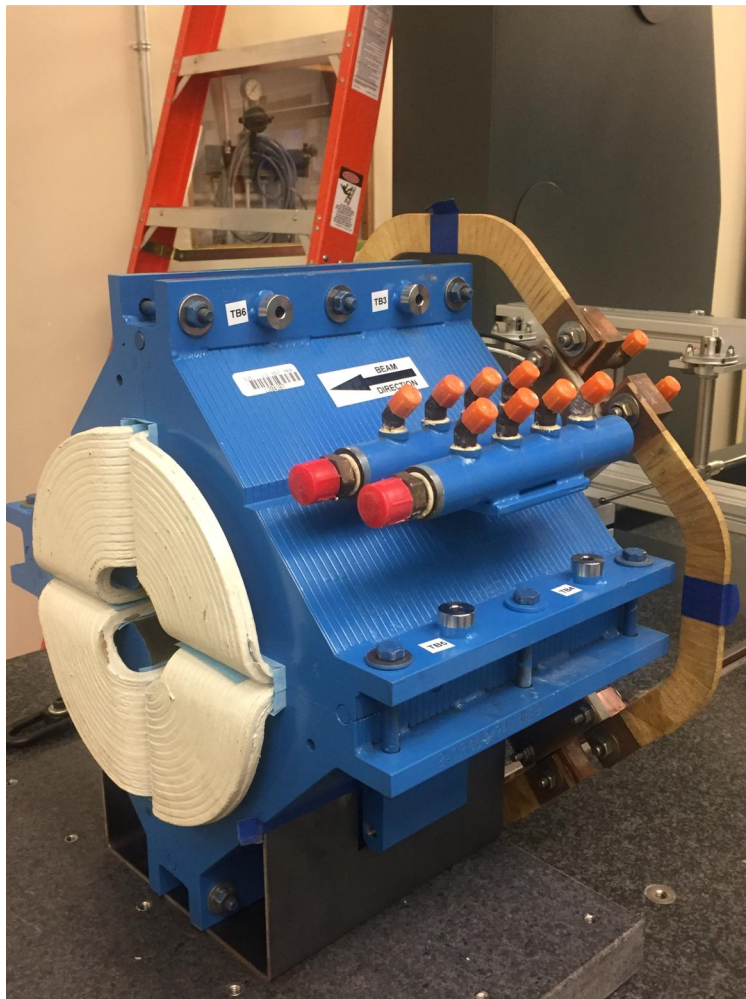


LCLS II 2Q10 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-344-113-21
Barcode # : 4183
Mfg. S/N : #26

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.

