

## LCLS II 2Q10 Fiducialization Report



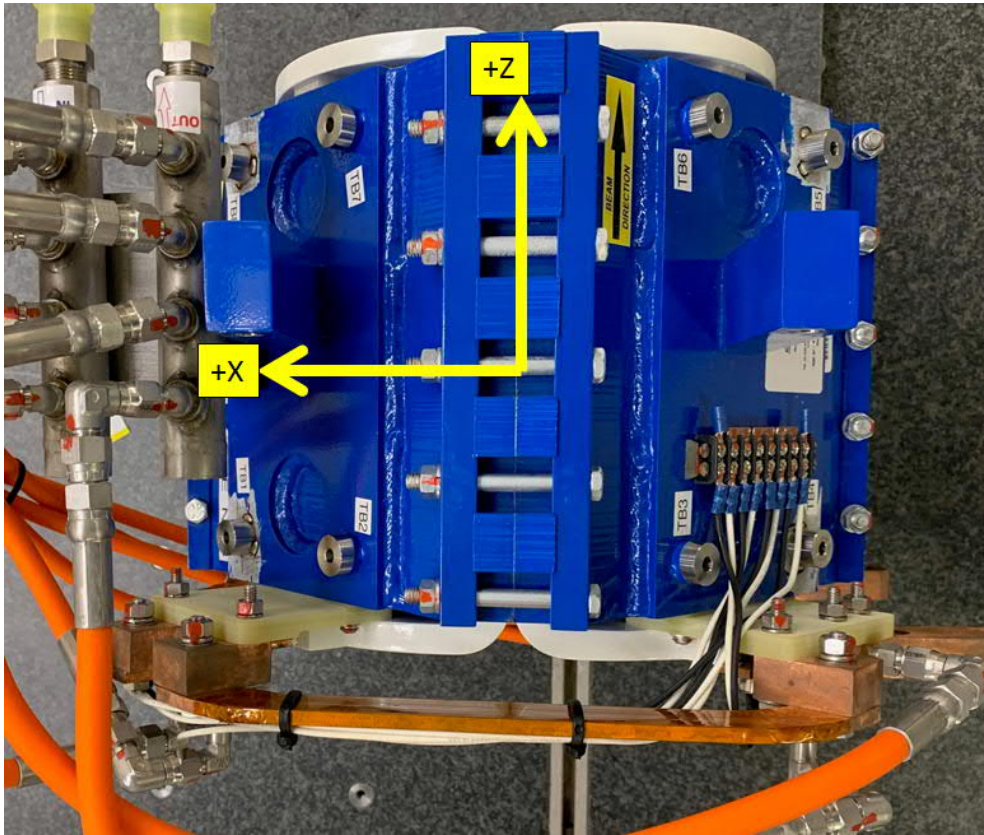
Inspector : K. Caban  
Engineer : J. Amann  
Drawing No. : SA-344-113-30  
Barcode # : 4215  
Mfg. S/N : MFG SN 08

