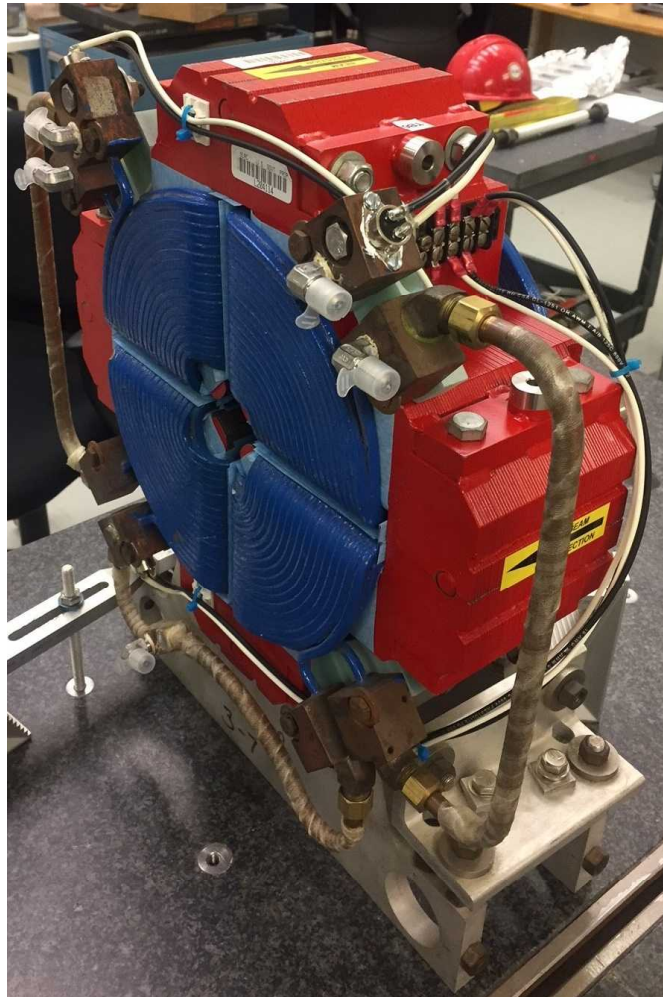


LCLS II 1.085Q4.31 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-902-675-01
Barcode # : 4118
Mfg. S/N : E078

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.

