

## LCLS II 2Q10 Fiducialization Report



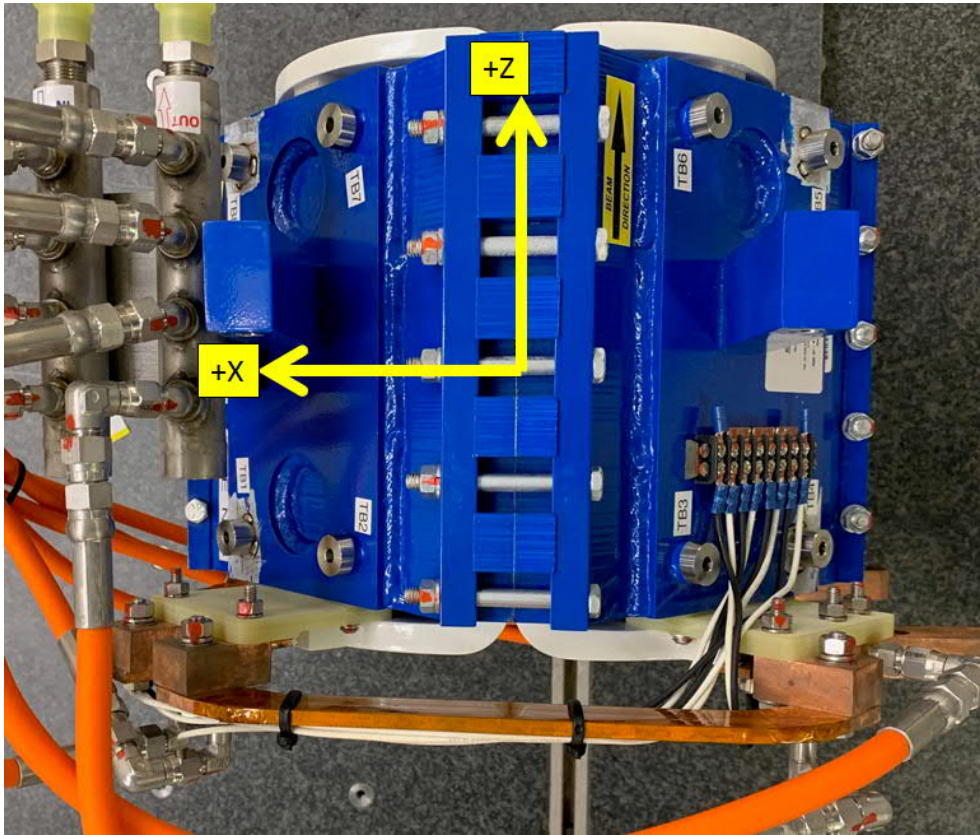
Inspector : K. Caban  
Engineer : J. Amann  
Drawing No. : SA-344-113-30  
Barcode # : 4219  
Mfg. S/N : MFG SN 15

## 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	6.4756	4.0198	-3.7792
TB 2	3.9560	6.4835	-3.7247
TB 3	-3.9777	6.4681	-3.7268
TB 4	-6.5780	3.9088	-3.7119
TB 5	-6.5603	3.9192	3.7401
TB 6	-3.9739	6.4730	3.7477
TB 7	3.9627	6.4746	3.7282
TB 8	6.5006	3.9961	3.7278