## 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.

## Tooling Ball Locations



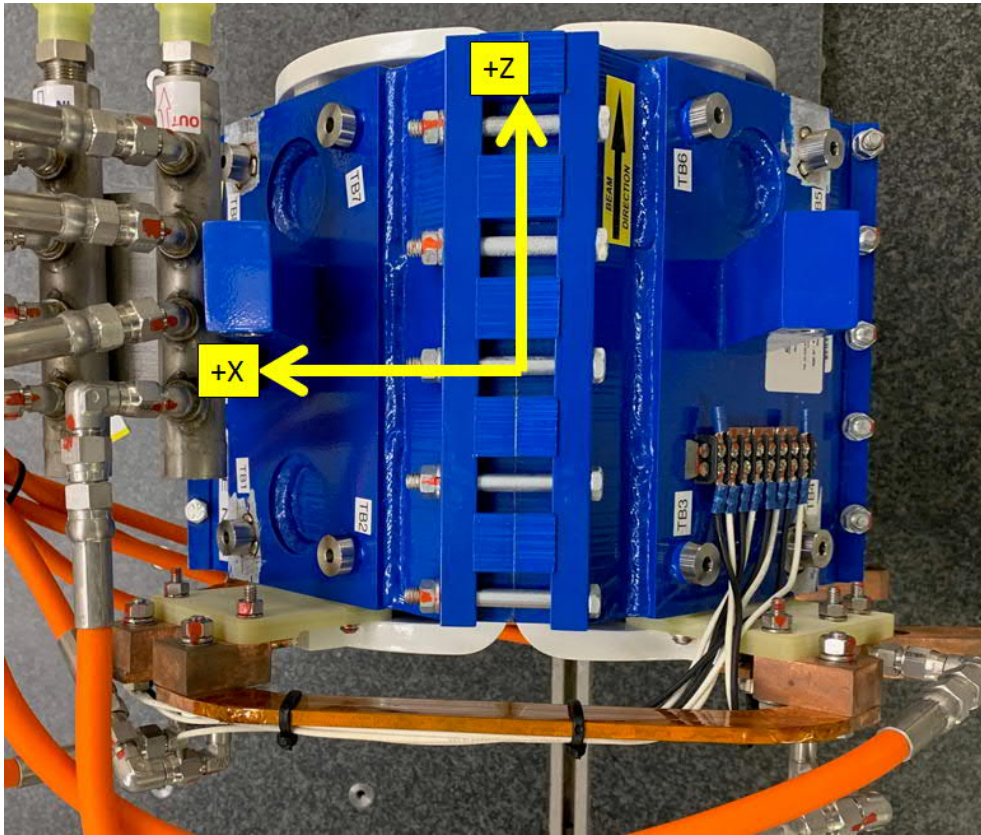
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	6.5060	4.0039	-3.7039
TB 2	3.9776	6.4691	-3.7388
TB 3	-3.9742	6.4706	-3.7400
TB 4	-6.5213	3.9805	-3.7026
TB 5	-6.5039	3.9987	3.7325
TB 6	-3.9656	6.4726	3.7503
TB 7	3.9802	6.4717	3.7395
TB 8	6.5214	3.9868	3.7106

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

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## Tooling Ball Locations



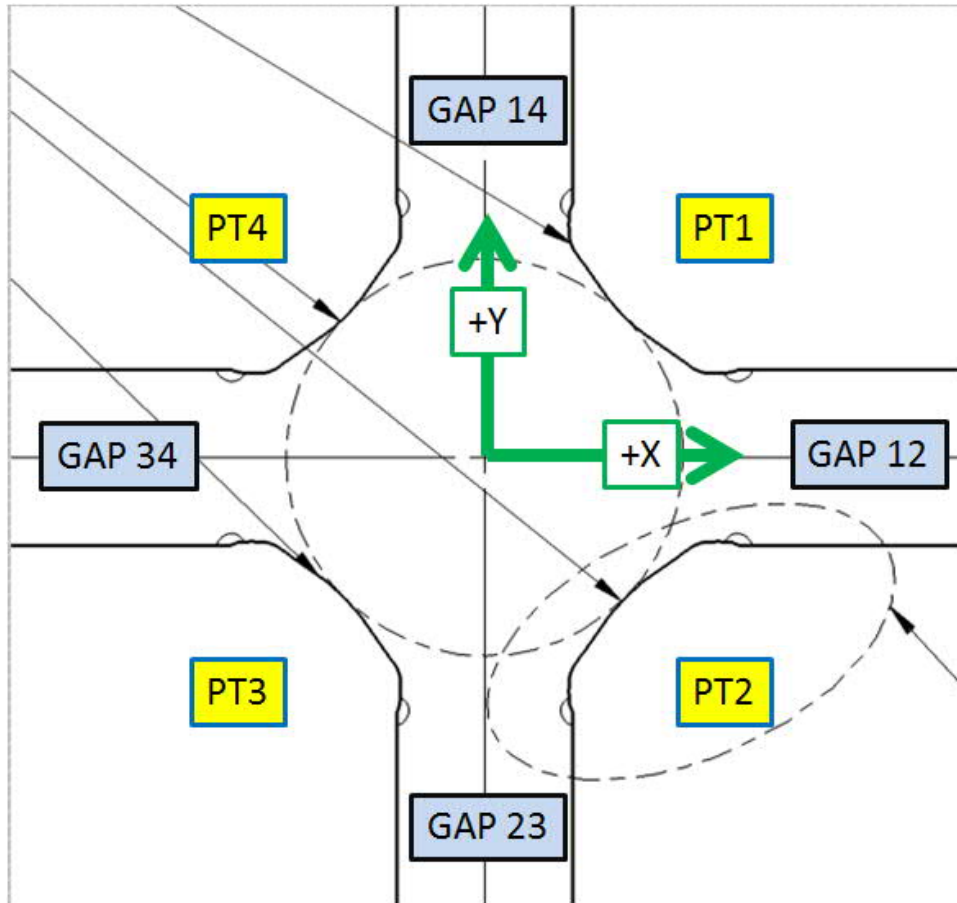
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	6.0199	3.5175	-3.7048
TB 2	3.4900	5.9843	-3.7387
TB 3	-3.4875	5.9850	-3.7399
TB 4	-6.0329	3.4966	-3.7040
TB 5	-6.0162	3.5147	3.7337
TB 6	-3.4796	5.9870	3.7500
TB 7	3.4936	5.9862	3.7424
TB 8	6.0356	3.5009	3.7128

