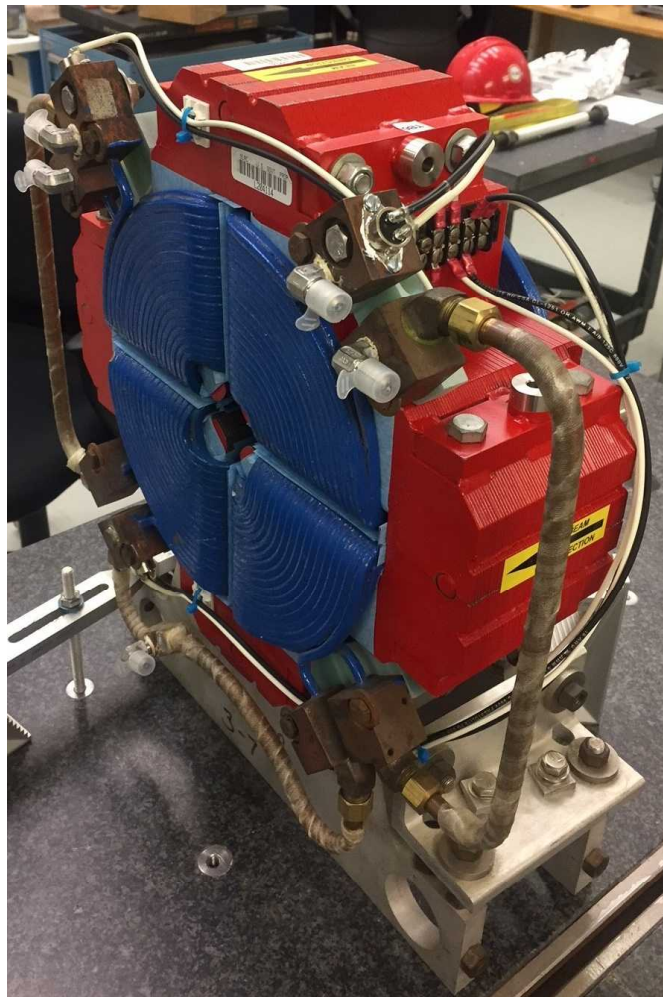


LCLS II 1.085Q4.31 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-902-675-01
Barcode # : 4129
Mfg. S/N : E047

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.

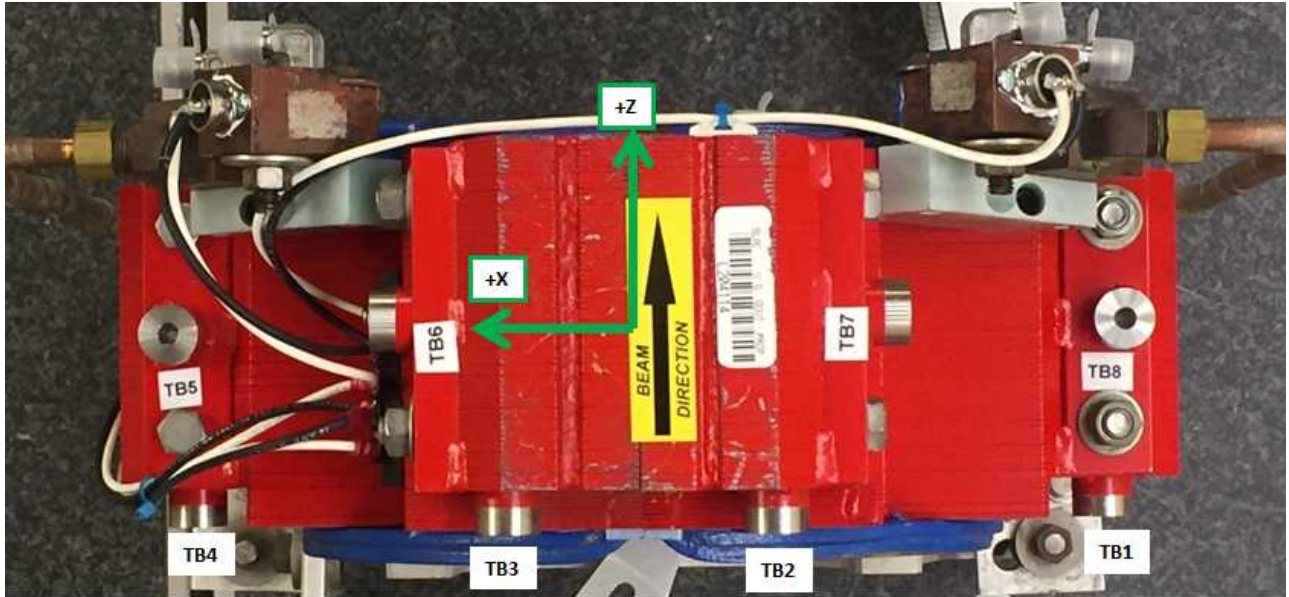
Coordinate Origins

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.

