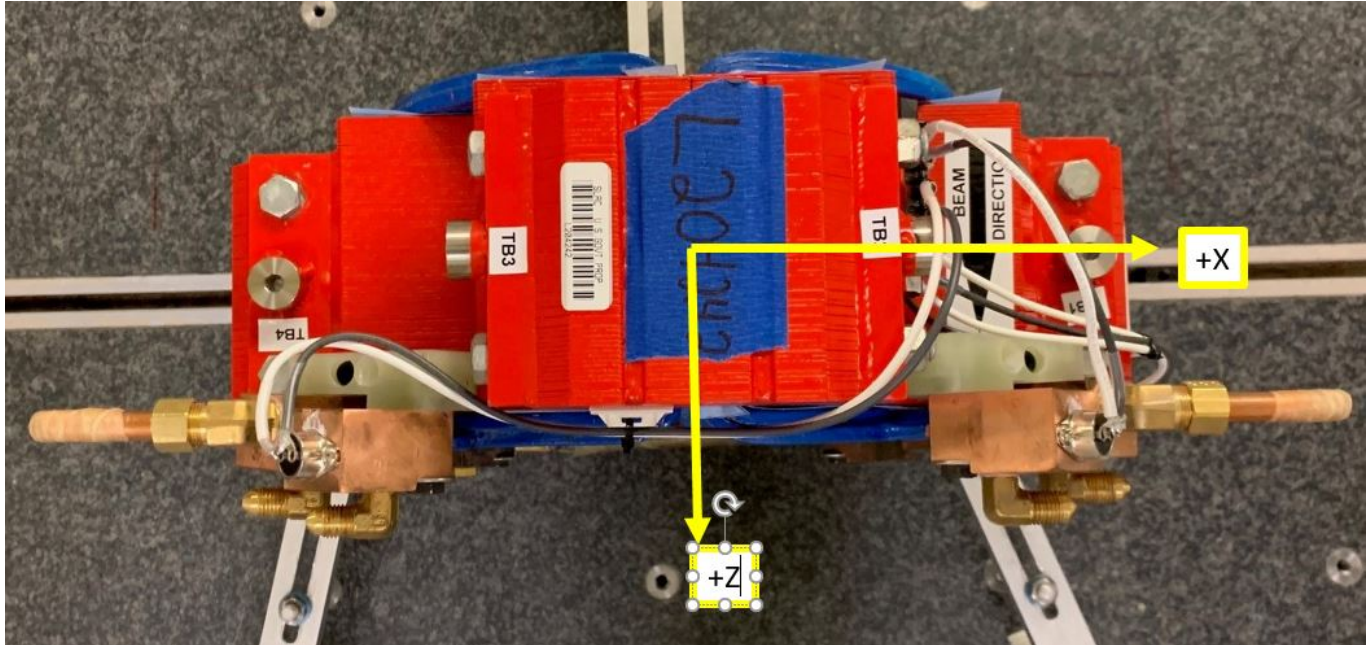
Coordinate Origins

The origins of the magnet coordinate system are as follows. The XY origin lies on the axis of spatial alignment. The Z origin is the intersection of the mid-plane between the upstream and downstream magnet faces and the Z axis. +Z Points towards Copper Tubing end.

Barcode # :L204244

Mfg. S/N :