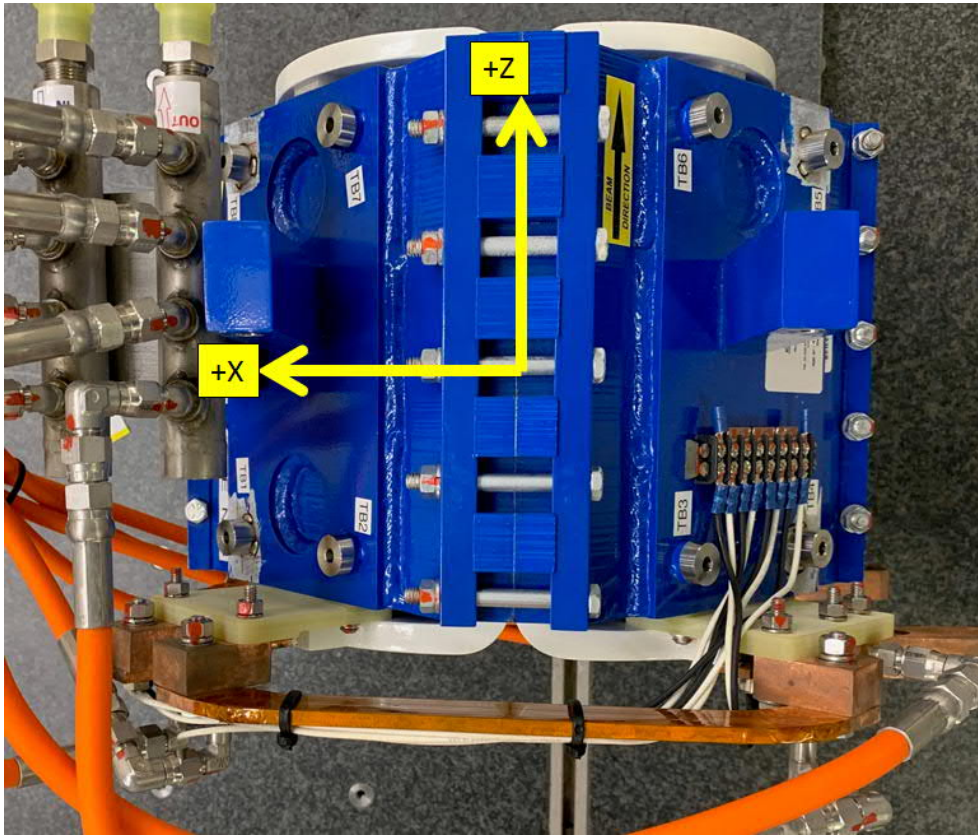
Tooling Ball Locations are 1 inch above Tooling Ball Adapter Plane  
Dimensions in Inch

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## Tooling Ball Locations



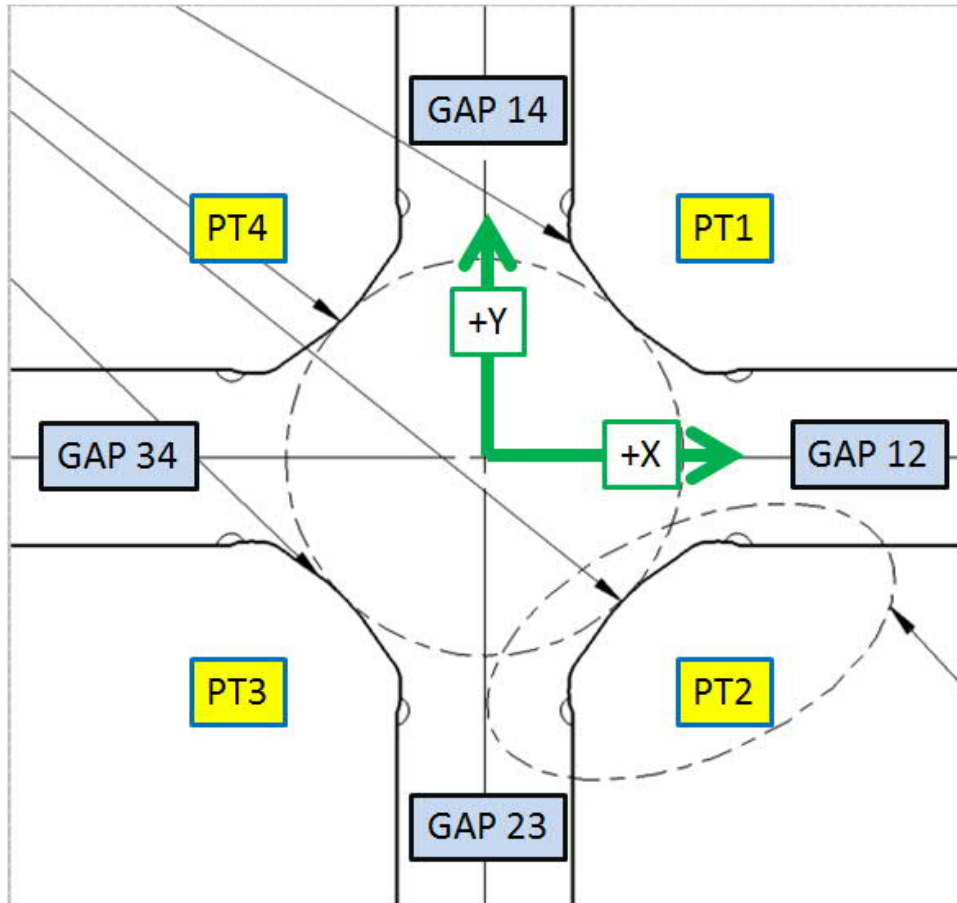
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	5.9871	3.5365	-3.7750
TB 2	3.4687	5.9954	-3.7266
TB 3	-3.4917	5.9819	-3.7269
TB 4	-6.0879	3.4233	-3.7136
TB 5	-6.0727	3.4347	3.7428
TB 6	-3.4859	5.9863	3.7489
TB 7	3.4760	5.9897	3.7284
TB 8	6.0147	3.5098	3.7266