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Tooling Ball Locations



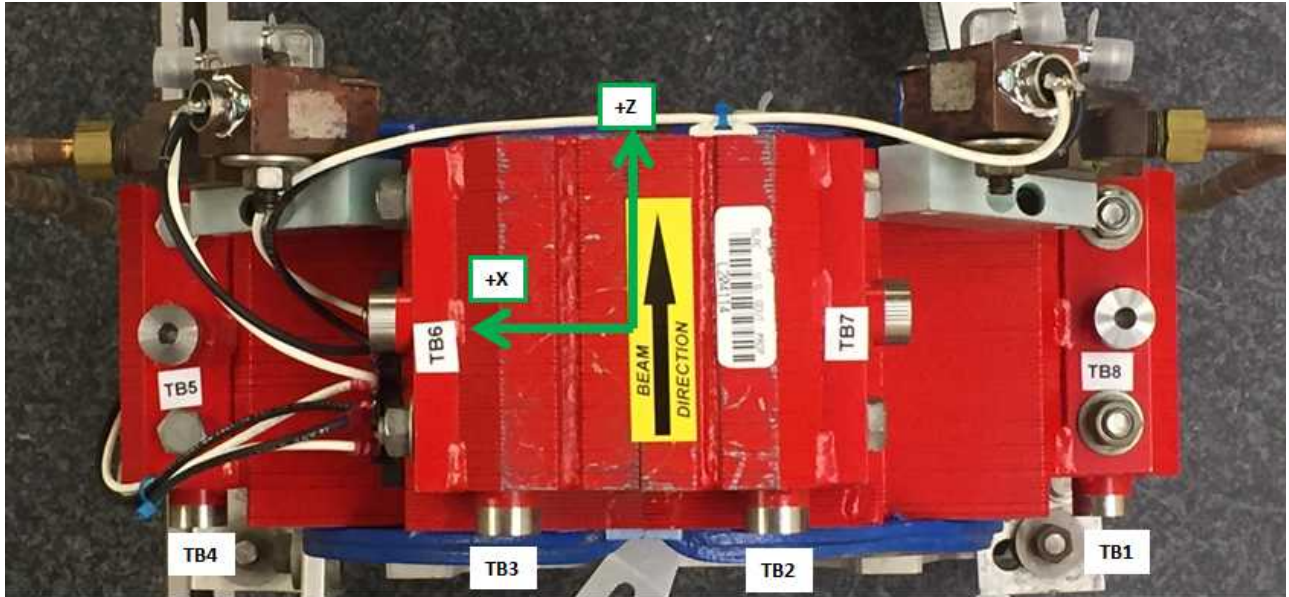
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7516	1.5064	-3.1994
TB 2	-1.5178	5.7514	-3.1983
TB 3	1.5105	5.7500	-3.1951
TB 4	5.7429	1.5123	-3.1976
TB 5	5.8614	4.0060	0.2156
TB 6	3.9969	5.8623	0.2403
TB 7	-4.0058	5.8483	0.2352
TB 8	-5.8428	3.9974	0.2472