Tooling Ball Locations



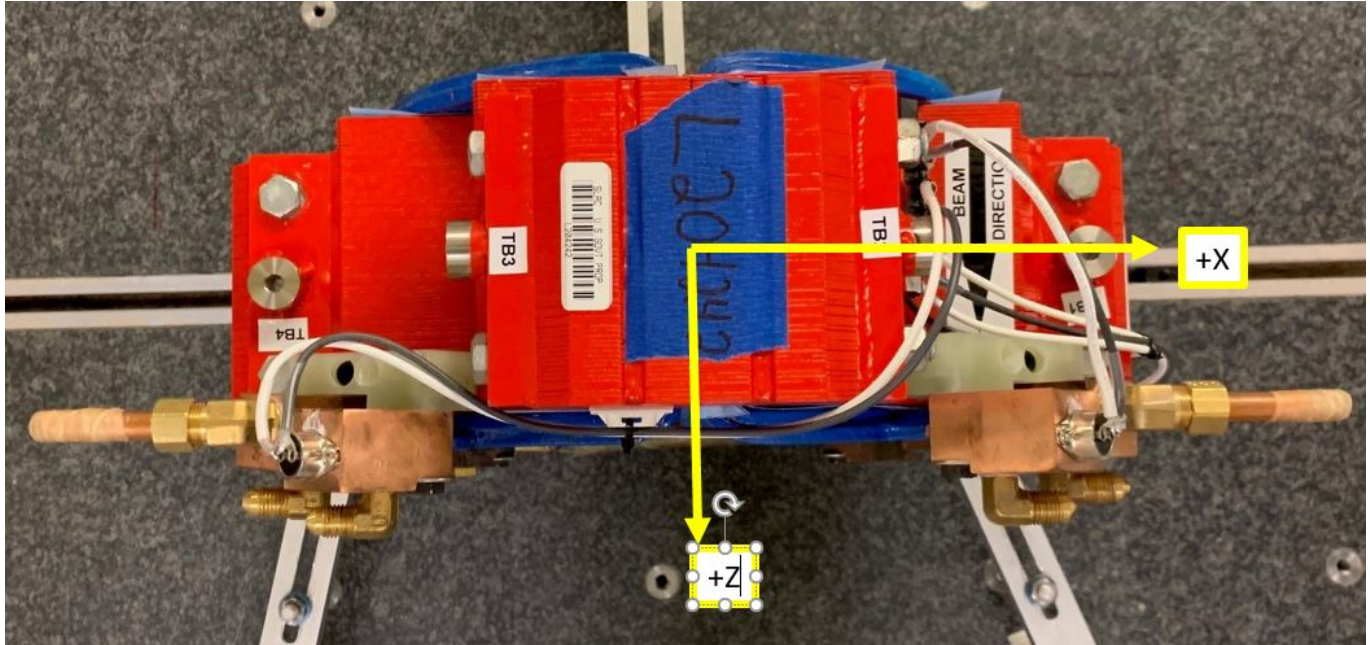
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	5.7678	4.0081	0.1823
TB 2	3.9974	5.7876	0.3049
TB 3	-3.9995	5.8103	0.1951
TB 4	-5.7526	3.9944	0.3200

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

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Mfg. S/N :

Tooling Ball Locations



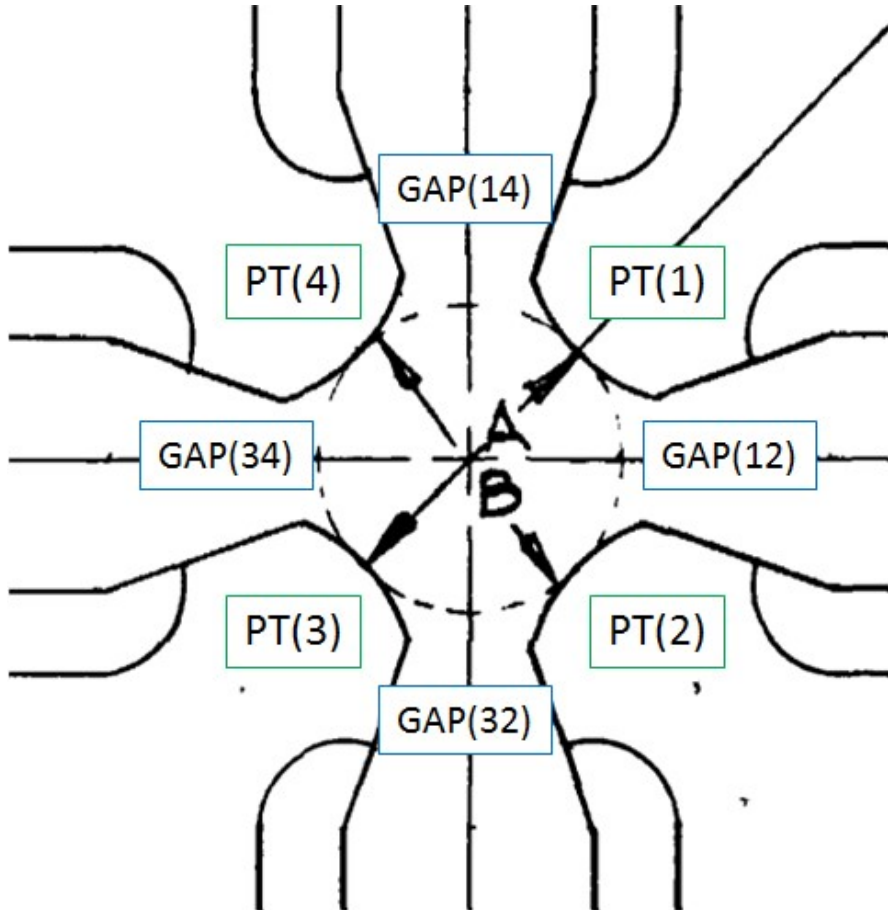
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	5.7566	3.3207	0.1818
TB 2	3.3099	5.7814	0.3060
TB 3	-3.3121	5.8046	0.1940
TB 4	-5.7505	3.3069	0.3199

