

## LCLS II 2Q10 Fiducialization Report



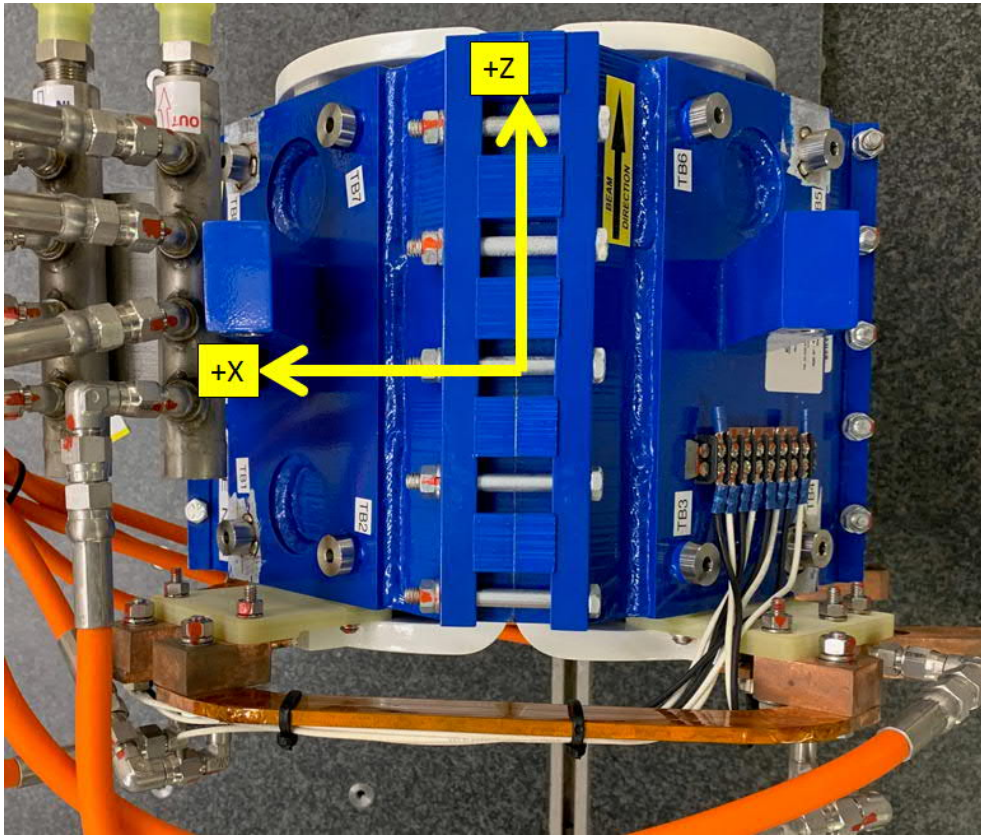
Inspector : K. Caban  
Engineer : J. Amann  
Drawing No. : SA-344-113-30  
Barcode # : 4218  
Mfg. S/N : MFG SN 13

## 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	6.4915	3.9934	-3.7443
TB 2	3.9629	6.4679	-3.7532
TB 3	-3.9794	6.4689	-3.7498
TB 4	-6.5415	3.9358	-3.7437
TB 5	-6.5177	3.9582	3.7139
TB 6	-3.9742	6.4715	3.7376
TB 7	3.9564	6.4761	3.7382
TB 8	6.4737	4.0168	3.7039