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

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## Pole Tip Gap Measurements



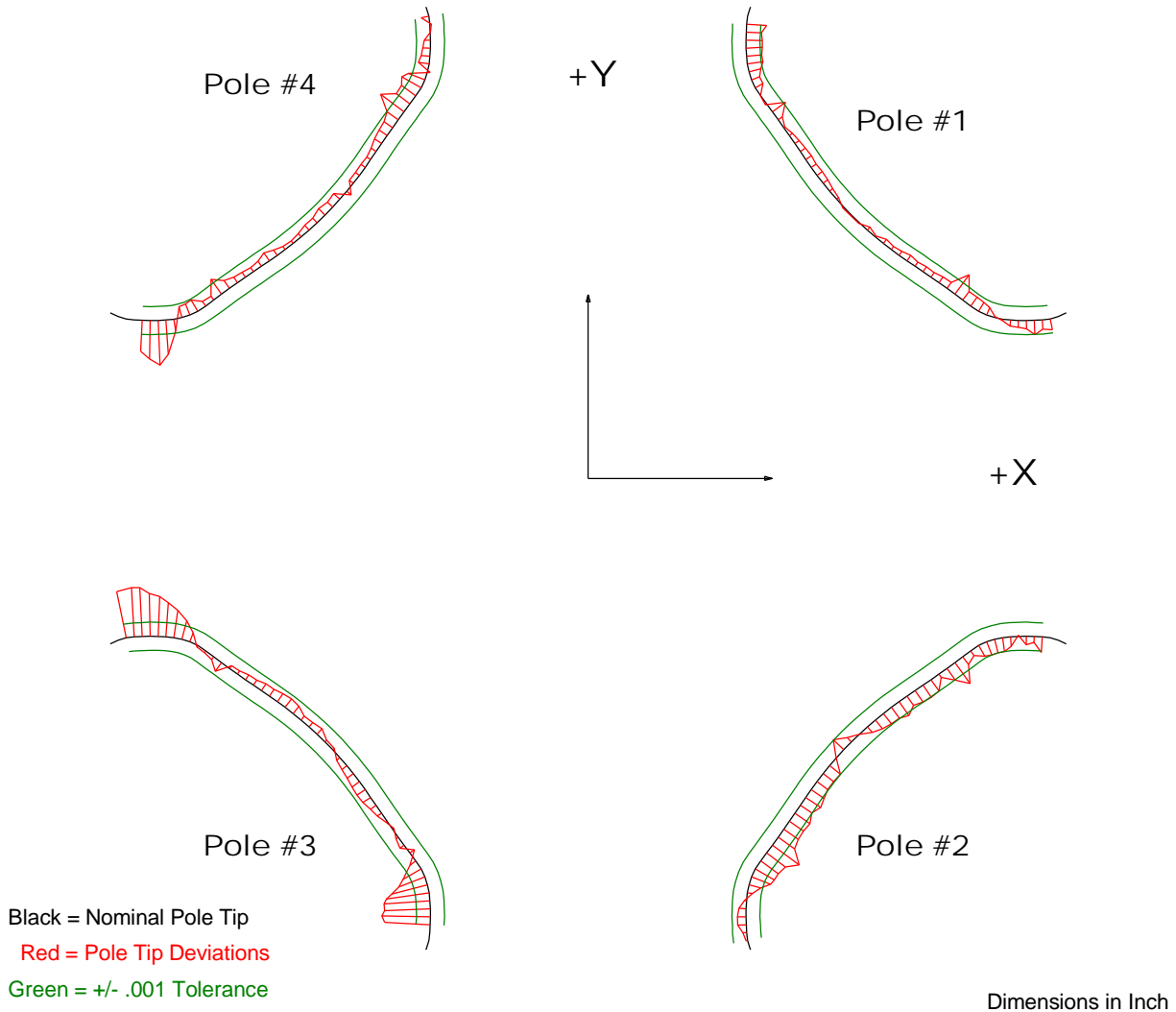
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.02575	2.02605
PT Distance 2-4	2.026	2.026	2.02674
Gap 1-2	0.8602	0.85776	0.85606
Gap 2-3	0.8602	0.86045	0.86112
Gap 3-4	0.8602	0.8522	0.85625
Gap 1-4	0.8602	0.85982	0.85975