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

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Mfg. S/N :

Pole Tip Gap Measurements



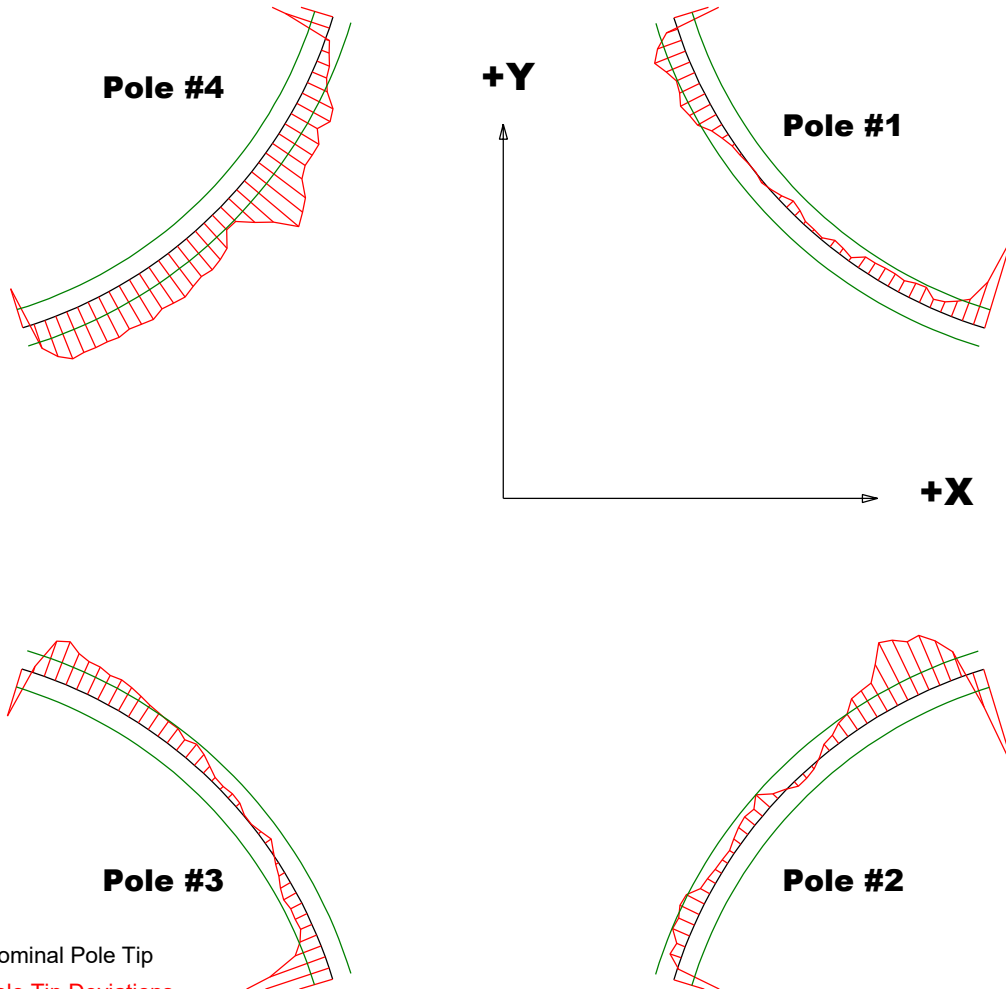
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3(A)	1.085	1.0853	1.086
PT Distance 2-4(B)	1.085	1.0841	1.0864
Gap 1-2	0.4546	0.4653	0.4569
Gap 2-3	0.4546	0.4692	0.4646
Gap 3-4	0.4546	0.4592	0.4652
Gap 4-1	0.4546	0.465	0.4747