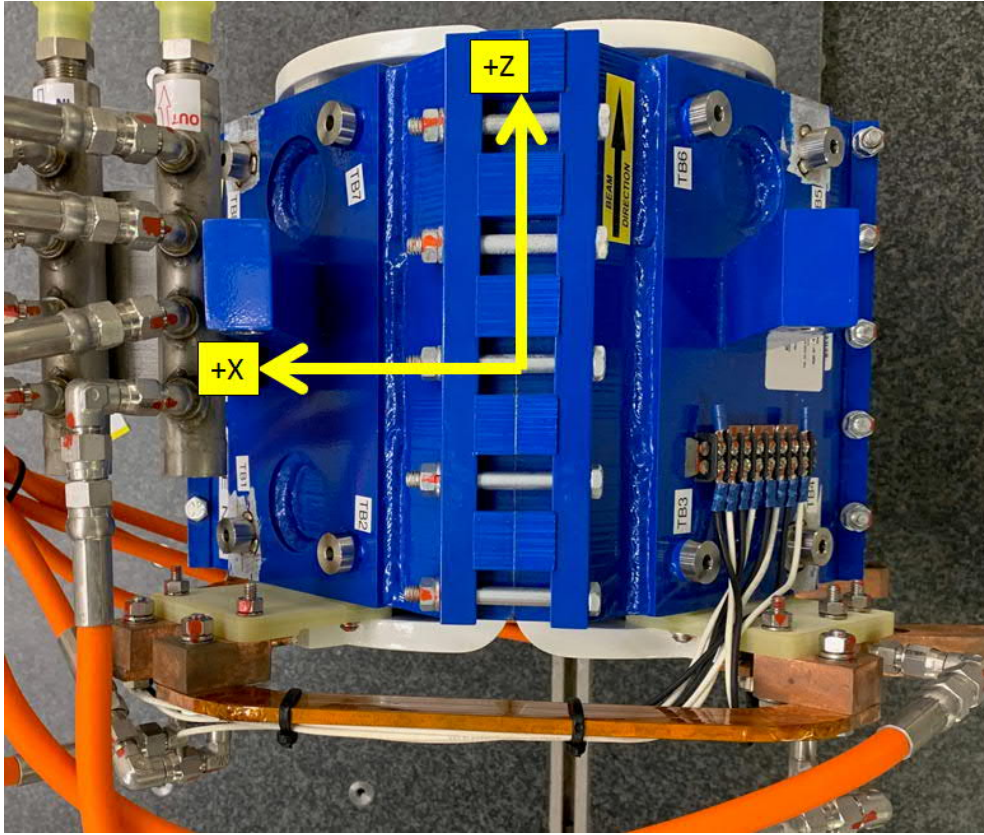
Tooling Ball Locations are 1 inch above Tooling Ball Adapter Plane  
Dimensions in Inch

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## Tooling Ball Locations



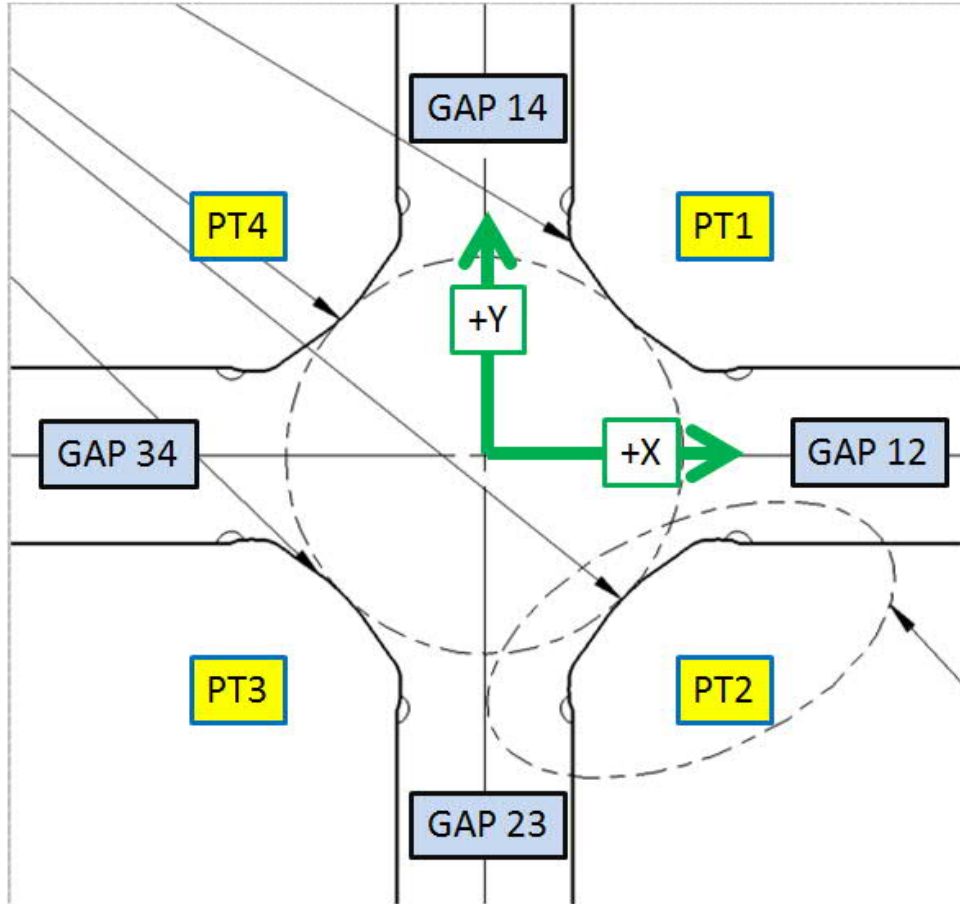
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	6.0062	3.5071	-3.7438
TB 2	3.4769	5.9814	-3.7535
TB 3	-3.4911	5.9852	-3.7500
TB 4	-5.9471	3.5426	-3.7272
TB 5	-6.0293	3.4751	3.7148
TB 6	-3.4861	5.9875	3.7375
TB 7	3.4708	5.9898	3.7377
TB 8	5.9884	3.5297	3.7038