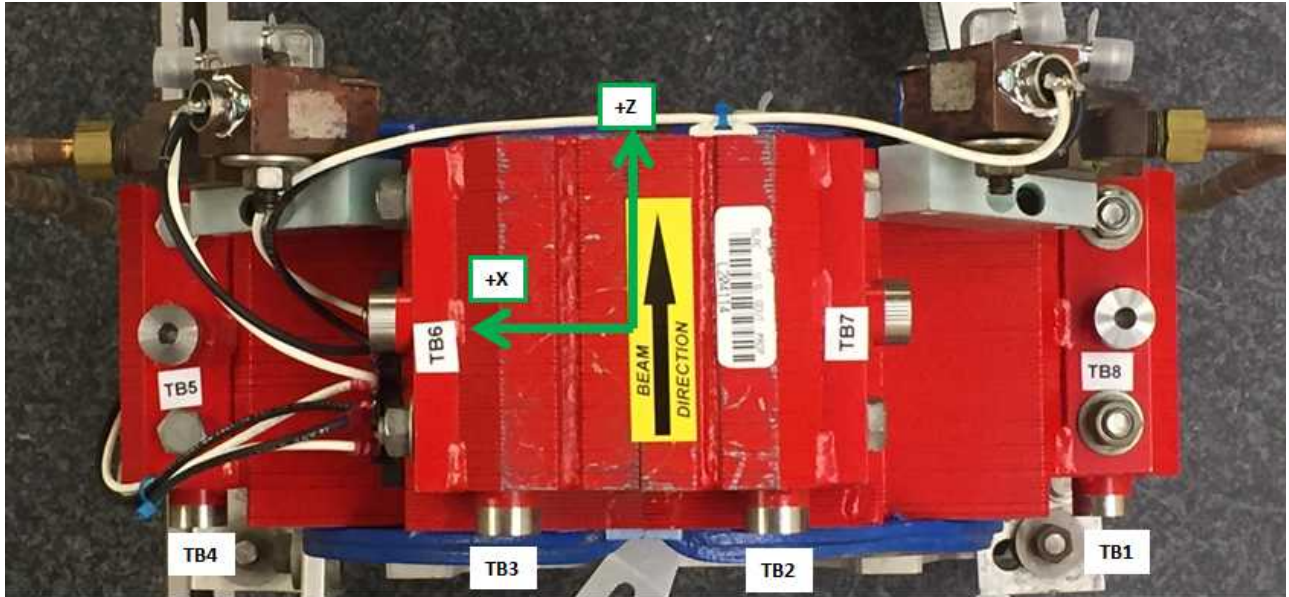
Coordinate Origins

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



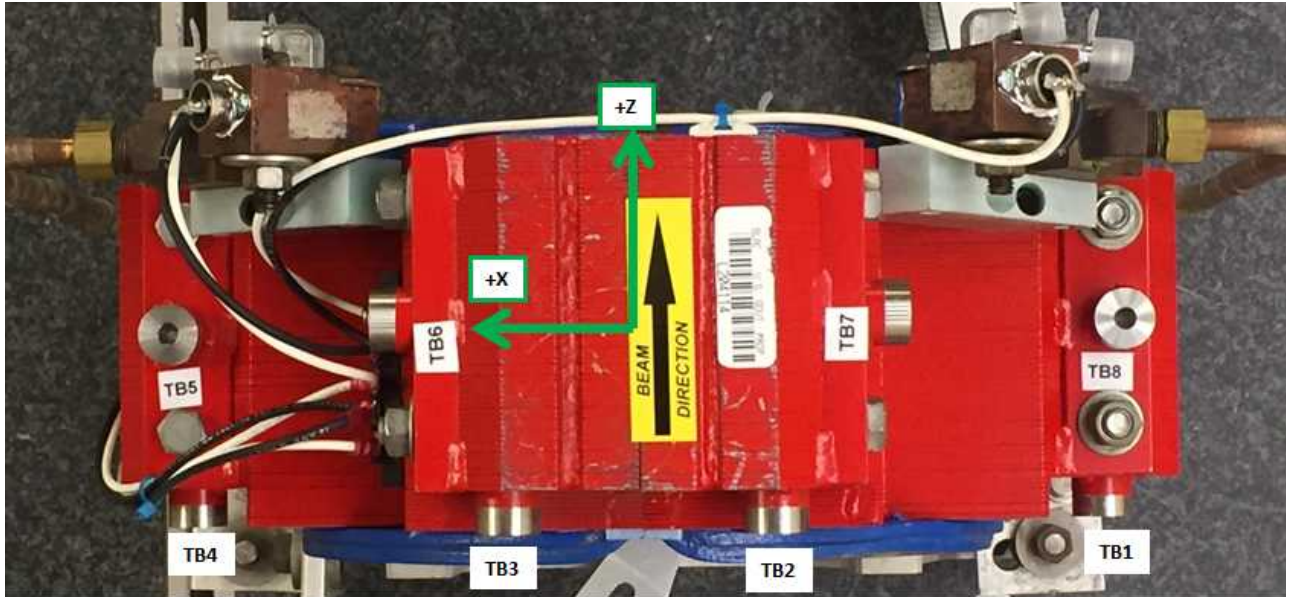
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7536	1.5011	-3.1850
TB 2	-1.5200	5.7341	-3.1953
TB 3	1.5020	5.7543	-3.1724
TB 4	5.7530	1.5011	-3.1733
TB 5	5.8499	4.0080	0.2310
TB 6	3.9936	5.8708	0.2536
TB 7	-4.0106	5.8462	0.2162
TB 8	-5.8673	3.9927	0.2343

