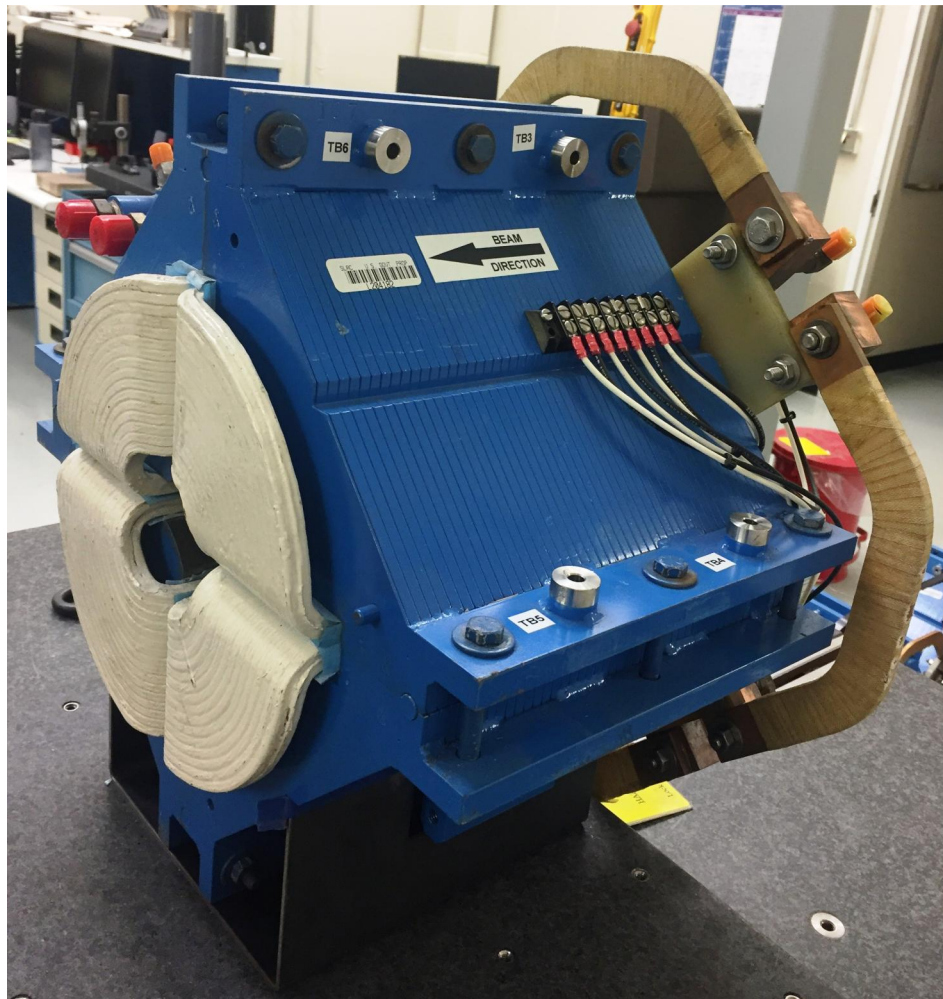


LCLS II 2Q10 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-344-113-21
Barcode # : 4204
Mfg. S/N : #18

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.

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.