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

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## Pole Tip Gap Measurements



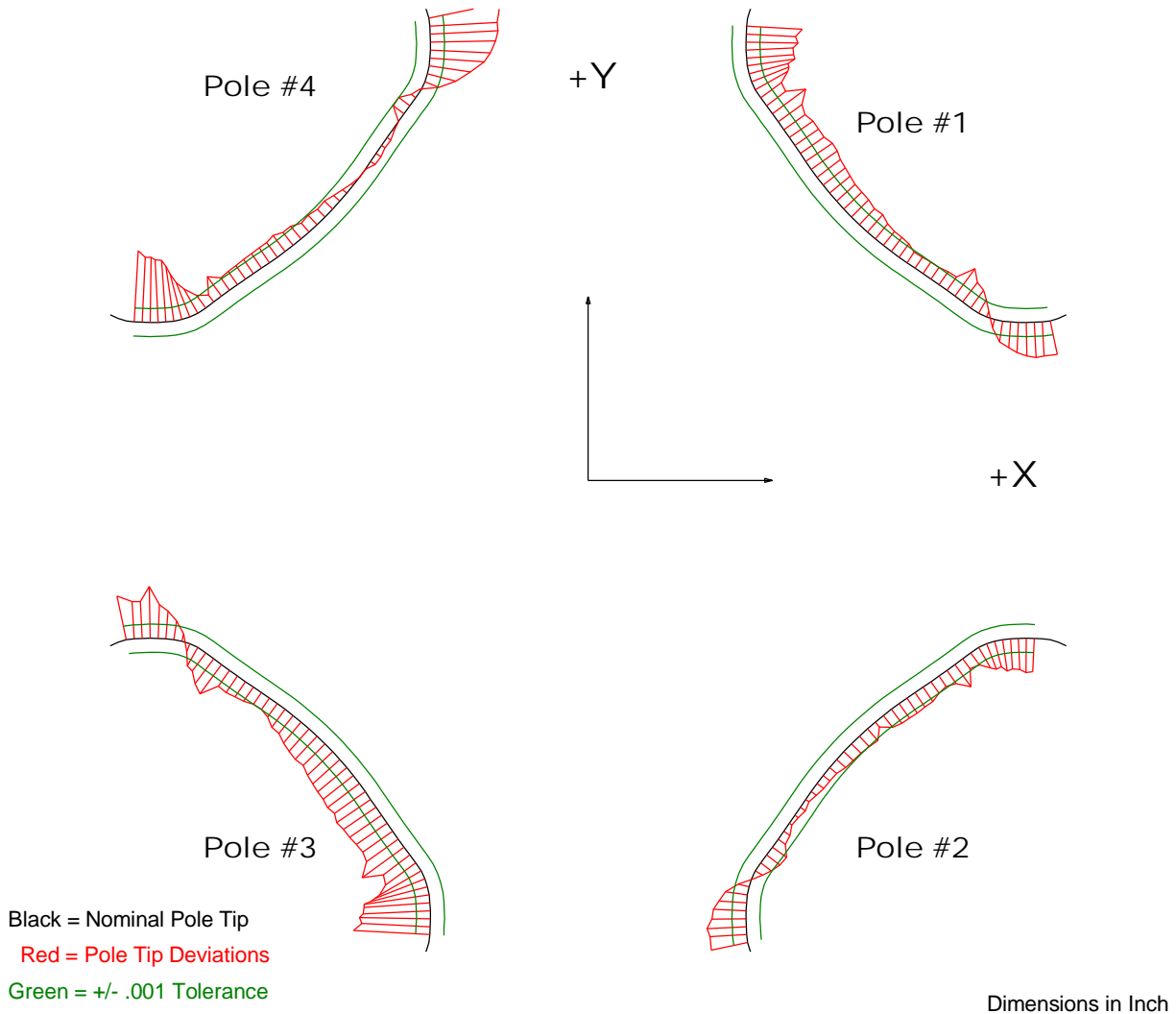
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.02997	2.02807
PT Distance 2-4	2.026	2.02772	2.02854
Gap 1-2	0.8602	0.86363	0.85868
Gap 2-3	0.8602	0.86052	0.85931
Gap 3-4	0.8602	0.85857	0.86001
Gap 1-4	0.8602	0.85663	0.85679