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

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Tooling Ball Locations



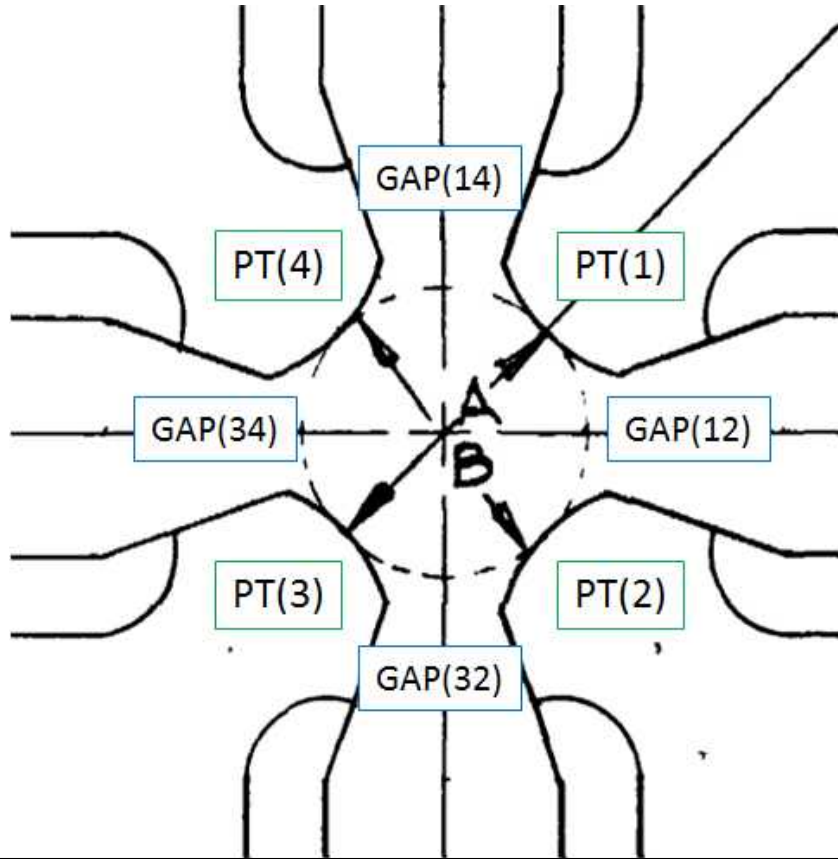
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7522	1.5074	-2.5104
TB 2	-1.5156	5.7542	-2.5100
TB 3	1.5066	5.7506	-2.5064
TB 4	5.7441	1.5128	-2.5099
TB 5	5.8593	3.3188	0.2166
TB 6	3.3087	5.8618	0.2390
TB 7	-3.3185	5.8511	0.2373
TB 8	-5.8411	3.3090	0.2456

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

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Pole Tip Gap Measurements



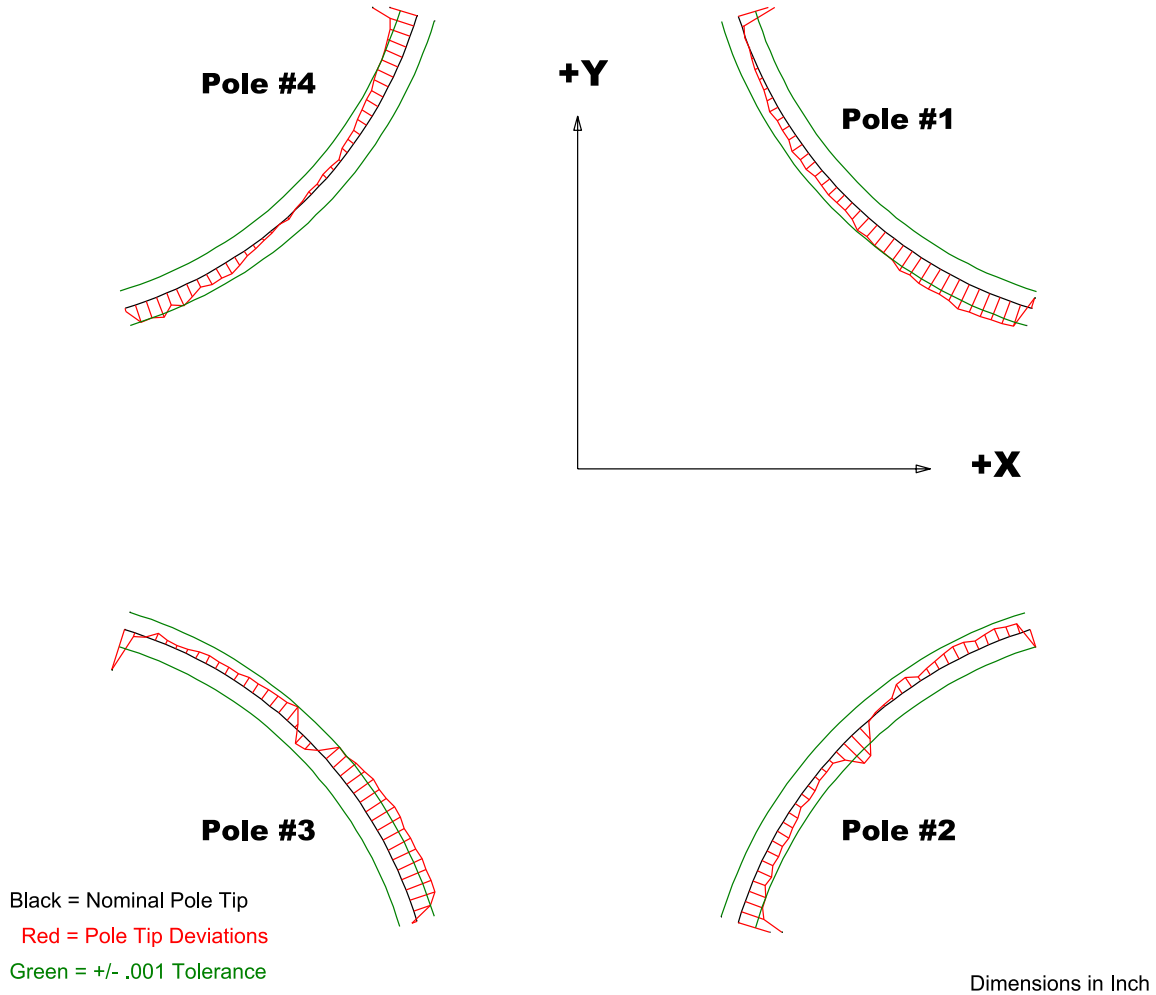
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3(A)	1.085	1.08493	1.08637
PT Distance 2-4(B)	1.085	1.08655	1.08659
Gap 1-2	0.4546	0.45687	0.46049
Gap 2-3	0.4546	0.45881	0.458
Gap 3-4	0.4546	0.45776	0.46184
Gap 4-1	0.4546	0.46152	0.46032