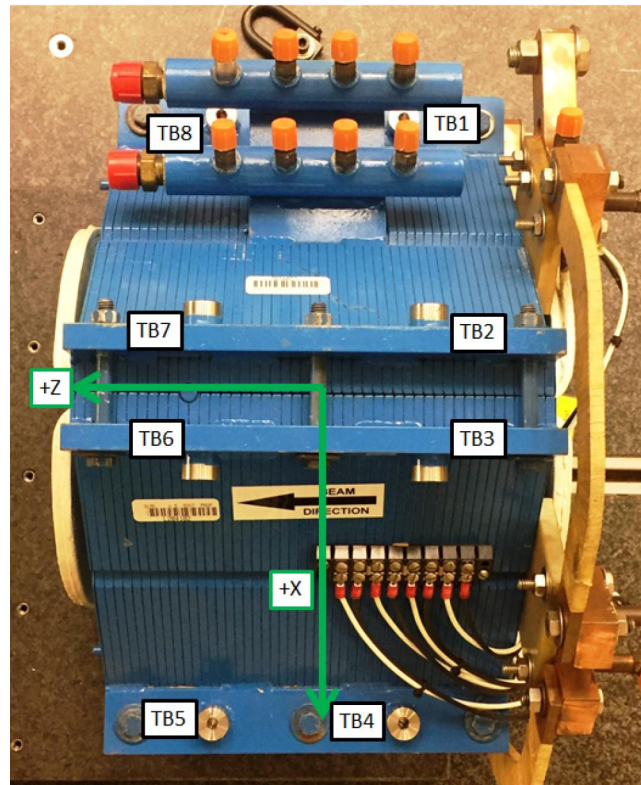
Coordinate Origins

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



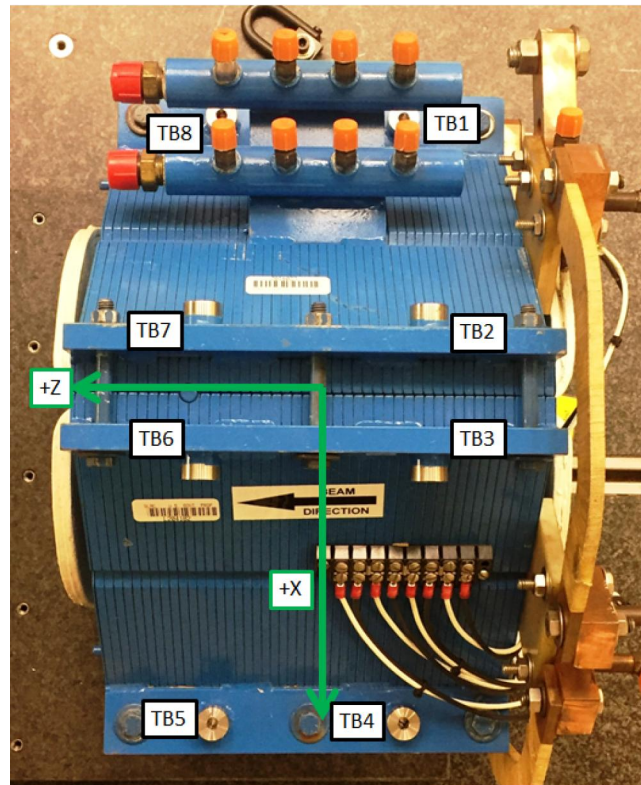
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-7.0776	2.6762	-2.1400
TB 2	-2.6708	7.0617	-2.1701
TB 3	2.6724	7.0617	-2.1610
TB 4	7.0658	2.6781	-2.2026
TB 5	7.0570	2.6844	2.1513
TB 6	2.6778	7.0630	2.1655
TB 7	-2.6704	7.0448	2.1684
TB 8	-7.0672	2.6765	2.1891

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

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Tooling Ball Locations



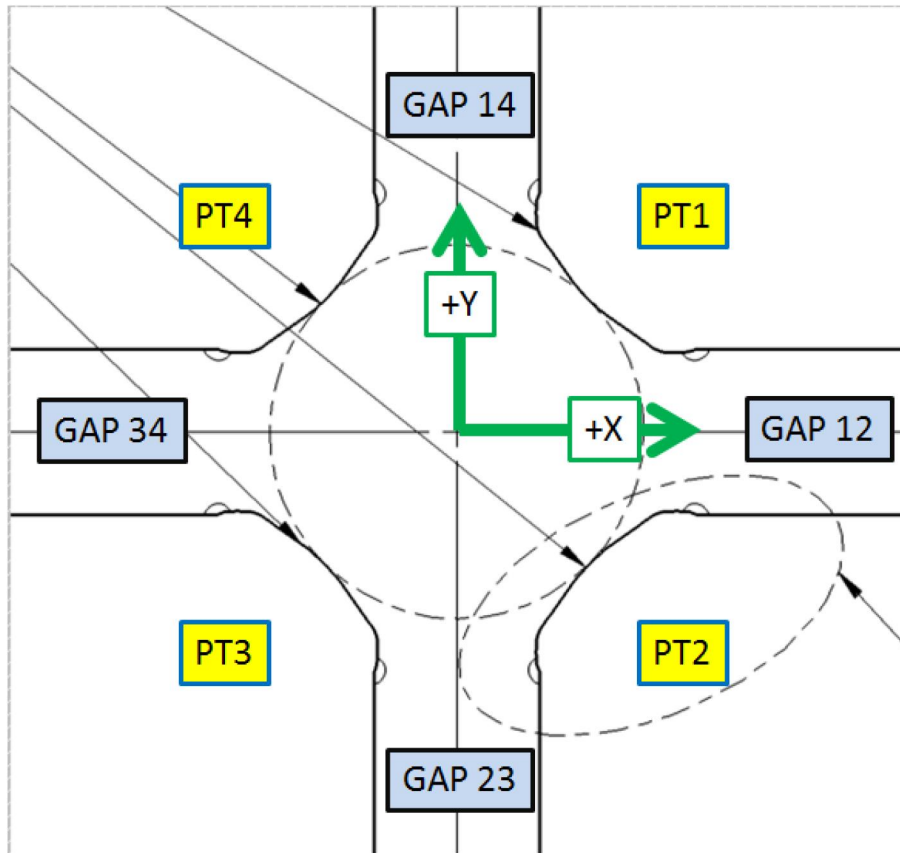
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-7.0705	1.9890	-2.1414
TB 2	-1.9827	7.0602	-2.1716
TB 3	1.9850	7.0553	-2.1615
TB 4	7.0631	1.9861	-2.2005
TB 5	7.0565	1.9965	2.1530
TB 6	1.9901	7.0570	2.1677
TB 7	-1.9825	7.0446	2.1682
TB 8	-7.0628	1.9895	2.1889