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

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Tooling Ball Locations



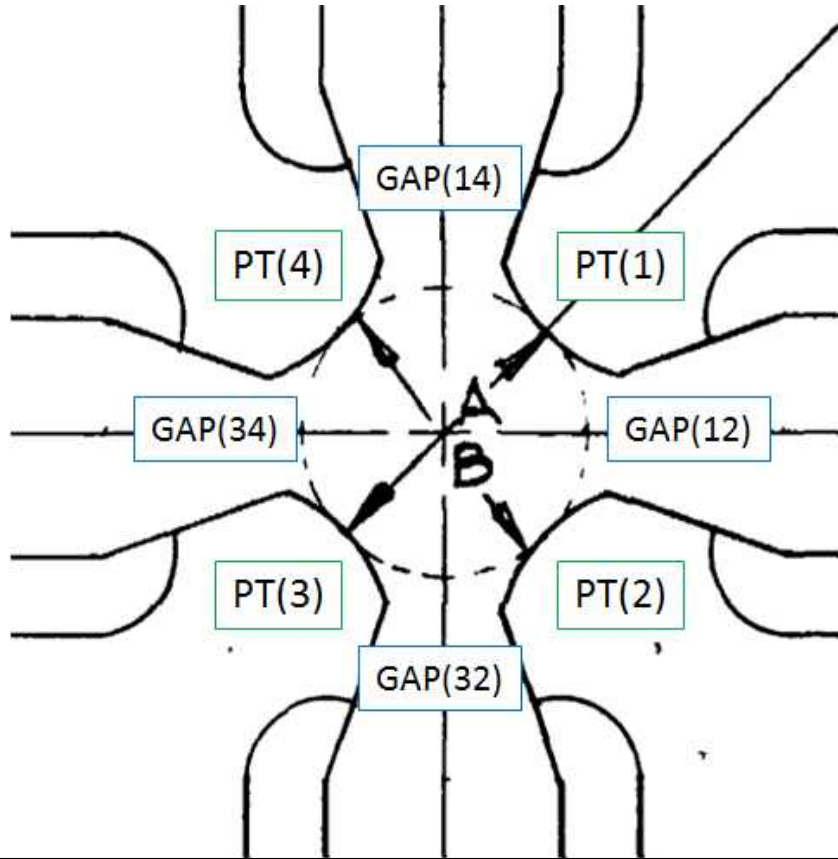
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7548	1.5001	-2.4969
TB 2	-1.5188	5.7402	-2.5046
TB 3	1.4982	5.7546	-2.4839
TB 4	5.7530	1.5023	-2.4846
TB 5	5.8491	3.3204	0.2309
TB 6	3.3054	5.8700	0.2539
TB 7	-3.3204	5.8481	0.2159
TB 8	-5.8654	3.3053	0.2339

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

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Pole Tip Gap Measurements



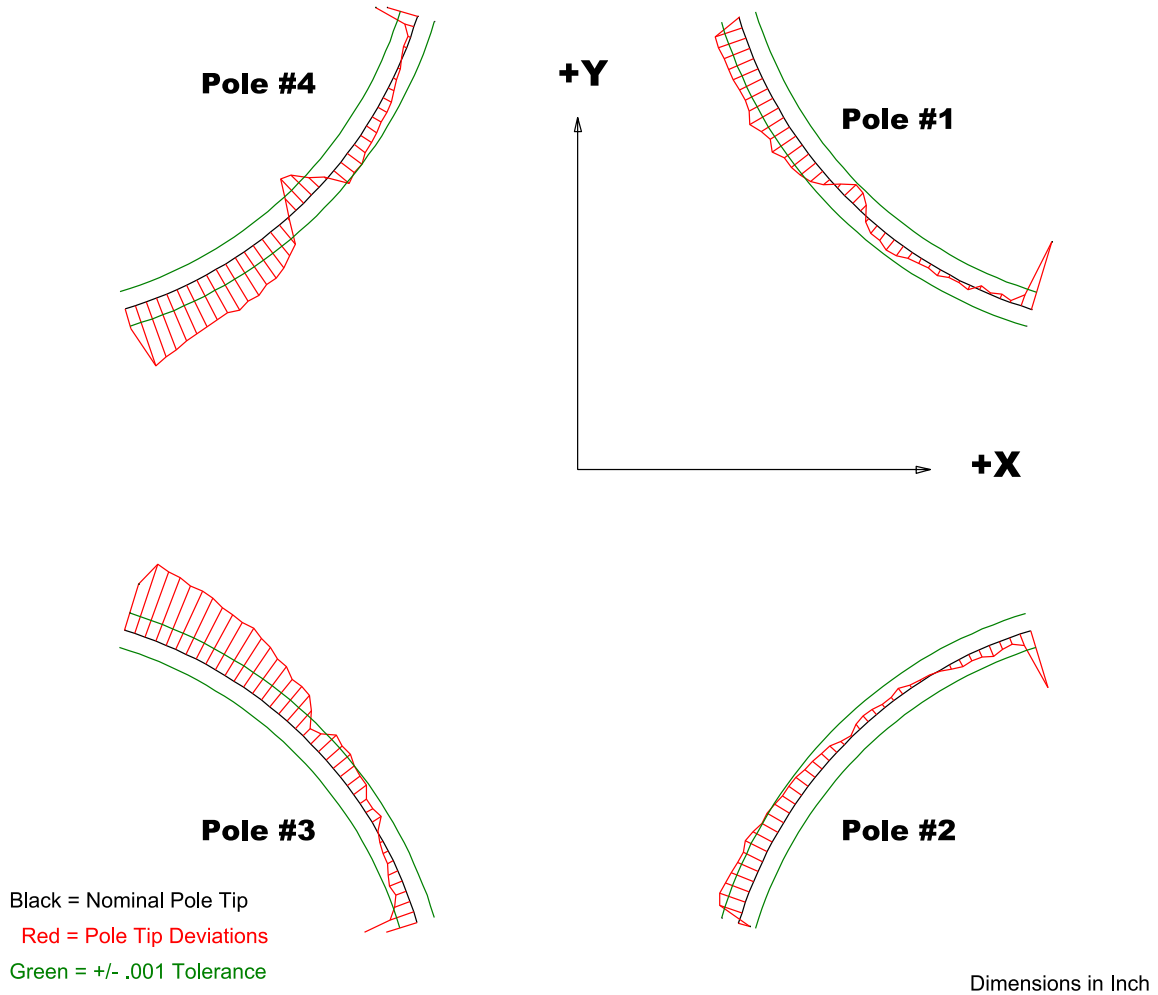
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3(A)	1.085	1.08515	1.08513
PT Distance 2-4(B)	1.085	1.08656	1.08634
Gap 1-2	0.4546	0.46267	0.45572
Gap 2-3	0.4546	0.46046	0.4602
Gap 3-4	0.4546	0.45084	0.45557
Gap 4-1	0.4546	0.45859	0.46169