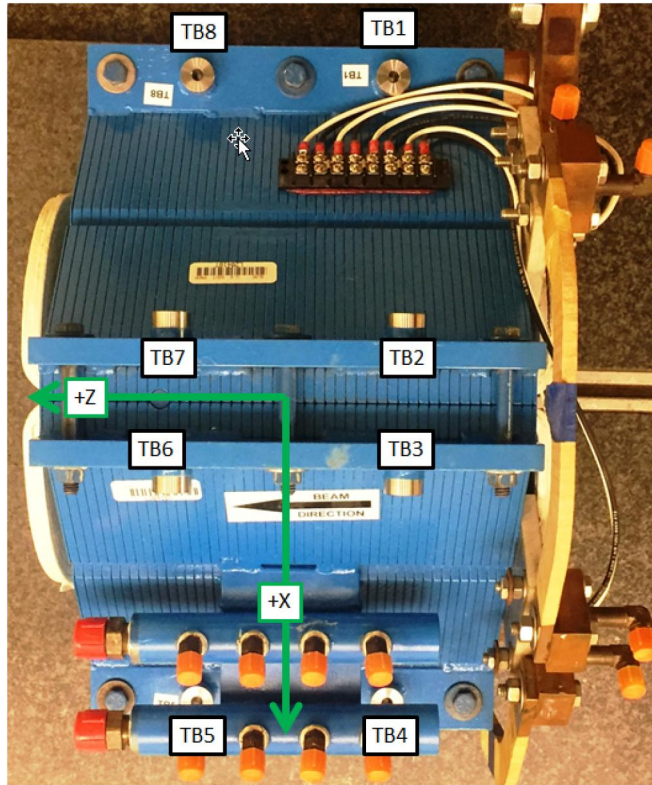
Coordinate Origins

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



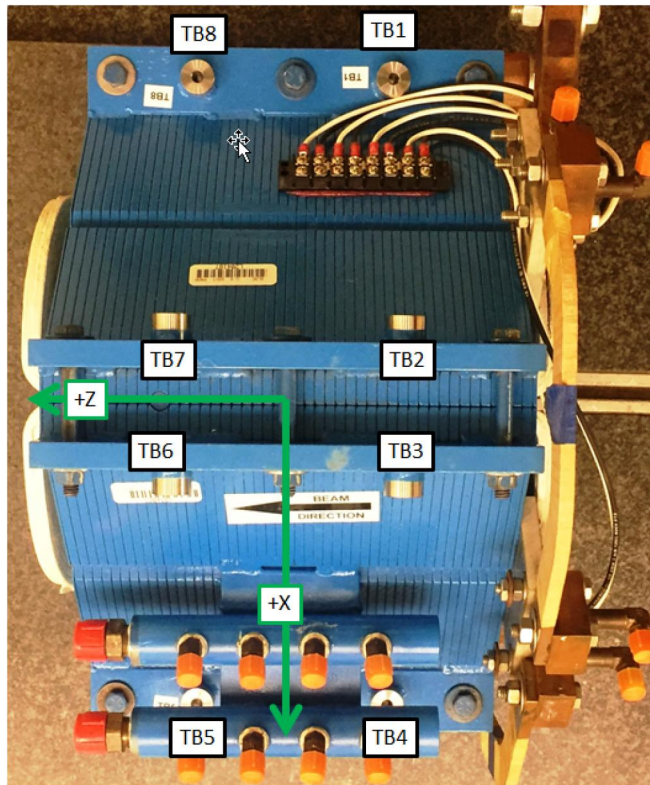
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-7.0378	2.6919	-2.1510
TB 2	-2.6623	7.0563	-2.1873
TB 3	2.6940	7.0467	-2.1830
TB 4	7.0533	2.6649	-2.1841
TB 5	7.0588	2.6663	2.1533
TB 6	2.6908	7.0580	2.1779
TB 7	-2.6605	7.0586	2.1691
TB 8	-7.0374	2.6731	2.1898

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

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Tooling Ball Locations



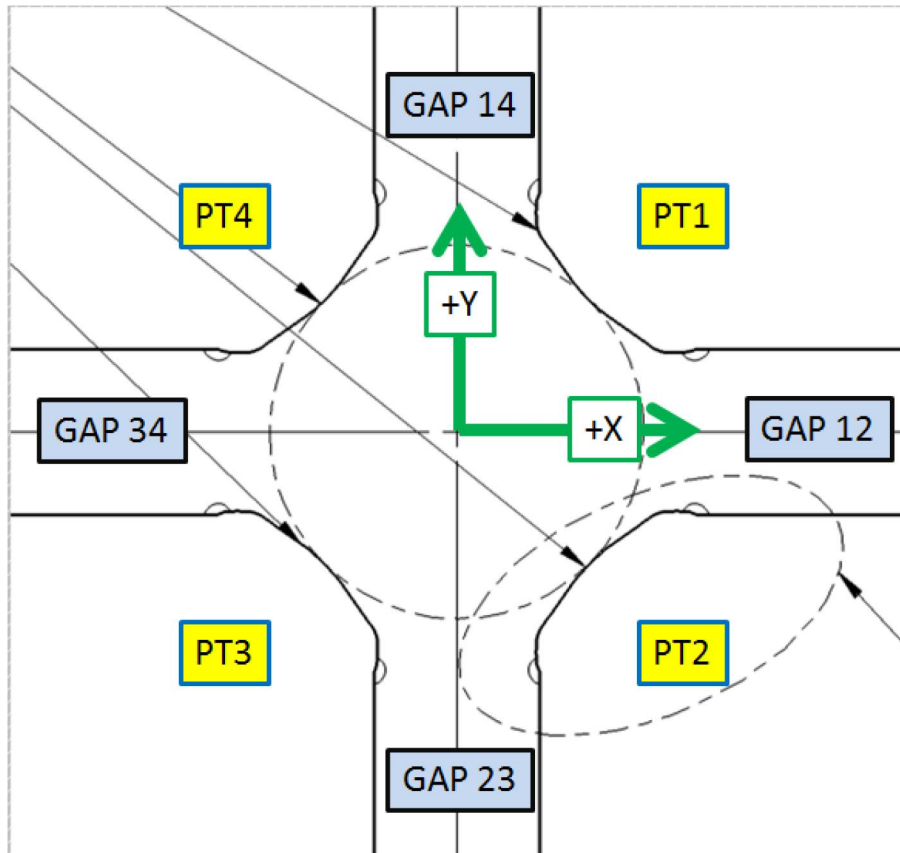
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-7.0396	1.9998	-2.1512
TB 2	-1.9746	7.0555	-2.1878
TB 3	2.0065	7.0472	-2.1808
TB 4	7.0539	1.9778	-2.1833
TB 5	7.0590	1.9792	2.1536
TB 6	2.0042	7.0569	2.2023
TB 7	-1.9726	7.0642	2.1423
TB 8	-7.0335	1.9857	2.1871