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

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Pole Tip Gap Measurements



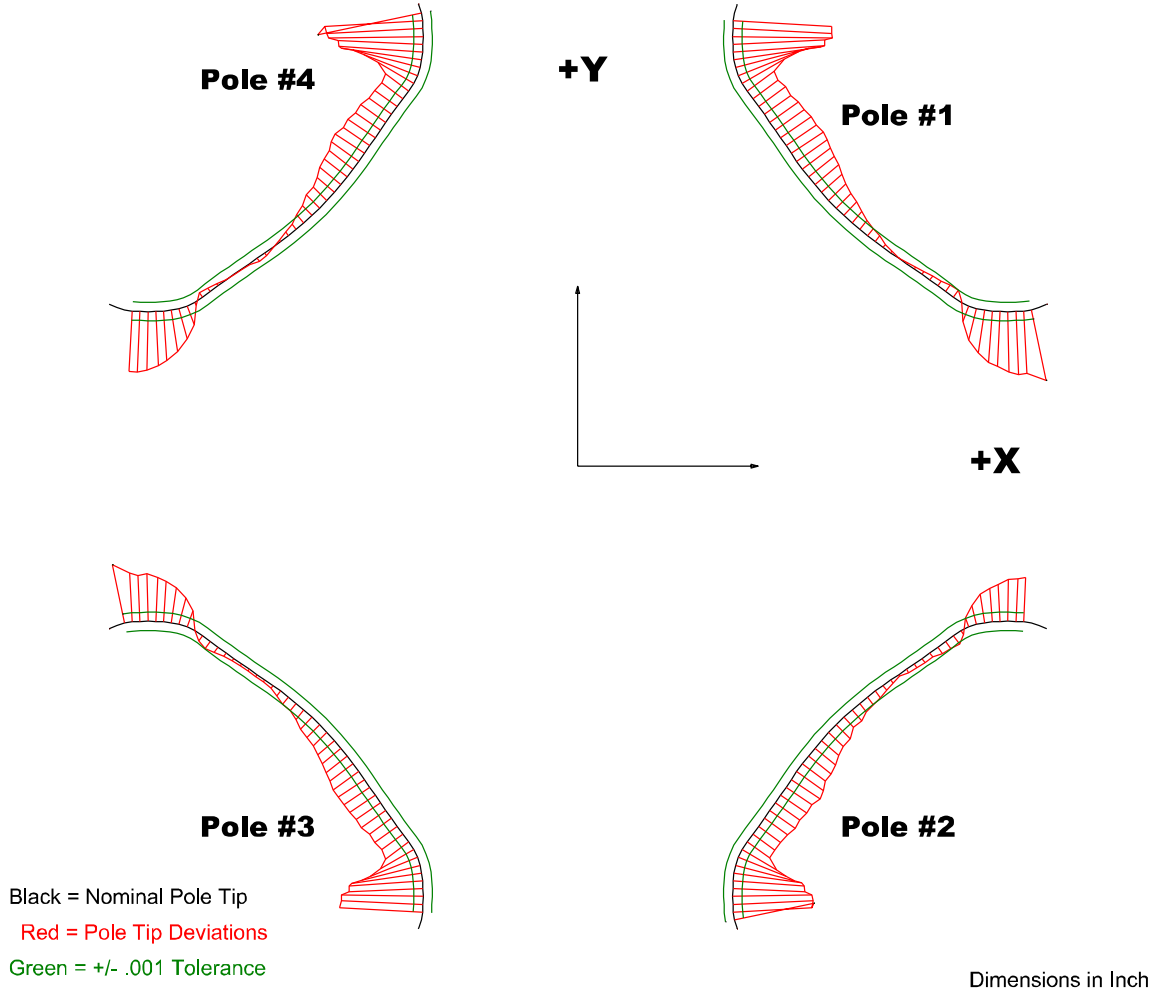
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.03021	2.02918
PT Distance 2-4	2.026	2.03005	2.02846
Gap 1-2	0.8602	0.85073	0.8519
Gap 2-3	0.8602	0.87456	0.86799
Gap 3-4	0.8602	0.84658	0.85169
Gap 1-4	0.8602	0.87805	0.86914