Dimensions in Inch

Barcode # :L204244

Mfg. S/N :

Composite Best-fit of Pole Tips, Downstream



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

Dimensions in Inch

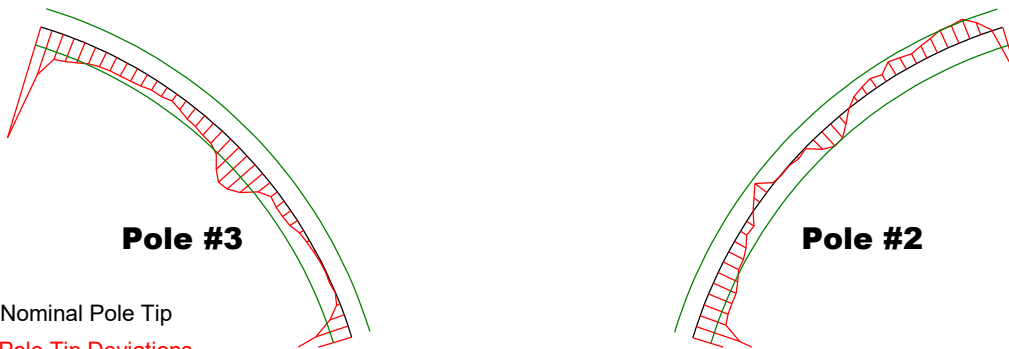
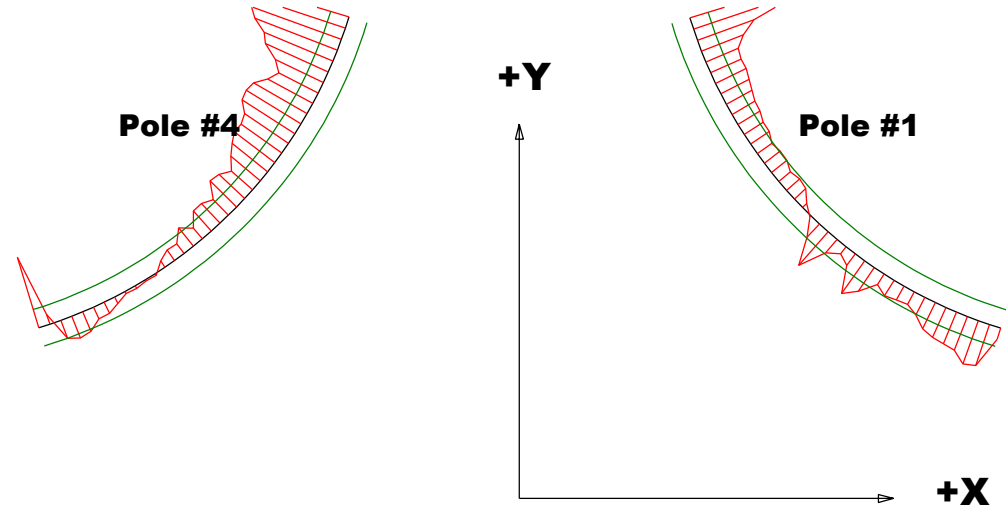
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.005	-0.0056	-0.0102	-0.0063
Max. Dev.	0.0017	0.0034	0.0022	0.0037

