

## LCLS II 2Q10 Fiducialization Report



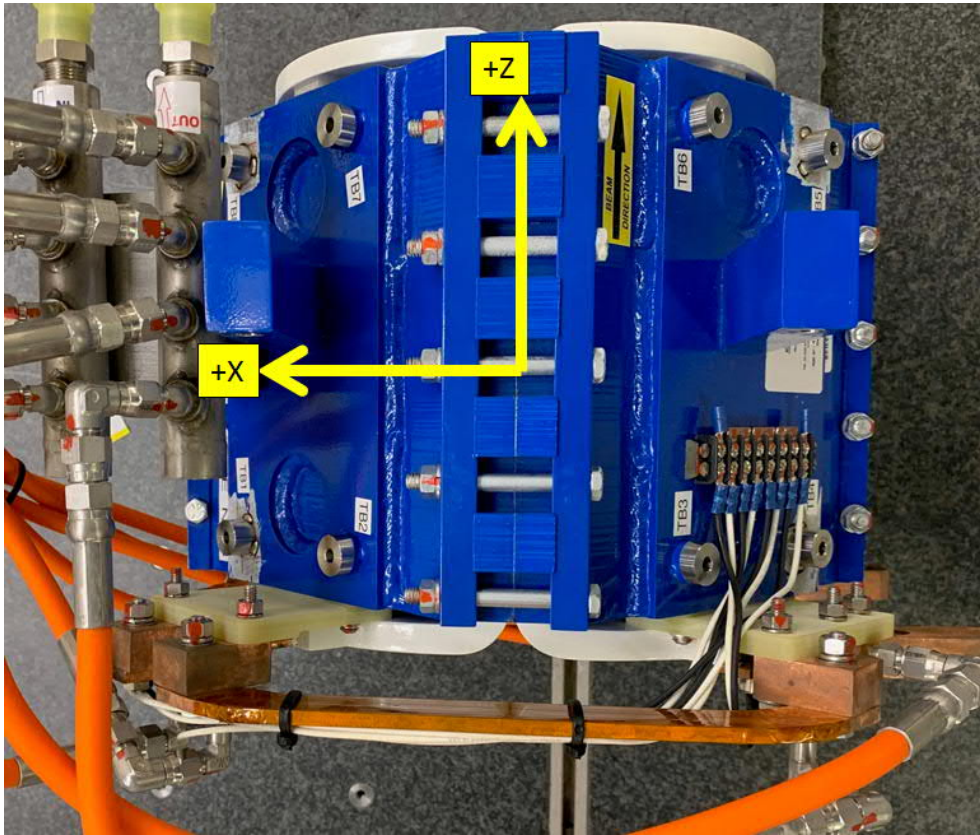
Inspector : K. Caban  
Engineer : J. Amann  
Drawing No. : SA-344-113-30  
Barcode # : 4217  
Mfg. S/N : MFG SN 04

