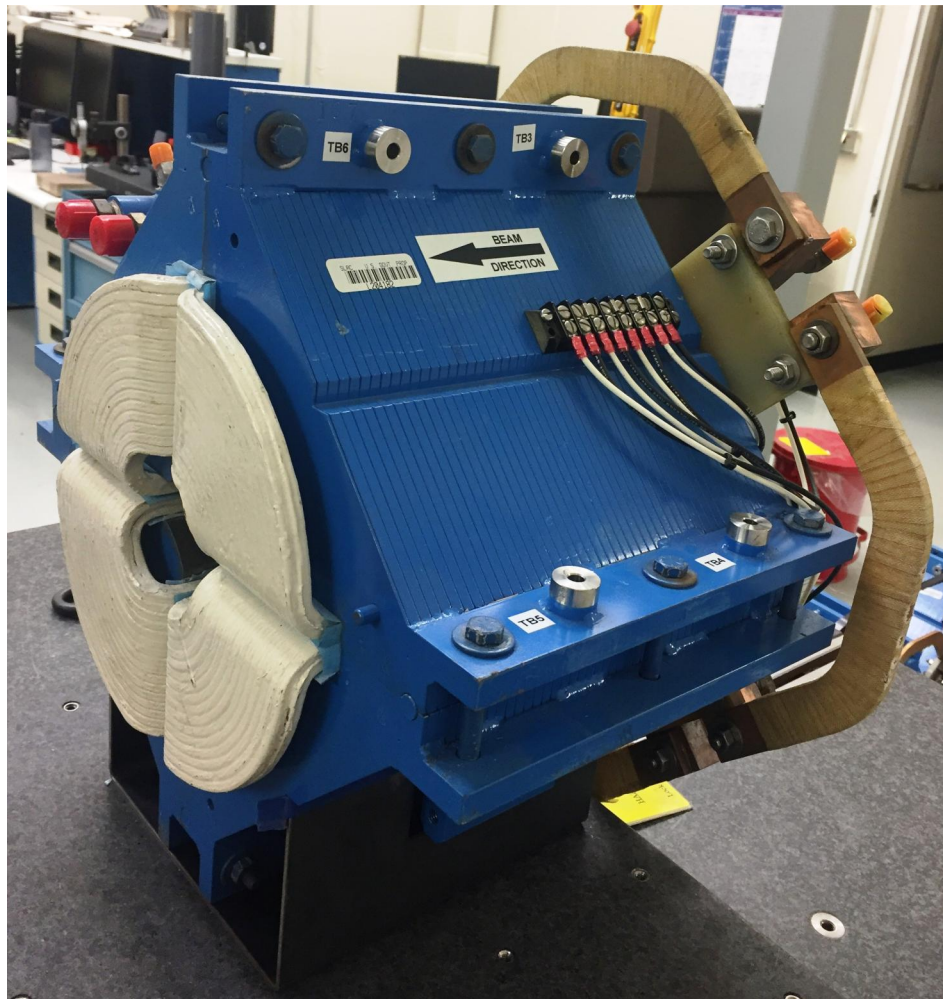


LCLS II 2Q10 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-344-113-21
Barcode # : 4195
Mfg. S/N : #25

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.