Dimensions in Inch

Barcode # : 4118

Mfg. S/N : E078

Composite Best-fit of Pole Tips, Downstream



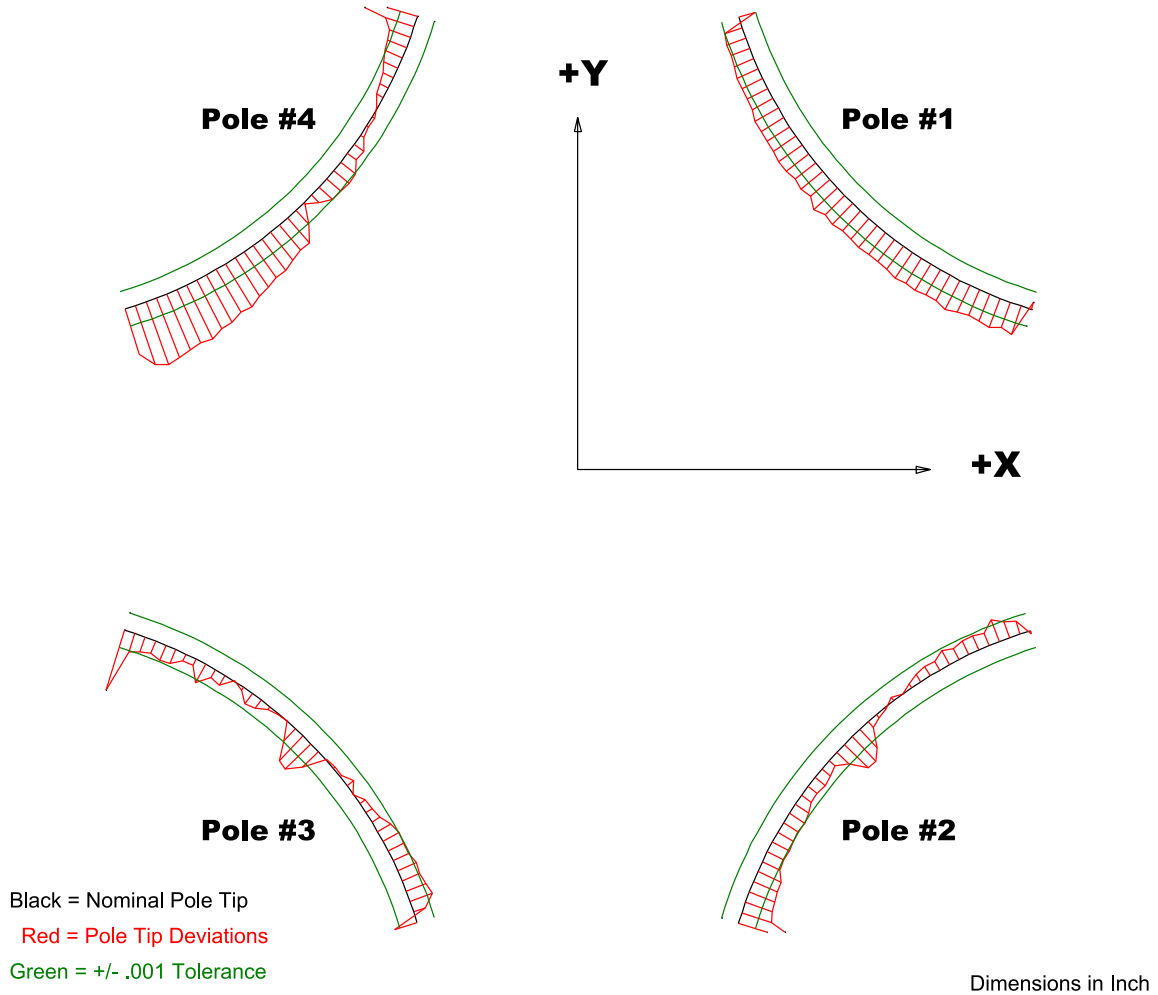
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00394	-0.00333	-0.00538	-0.00331
Max. Dev.	0.00185	0.00151	0.0041	0.00354