## 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



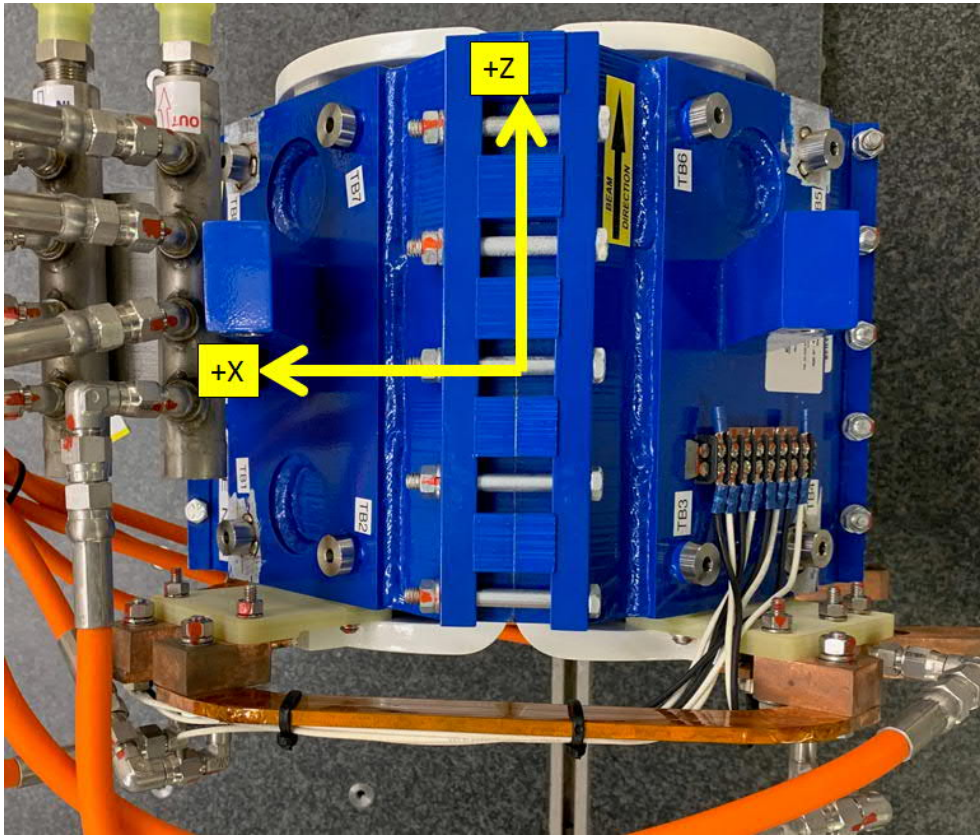
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	6.5197	3.9852	-3.7419
TB 2	3.9640	6.4788	-3.7404
TB 3	-3.9810	6.4682	-3.7428
TB 4	-6.5197	3.9682	-3.7259
TB 5	-6.5063	3.9805	3.7477
TB 6	-3.9878	6.4627	3.7348
TB 7	3.9629	6.4782	3.7376
TB 8	6.5060	4.0017	3.7308

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

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## Tooling Ball Locations



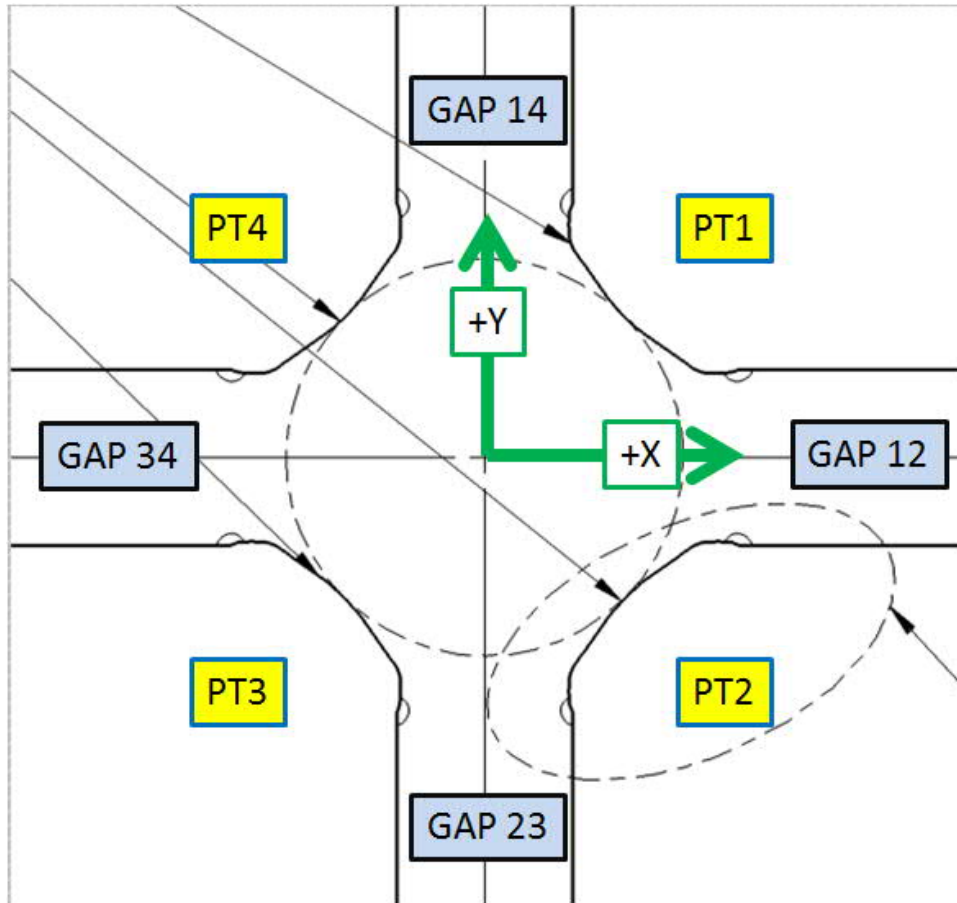
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	6.0321	3.5009	-3.7419
TB 2	3.4772	5.9931	-3.7402
TB 3	-3.4943	5.9827	-3.7430
TB 4	-6.0325	3.4834	-3.7259
TB 5	-6.0194	3.4962	3.7478
TB 6	-3.5013	5.9768	3.7351
TB 7	3.4772	5.9917	3.7376
TB 8	6.0194	3.5161	3.7307