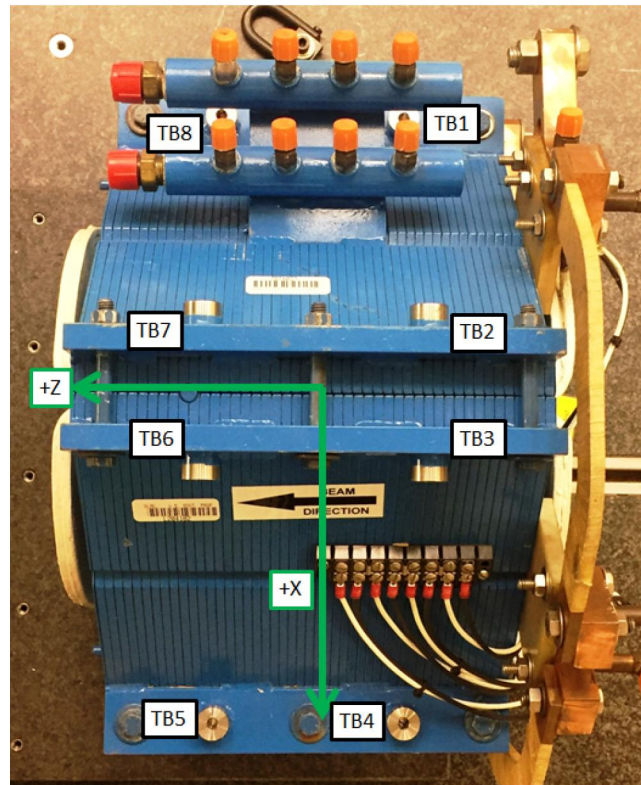
Coordinate Origins

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



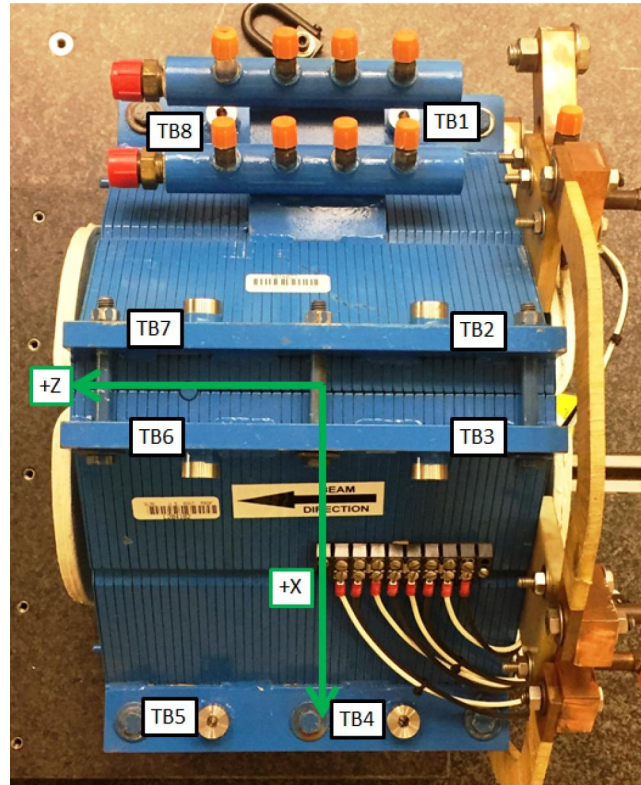
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-7.0516	2.6910	-2.1523
TB 2	-2.6839	7.0409	-2.1741
TB 3	2.6806	7.0573	-2.1721
TB 4	7.0384	2.6884	-2.1904
TB 5	7.0612	2.6823	2.1567
TB 6	2.6815	7.0588	2.1711
TB 7	-2.6787	7.0326	2.1728
TB 8	-7.0458	2.6735	2.1915

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

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Tooling Ball Locations



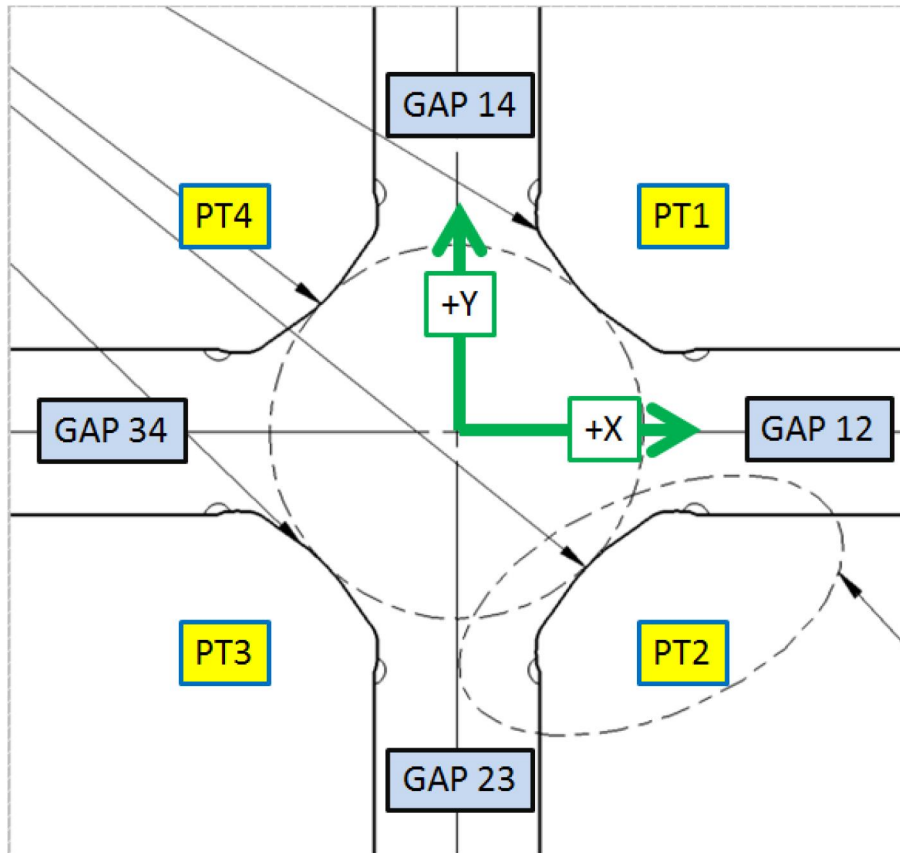
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-7.0519	2.0039	-2.1563
TB 2	-1.9963	7.0520	-2.1722
TB 3	1.9923	7.0592	-2.1711
TB 4	7.0447	2.0011	-2.1889
TB 5	7.0669	1.9950	2.1557
TB 6	1.9934	7.0579	2.1715
TB 7	-1.9913	7.0436	2.1706
TB 8	-7.0431	1.9863	2.1878