Barcode # :L204244

Mfg. S/N :

Composite Best-fit of Pole Tips, Upstream



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

Dimensions in Inch

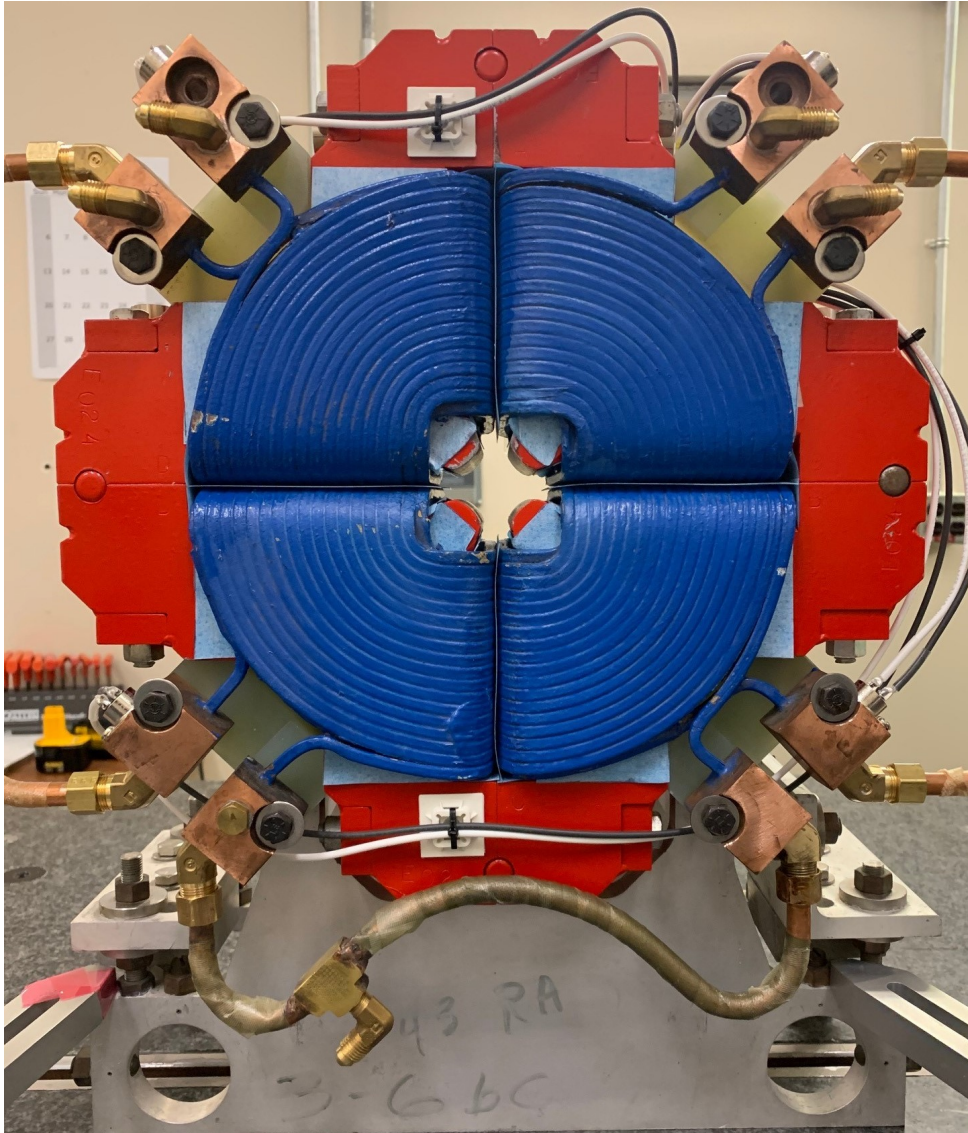
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.0095	-0.0058	-0.0061	-0.0103
Max. Dev.	0.0024	0.0011	0	0.0012

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Mfg. S/N :

Angle of the Composite Pole Tip Best-Fit



Angle in Decimal Degrees ° :-0.05815

Angle in Milliradians :-1.01492

Barcode # :L204244

Mfg. S/N :