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

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## Pole Tip Gap Measurements



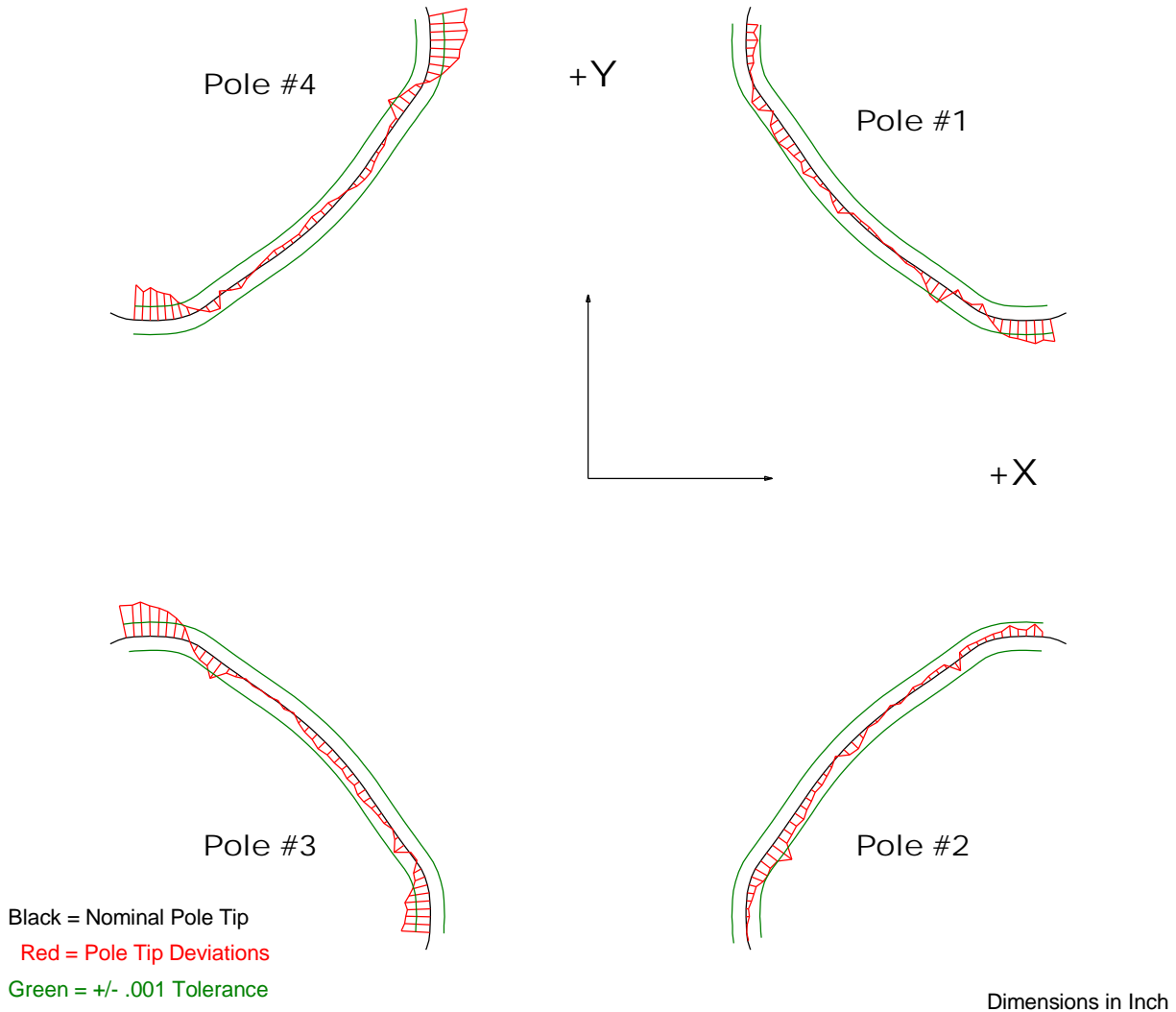
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.02655	2.0265
PT Distance 2-4	2.026	2.02715	2.02726
Gap 1-2	0.8602	0.85746	0.85578
Gap 2-3	0.8602	0.86014	0.86111
Gap 3-4	0.8602	0.85816	0.85791
Gap 1-4	0.8602	0.85642	0.8567