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

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Pole Tip Gap Measurements



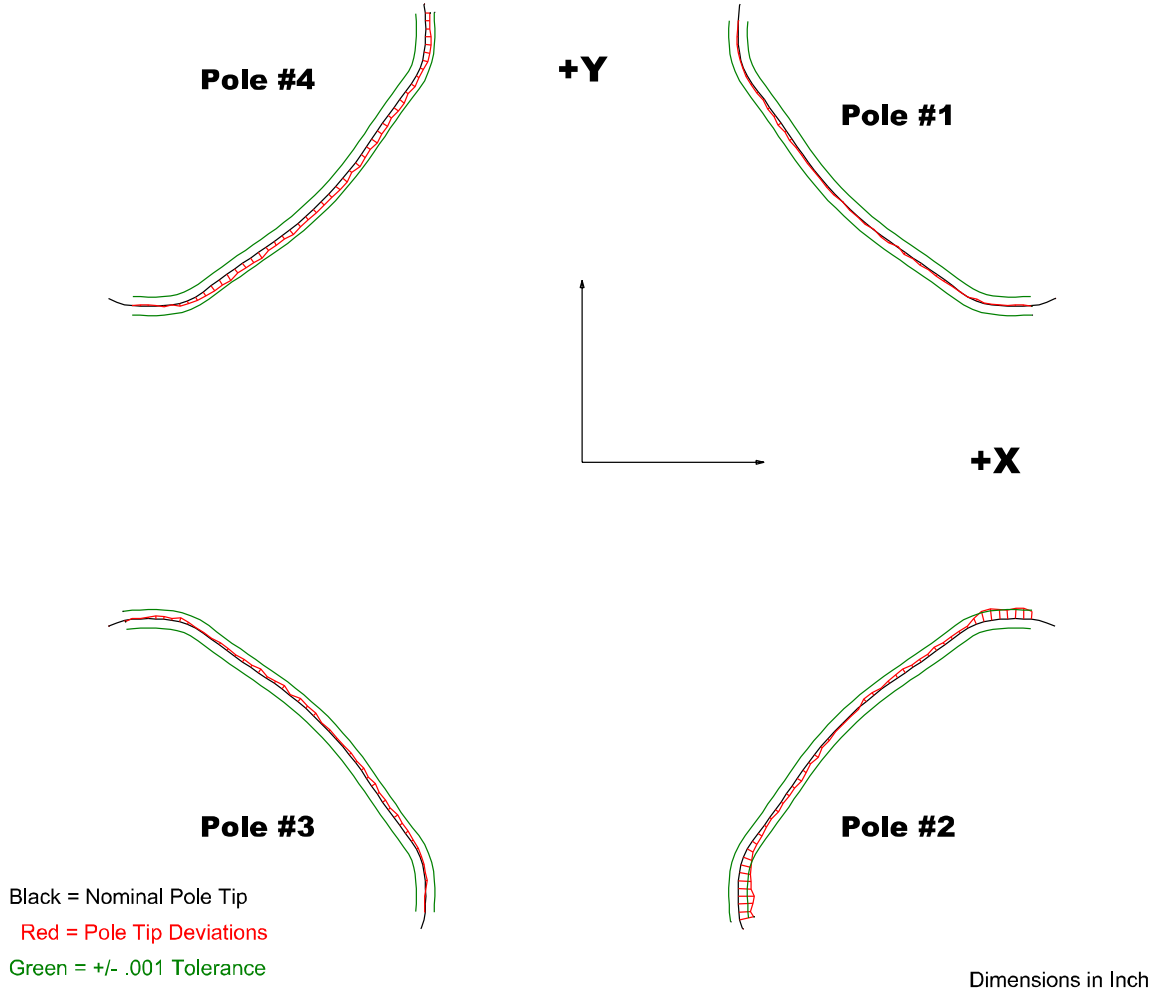
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.02595	2.02575
PT Distance 2-4	2.026	2.02562	2.02518
Gap 1-2	0.8602	0.8574	0.85961
Gap 2-3	0.8602	0.85931	0.85554
Gap 3-4	0.8602	0.85787	0.85972
Gap 1-4	0.8602	0.85681	0.85551