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

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Pole Tip Gap Measurements



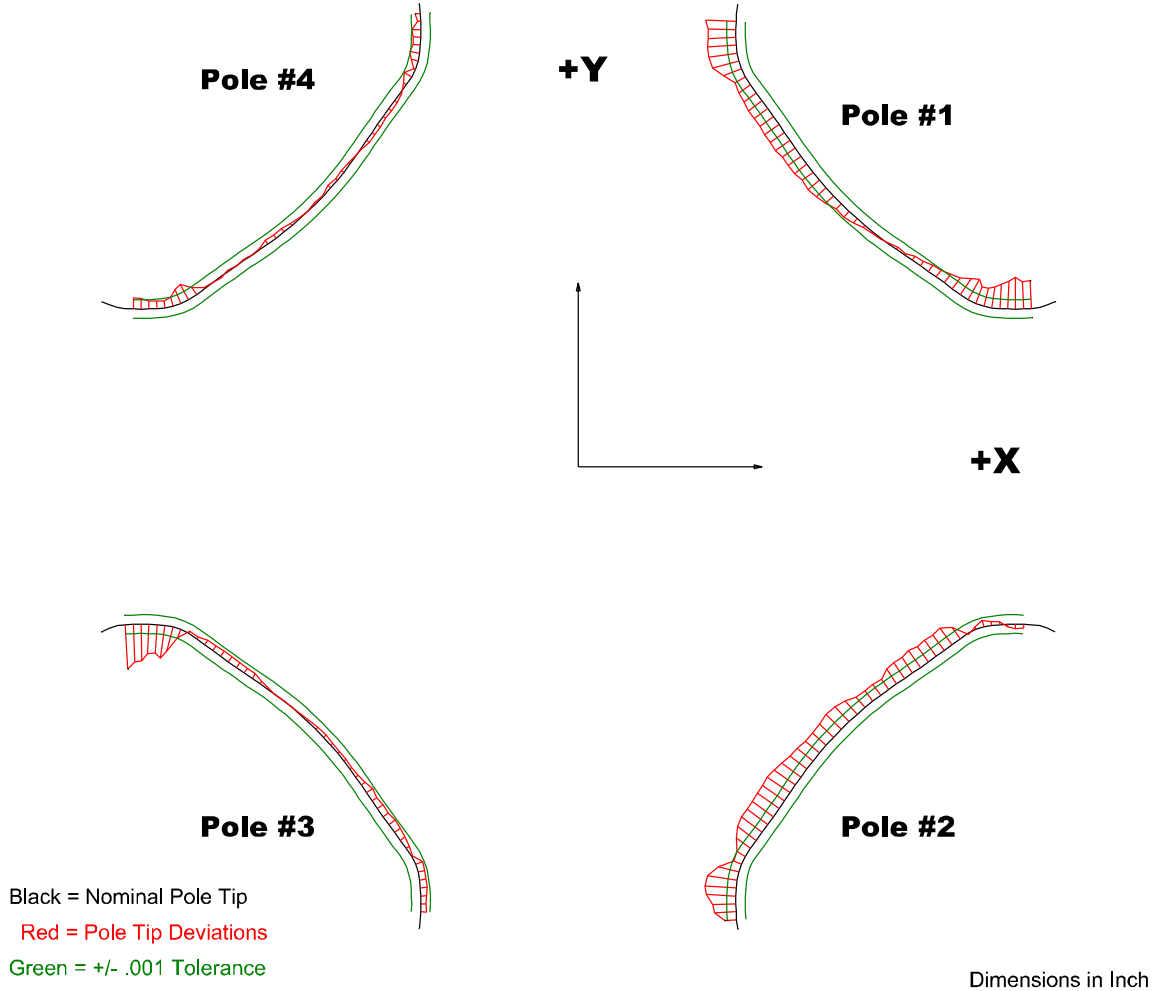
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.02486	2.02447
PT Distance 2-4	2.026	2.02389	2.02493
Gap 1-2	0.8602	0.8716	0.87291
Gap 2-3	0.8602	0.85481	0.85378
Gap 3-4	0.8602	0.86269	0.86192
Gap 1-4	0.8602	0.8561	0.85593