Dimensions in Inch

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## Composite Best-fit of Pole Tips, Downstream



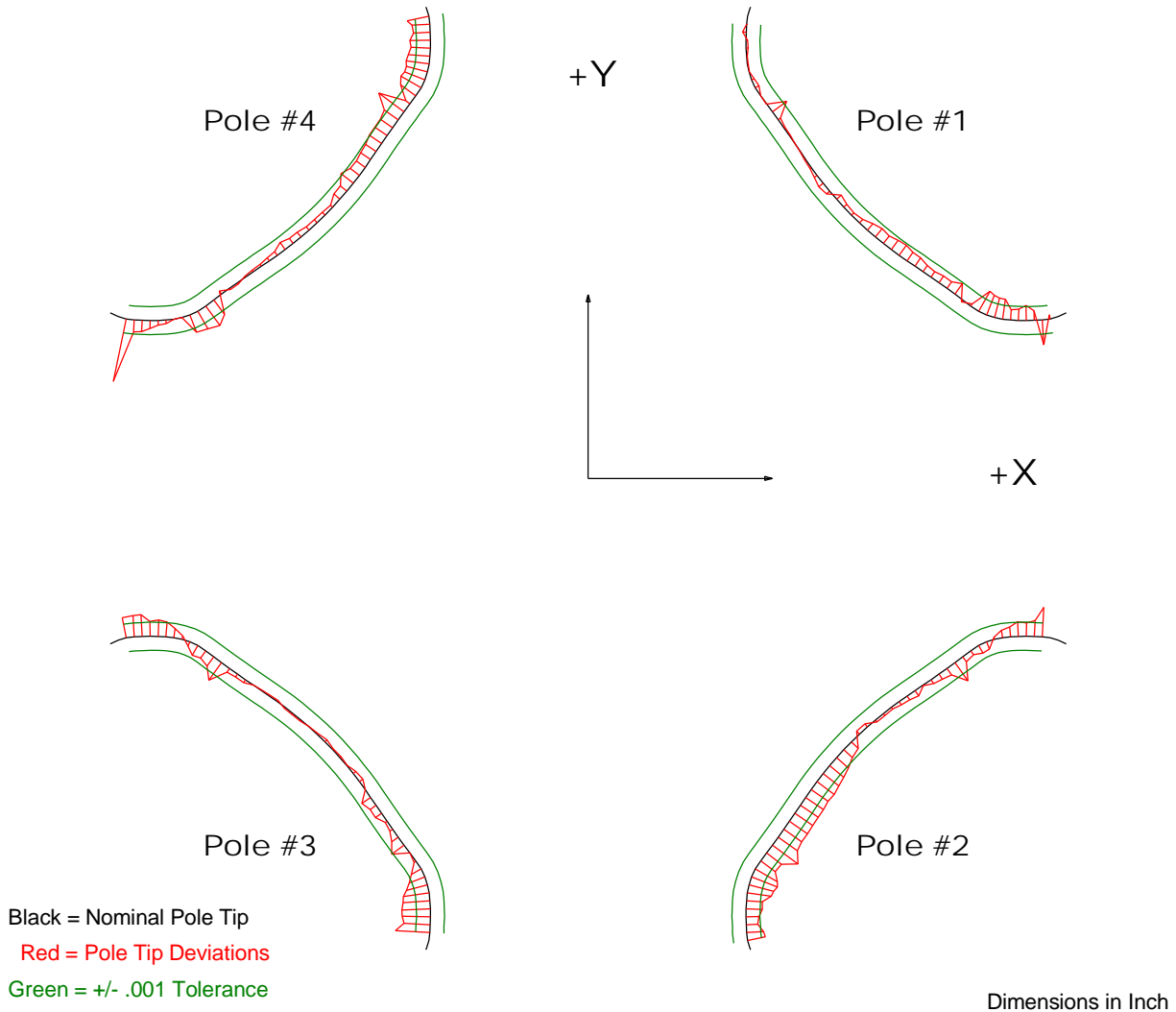
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00171	-0.00238	-0.00347	-0.00208
Max. Dev.	0.00102	0.00103	0.00351	0.00319