Dimensions in Inch

Barcode # : 4129

Mfg. S/N : E047

Composite Best-fit of Pole Tips, Downstream



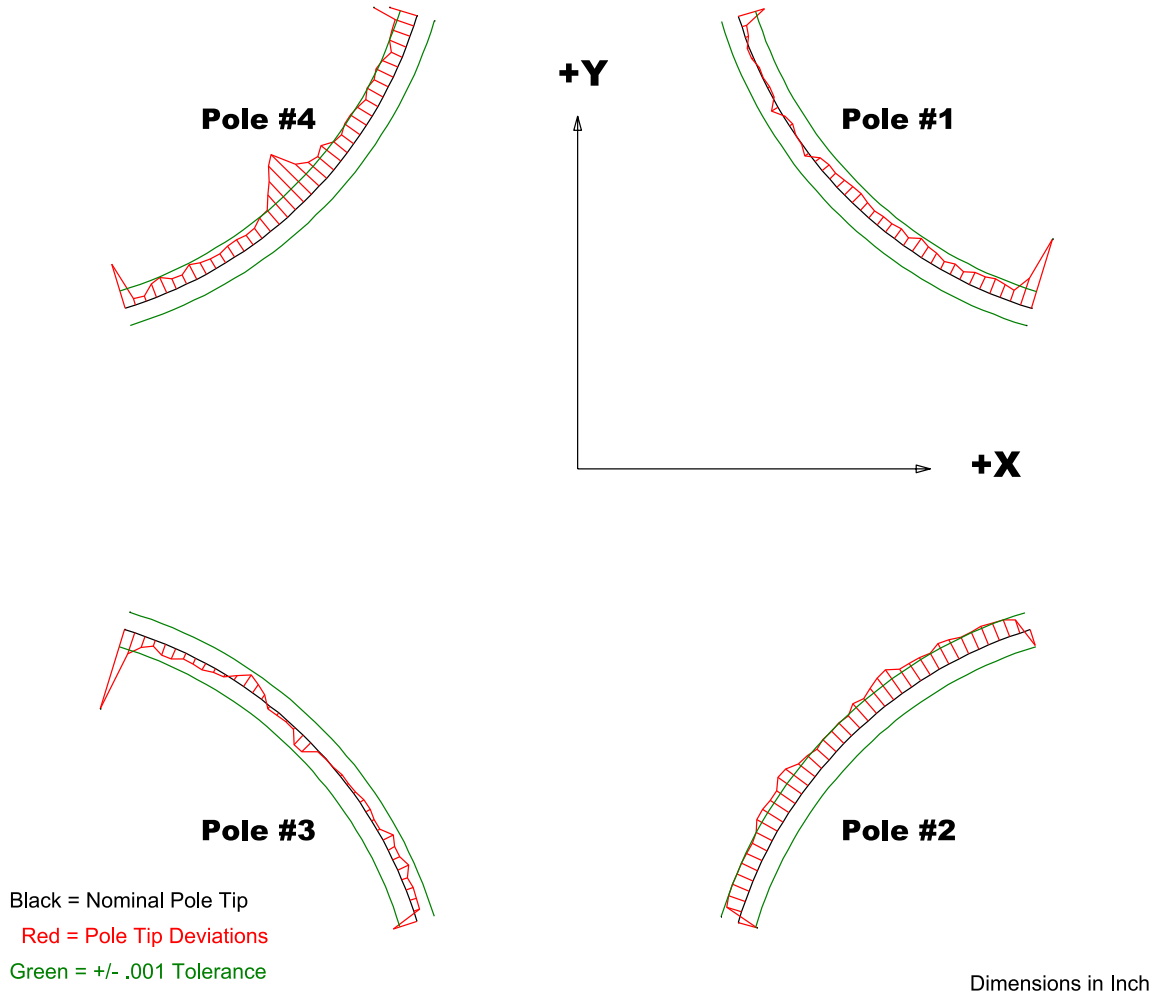
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00244	-0.00305	-0.00237	-0.00359
Max. Dev.	0.00152	0.00076	0.00151	0.00121