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

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## Pole Tip Gap Measurements



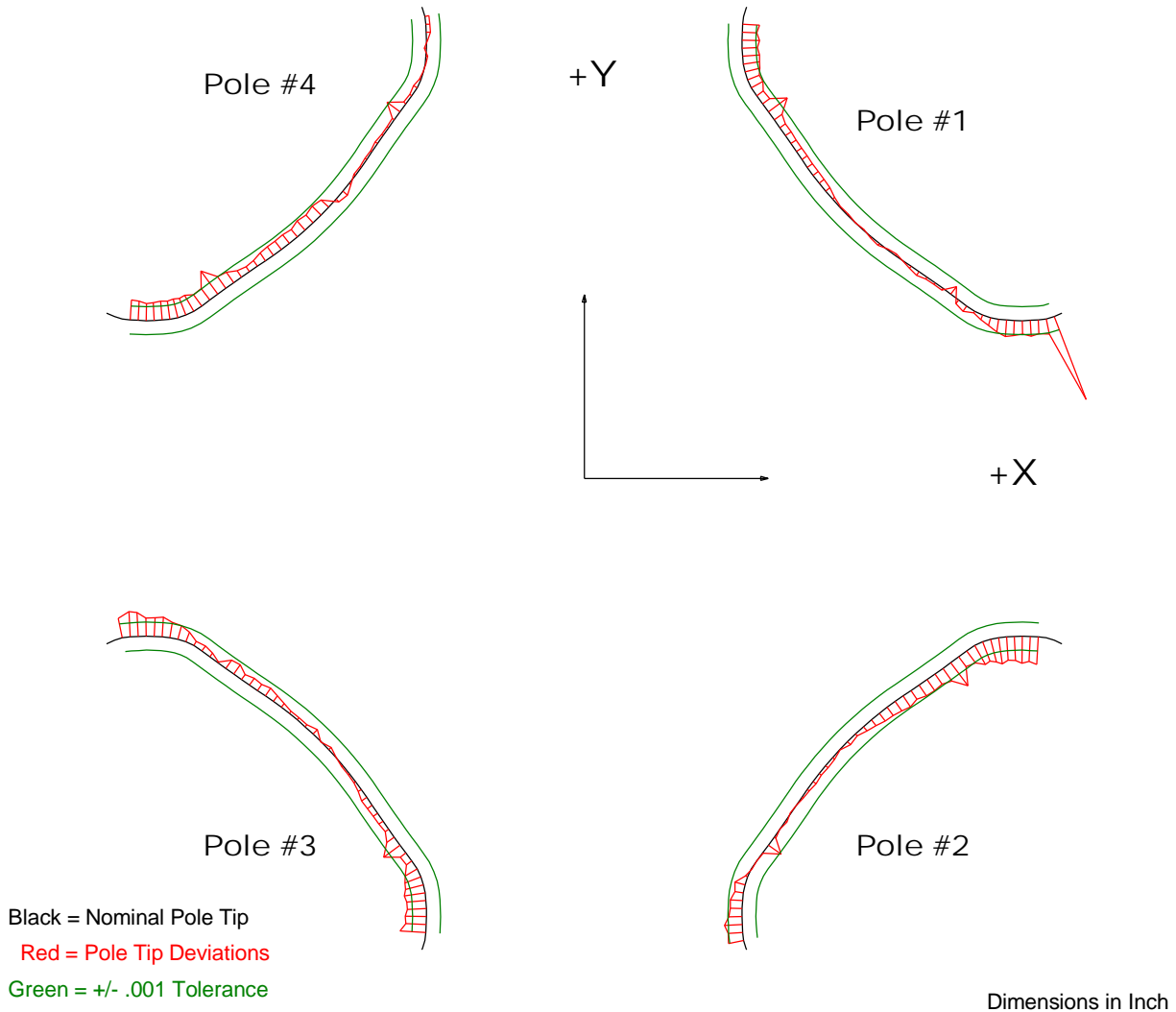
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.02616	2.02593
PT Distance 2-4	2.026	2.02715	2.02601
Gap 1-2	0.8602	0.86151	0.85879
Gap 2-3	0.8602	0.85877	0.85881
Gap 3-4	0.8602	0.85811	0.85813
Gap 1-4	0.8602	0.8593	0.85808