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## Composite Best-fit of Pole Tips, Upstream



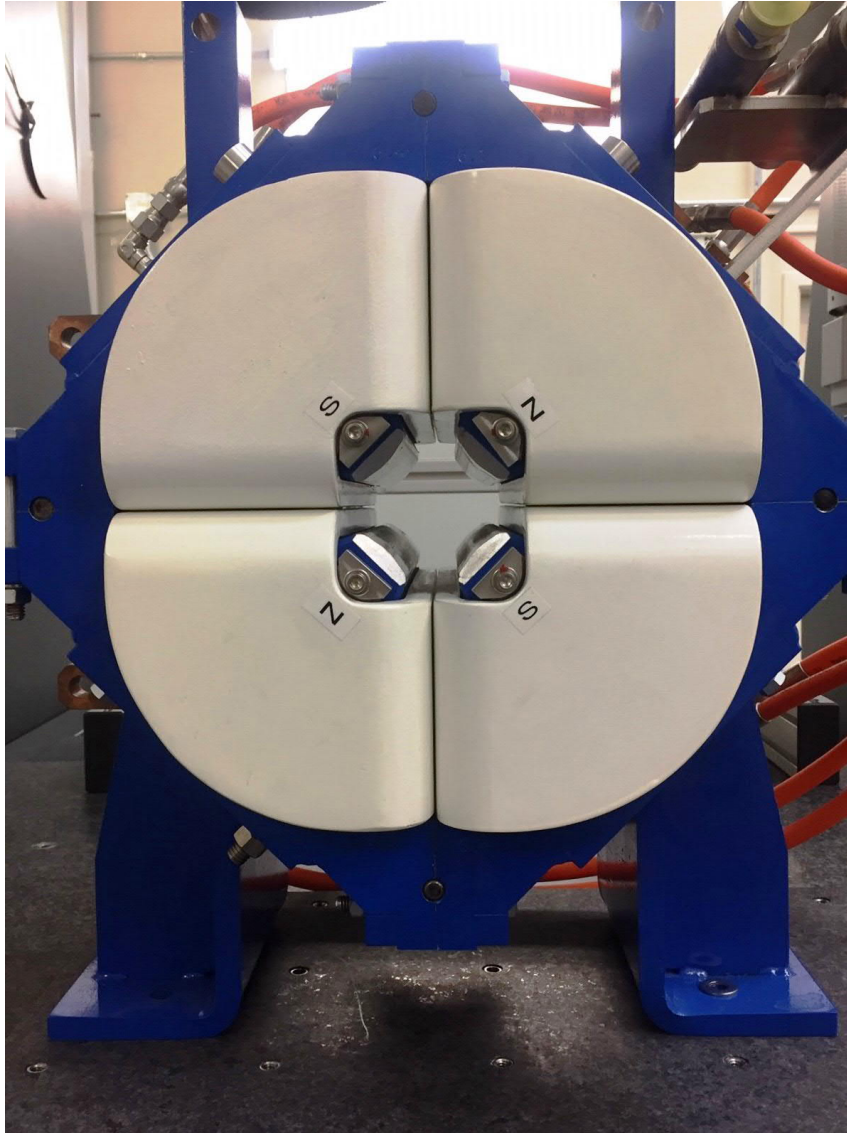
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00164	-0.00226	-0.00245	-0.00224
Max. Dev.	0.00178	0.00212	0.00156	0.00455

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## Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° :