Barcode # : 4129

Mfg. S/N : E047

Composite Best-fit of Pole Tips, Upstream



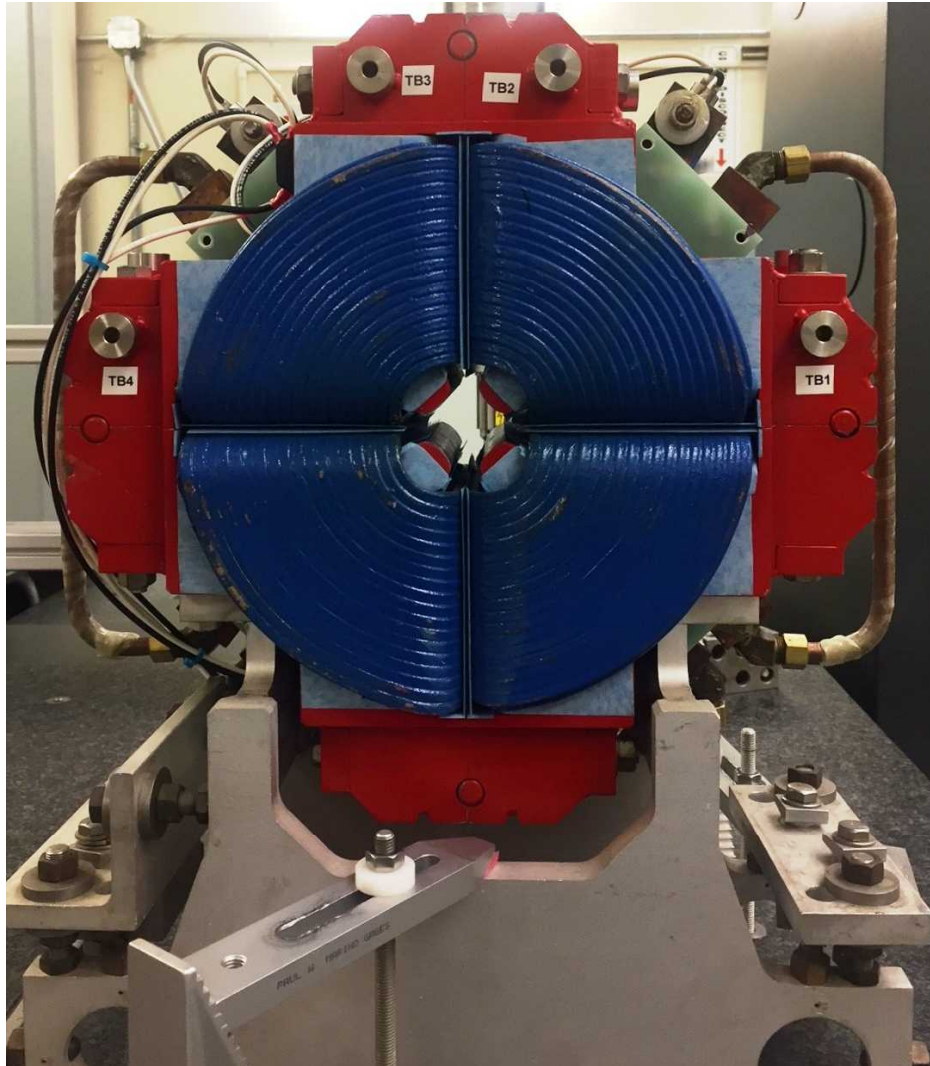
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00406	-0.00108	-0.00462	-0.00351
Max. Dev.	0.0004	0.00163	0.00076	-0.0003

Barcode # : 4129

Mfg. S/N : E047

Angle of the Composite Pole Tip Best-Fit In Relation to TB 5 Plate and TB 8 Plate



Angle in Decimal Degrees $^{\circ}$:-0.02890

Angle in Milliradians :-0.50440

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Mfg. S/N : E047