Dimensions in Inch

Barcode # : 4195

Mfg. S/N : #25

Composite Best-fit of Pole Tips, Downstream



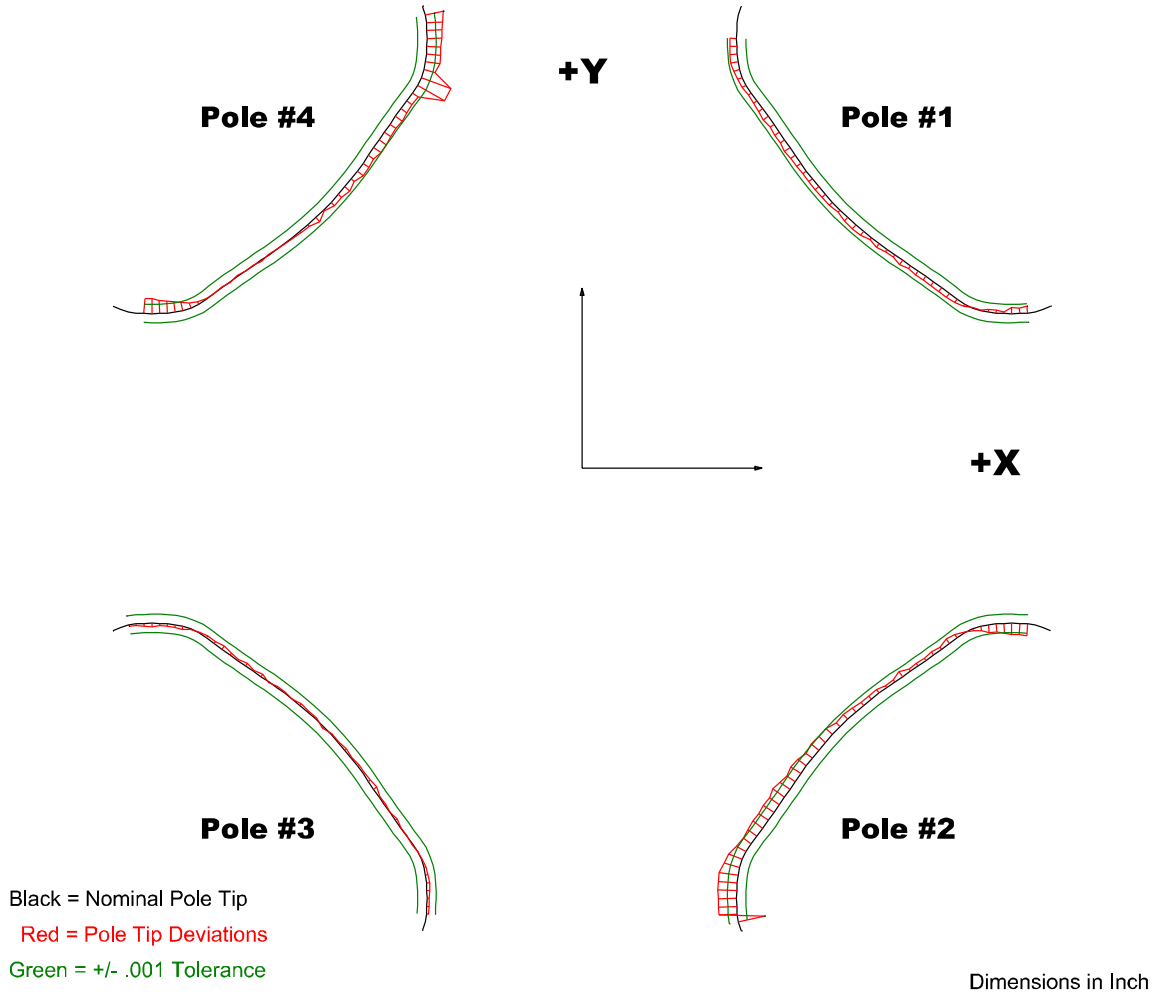
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00022	-0.00178	-0.00018	-0.00019
Max. Dev.	0.00037	0.00121	0.00051	0.00078