Dimensions in Inch

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Mfg. S/N : #18

Composite Best-fit of Pole Tips, Downstream



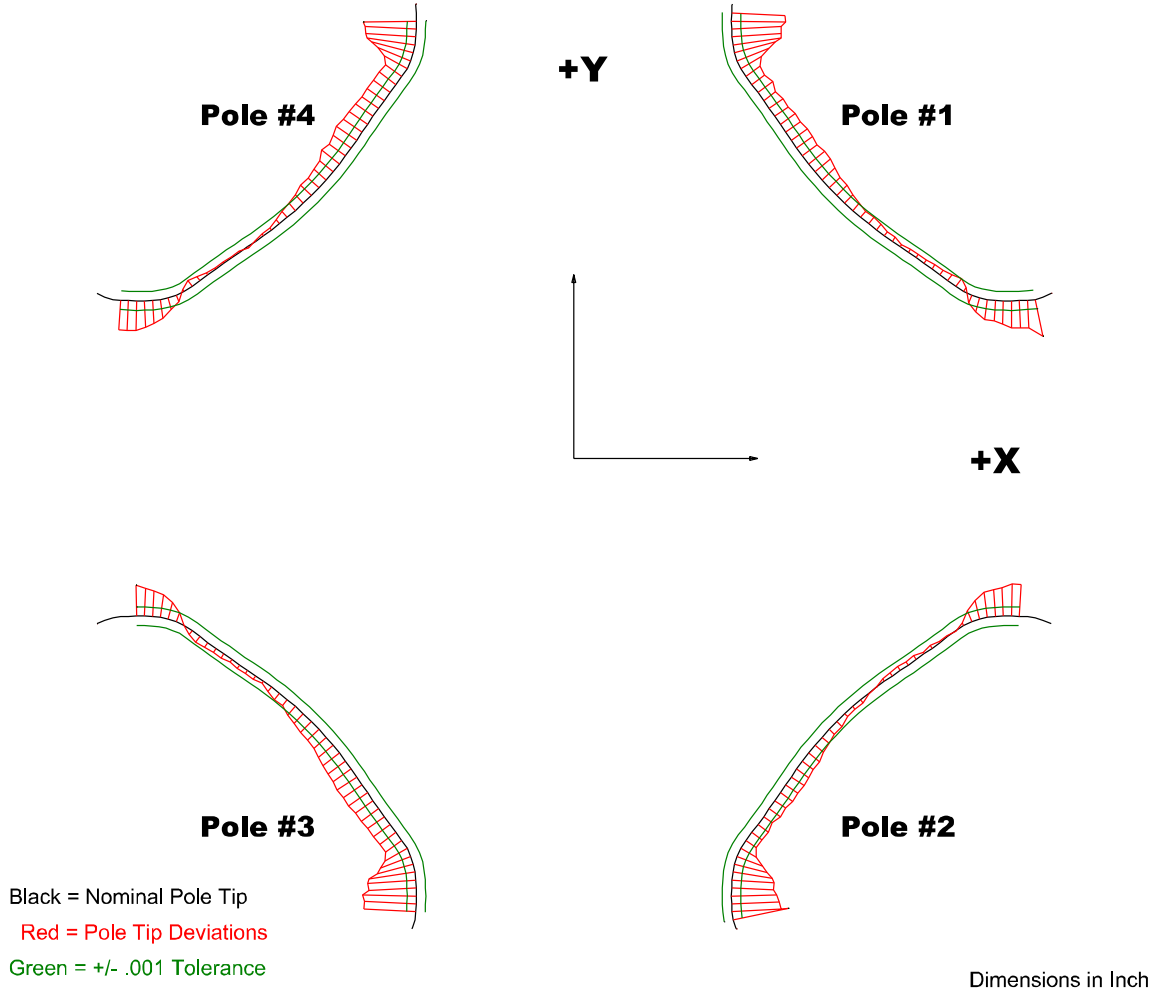
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.0109	-0.00884	-0.00908	-0.01159
Max. Dev.	0.00781	0.00483	0.00646	0.00665