Dimensions in Inch

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## Composite Best-fit of Pole Tips, Downstream



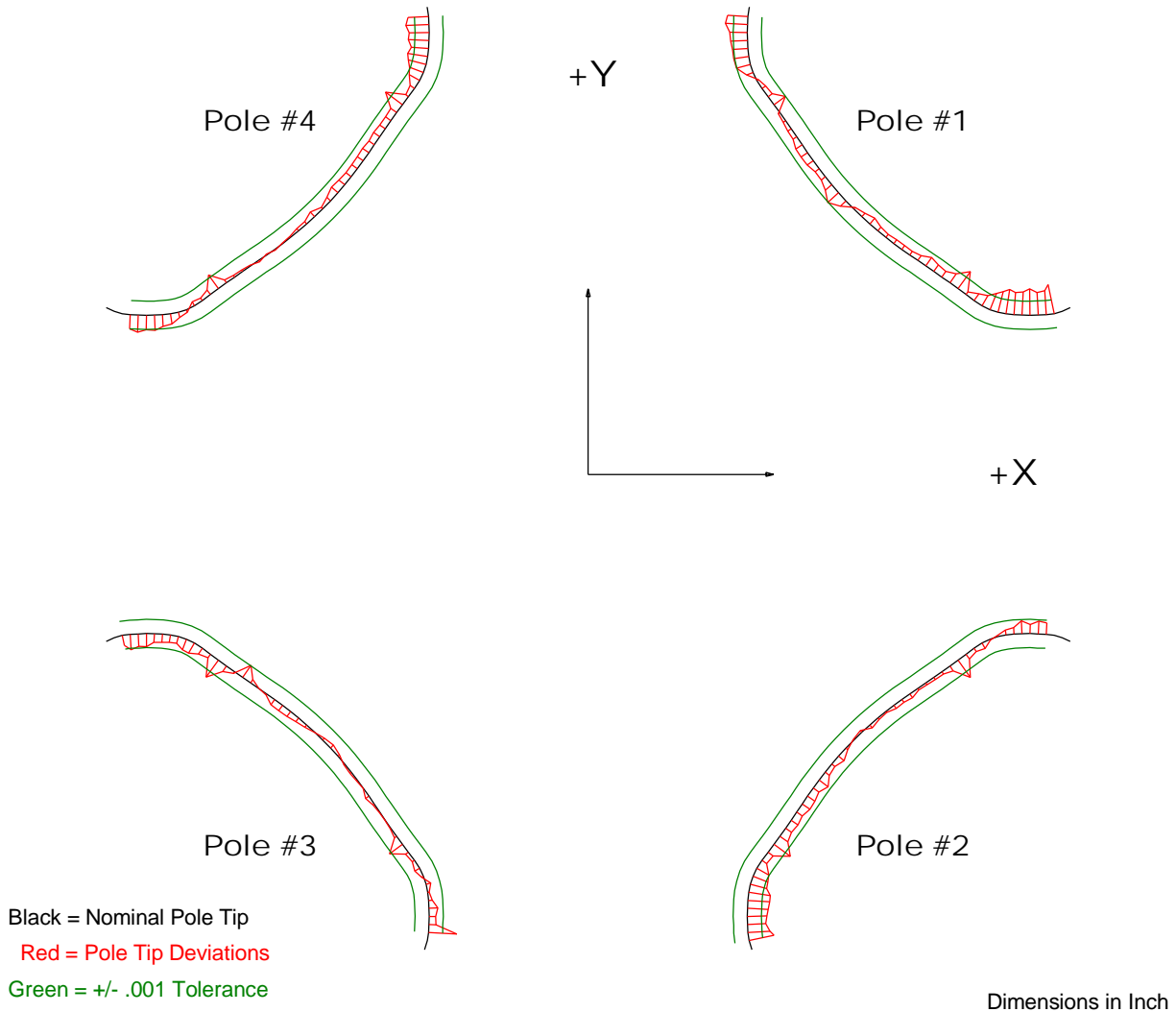
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00165	-0.00204	-0.00185	-0.00204
Max. Dev.	0.00636	0.00126	0.00181	0.00043