Barcode # : 4195

Mfg. S/N : #25

Composite Best-fit of Pole Tips, Upstream



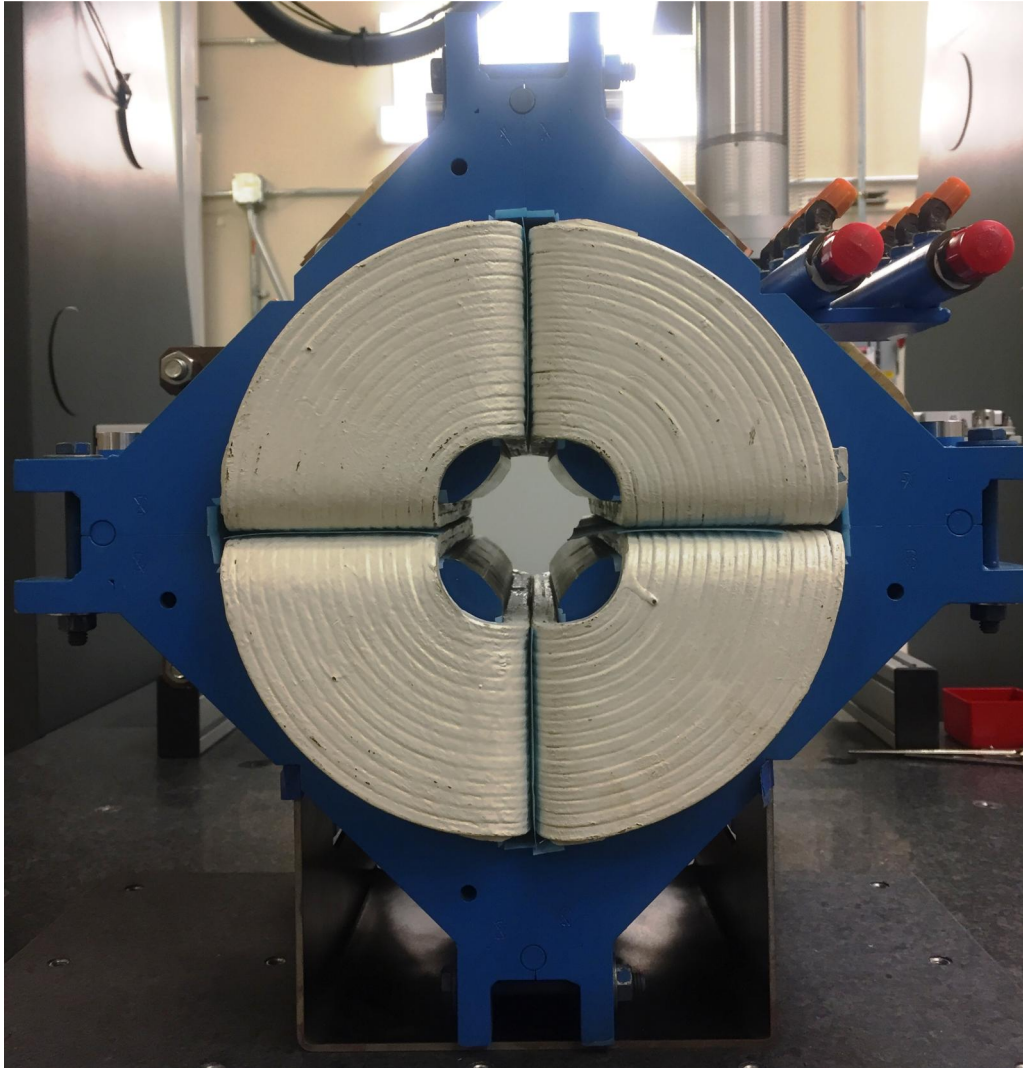
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00075	-0.00294	-0.00039	-0.00163
Max. Dev.	0.0008	0.00209	0.00044	0.00343

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Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° : 0.02463
Angle in Milliradians : 0.42994

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