Barcode # : 4118

Mfg. S/N : E078

Composite Best-fit of Pole Tips, Upstream



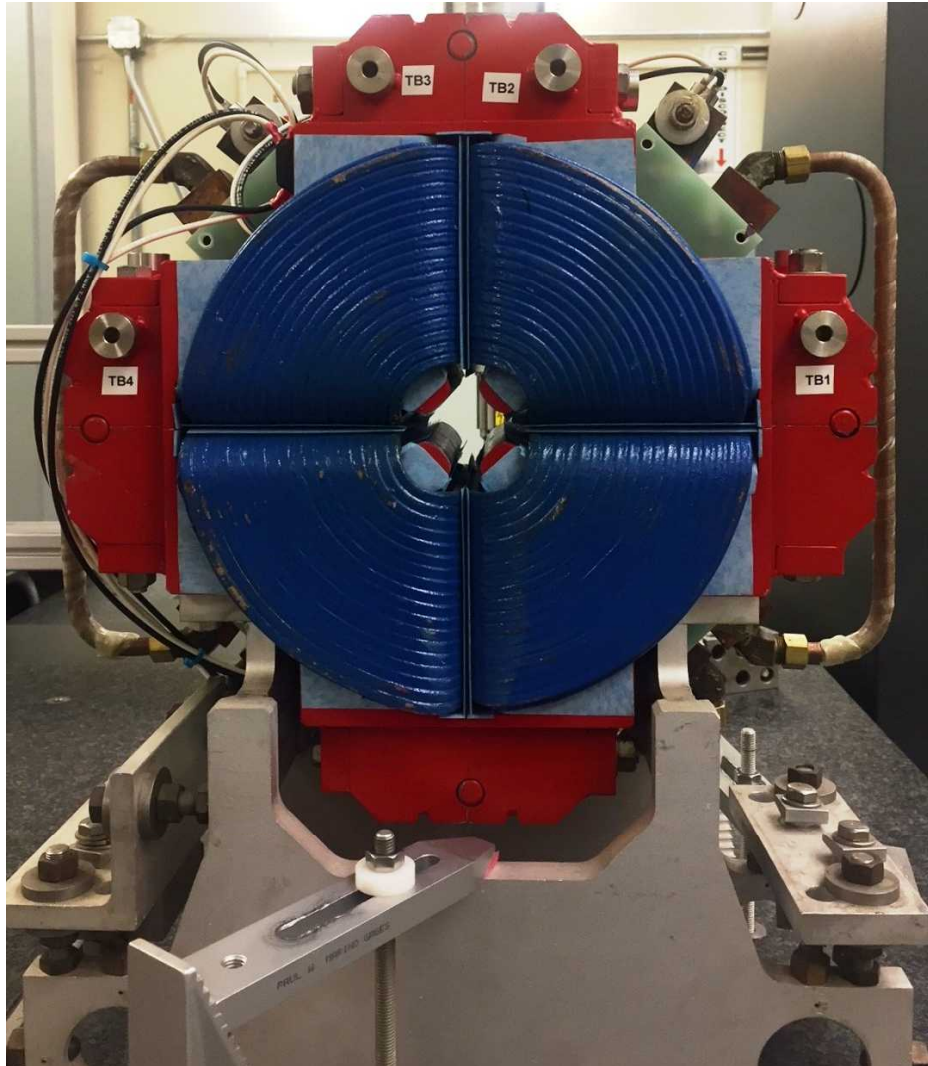
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00093	-0.00353	-0.00352	-0.00534
Max. Dev.	0.00184	0.00128	0.00132	0.0037

Barcode # : 4118

Mfg. S/N : E078

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



Angle in Decimal Degrees $^{\circ}$:-0.06314

Angle in Milliradians :-1.10197

Barcode # : 4118

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