Dimensions in Inch

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Composite Best-fit of Pole Tips, Downstream



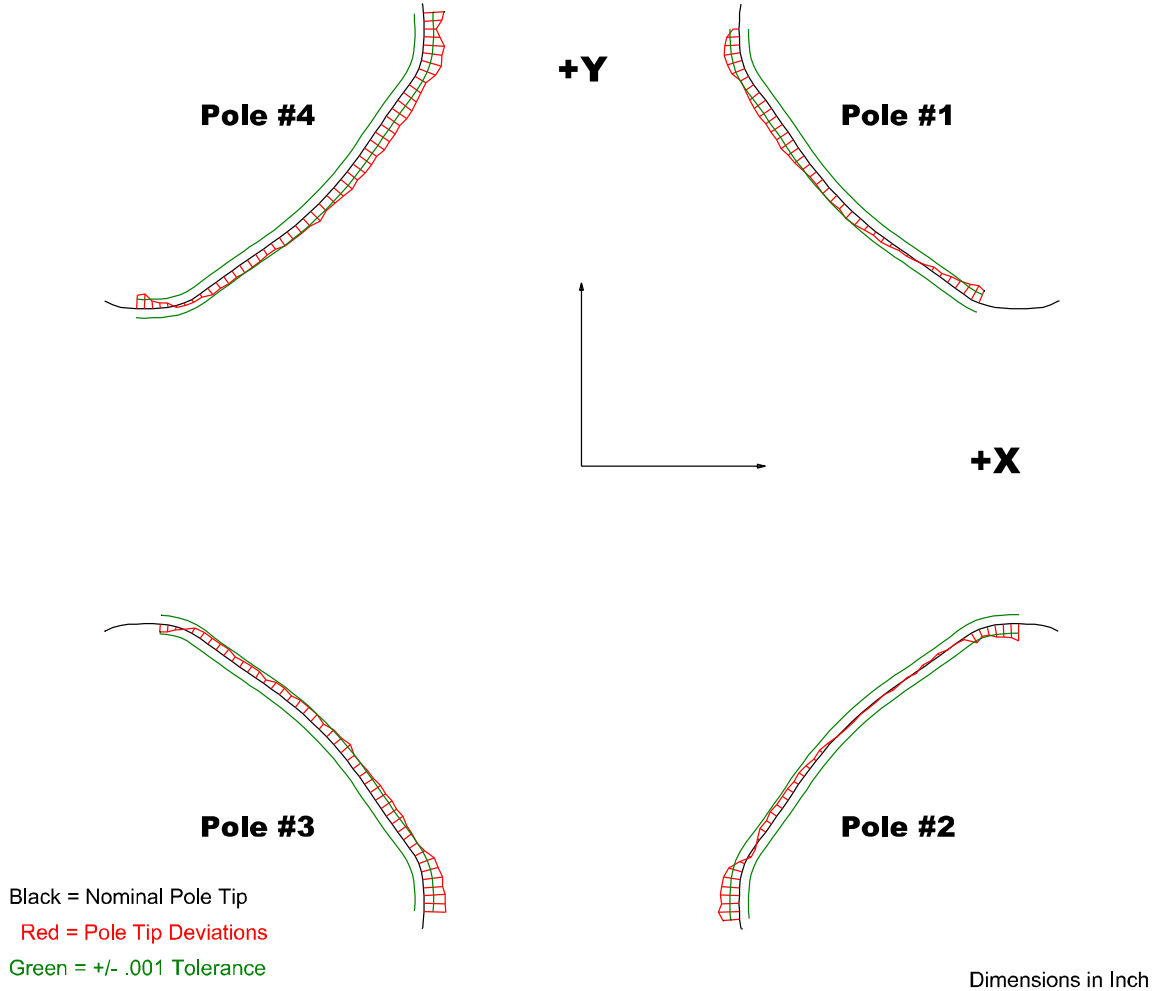
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00342	-0.00051	-0.00478	-0.0019
Max. Dev.	0.00329	0.00339	0.00088	0.00041