Dimensions in Inch

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## Composite Best-fit of Pole Tips, Downstream



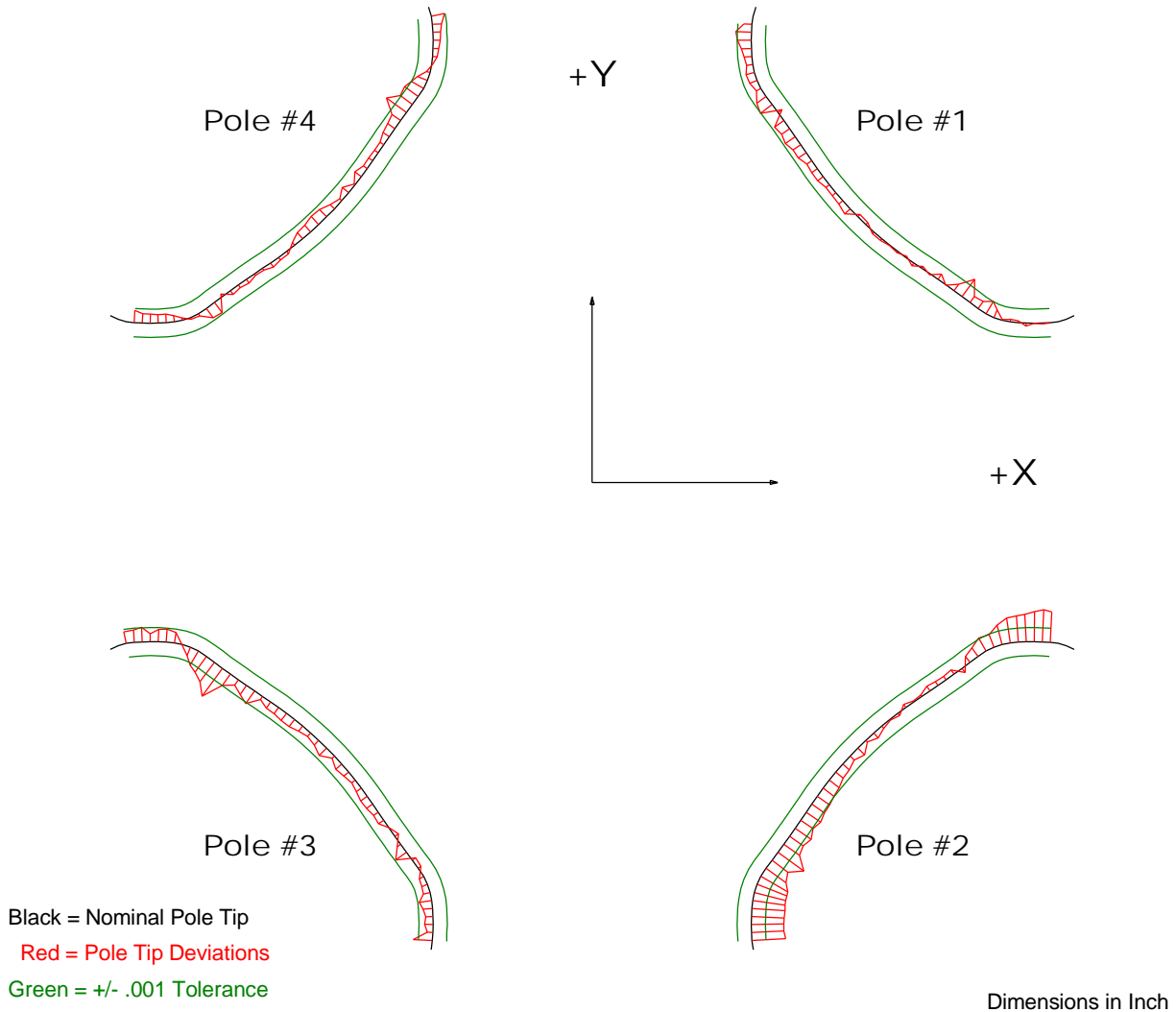
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00083	-0.0017	-0.00204	-0.00252
Max. Dev.	0.00166	0.00087	0.00247	0.00275