Barcode # : 4204

Mfg. S/N : #18

Composite Best-fit of Pole Tips, Upstream



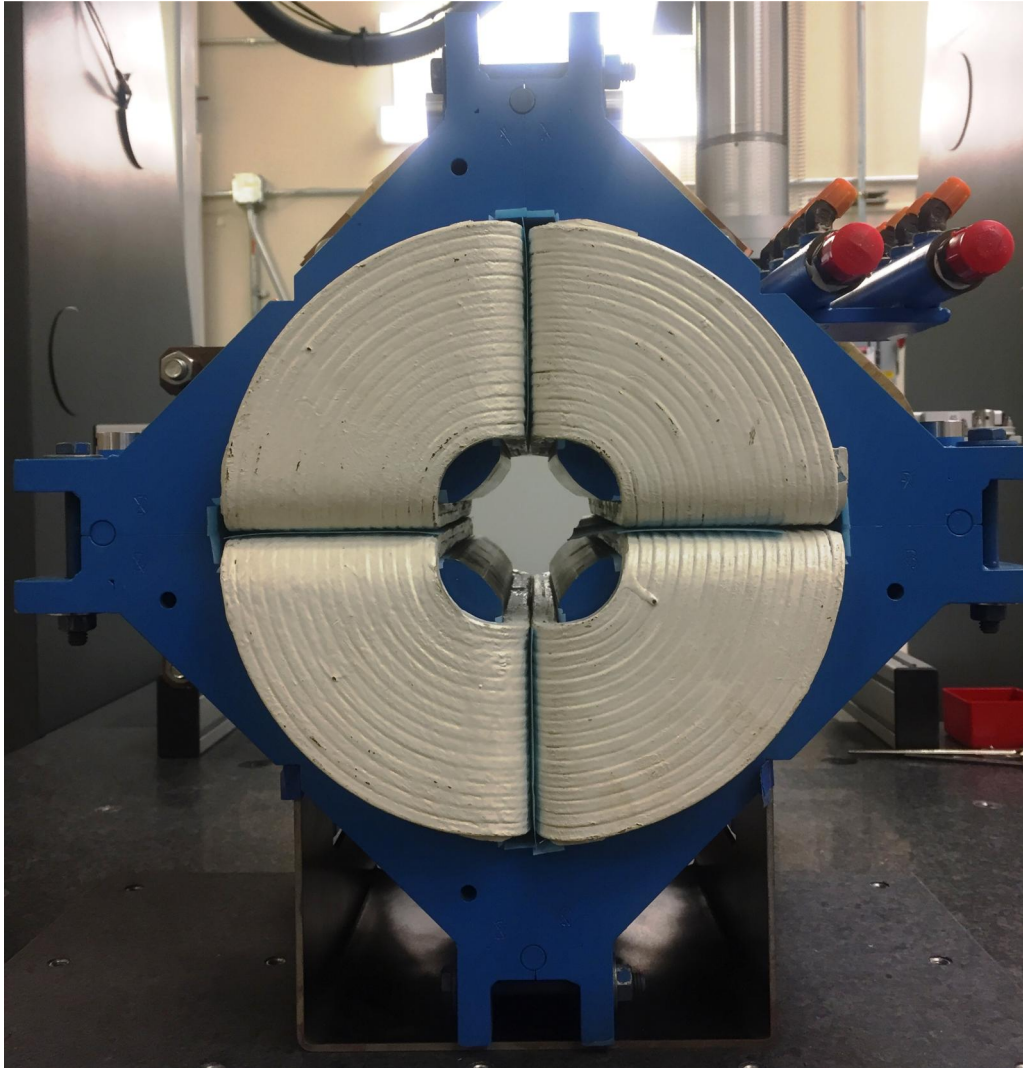
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00581	-0.00605	-0.00579	-0.0057
Max. Dev.	0.00403	0.00344	0.00332	0.0032

Barcode # : 4204

Mfg. S/N : #18

Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° : 0.00344
Angle in Milliradians : 0.06001

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