Barcode # : 4183

Mfg. S/N : ' #26

Composite Best-fit of Pole Tips, Upstream



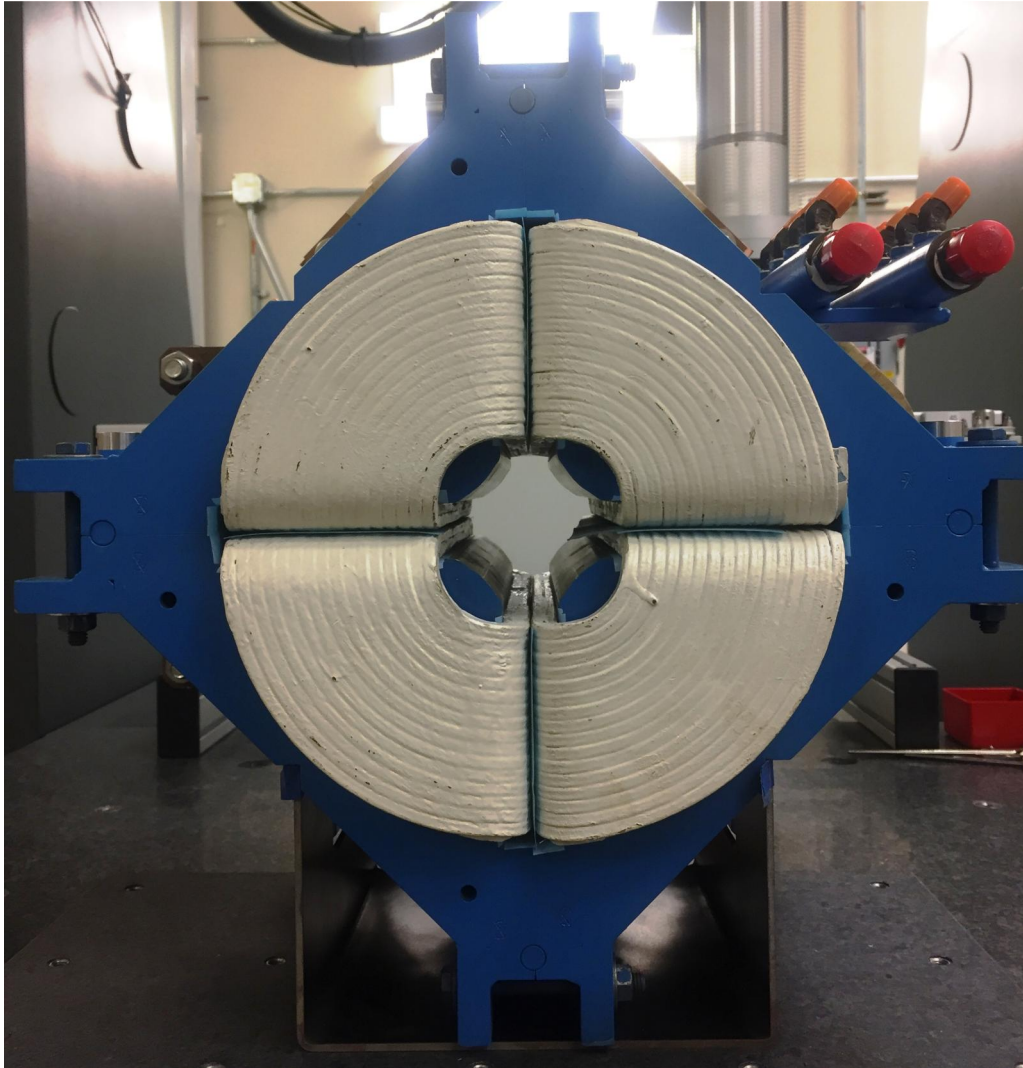
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00167	-0.00185	-0.00085	-0.00162
Max. Dev.	0.00175	0.00228	0.00232	0.00221

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Mfg. S/N : ' #26

Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° : 0.10200
Angle in Milliradians : 1.78021

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