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## Composite Best-fit of Pole Tips, Upstream



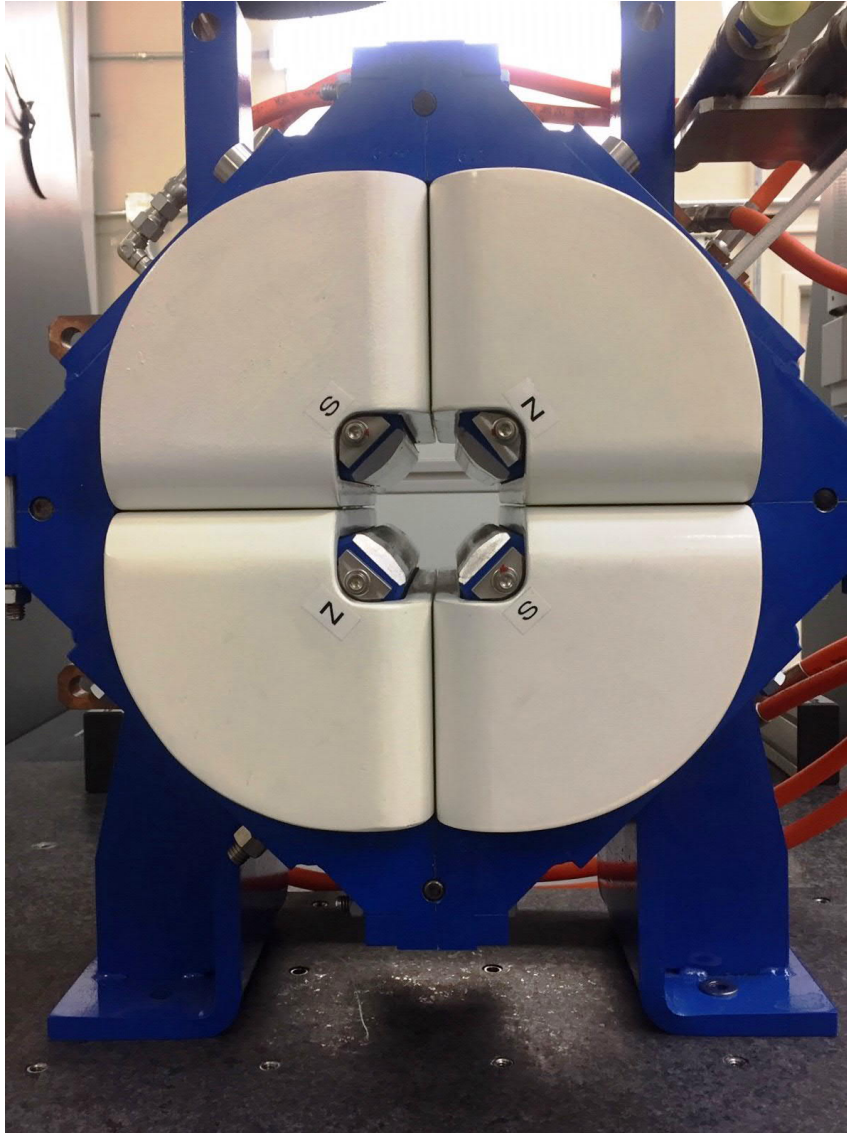
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.0021	-0.00182	-0.00146	-0.00163
Max. Dev.	0.00157	0.00091	0.00201	0.00122

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## Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° :