Dimensions in Inch

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## Composite Best-fit of Pole Tips, Downstream



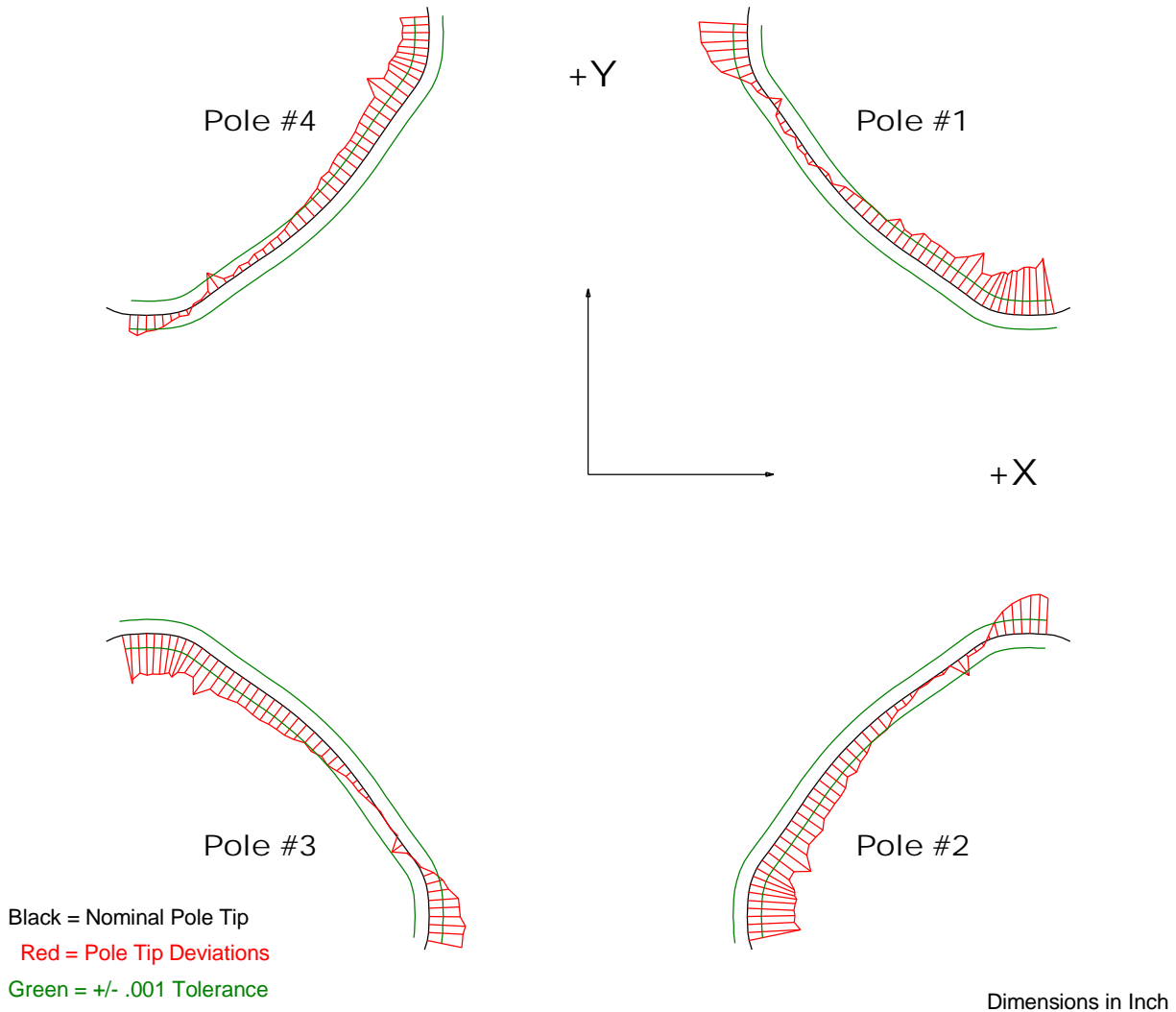
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00398	-0.00247	-0.00545	-0.00509
Max. Dev.	0.00251	0.00281	0.00369	0.0052