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## Composite Best-fit of Pole Tips, Upstream



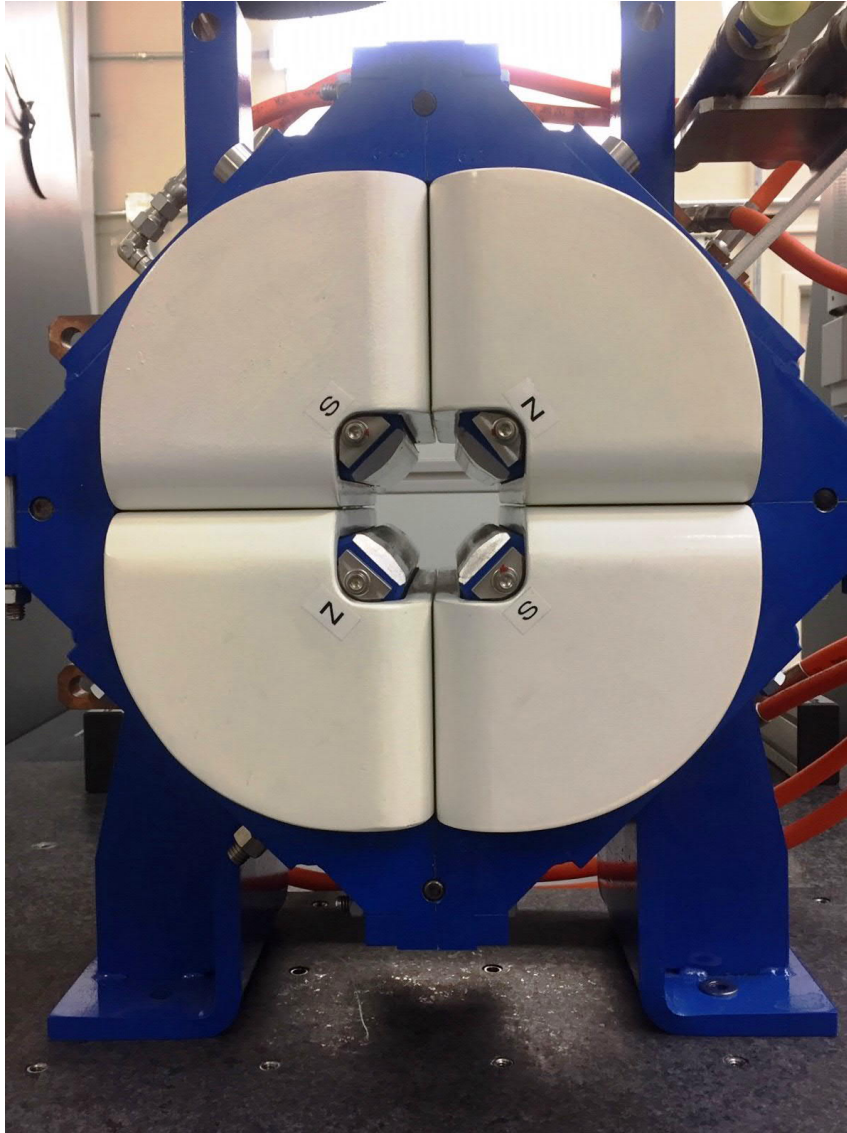
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00151	-0.00239	-0.00245	-0.00173
Max. Dev.	0.00112	0.00228	0.00104	0.00094

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## Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° :