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## Composite Best-fit of Pole Tips, Upstream



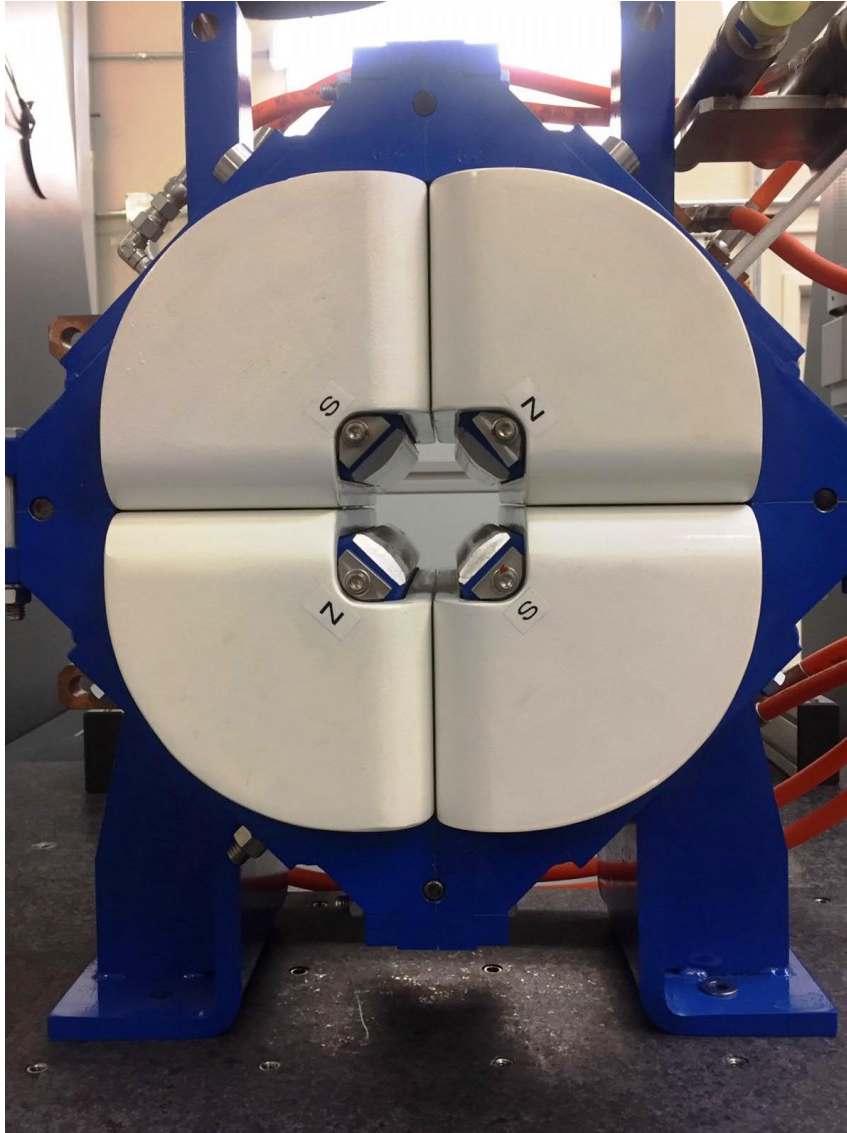
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00402	-0.00374	-0.00351	-0.0031
Max. Dev.	0.00344	0.0028	0.00259	0.00146

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## Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° :