

## LCLS II 2Q10 Fiducialization Report



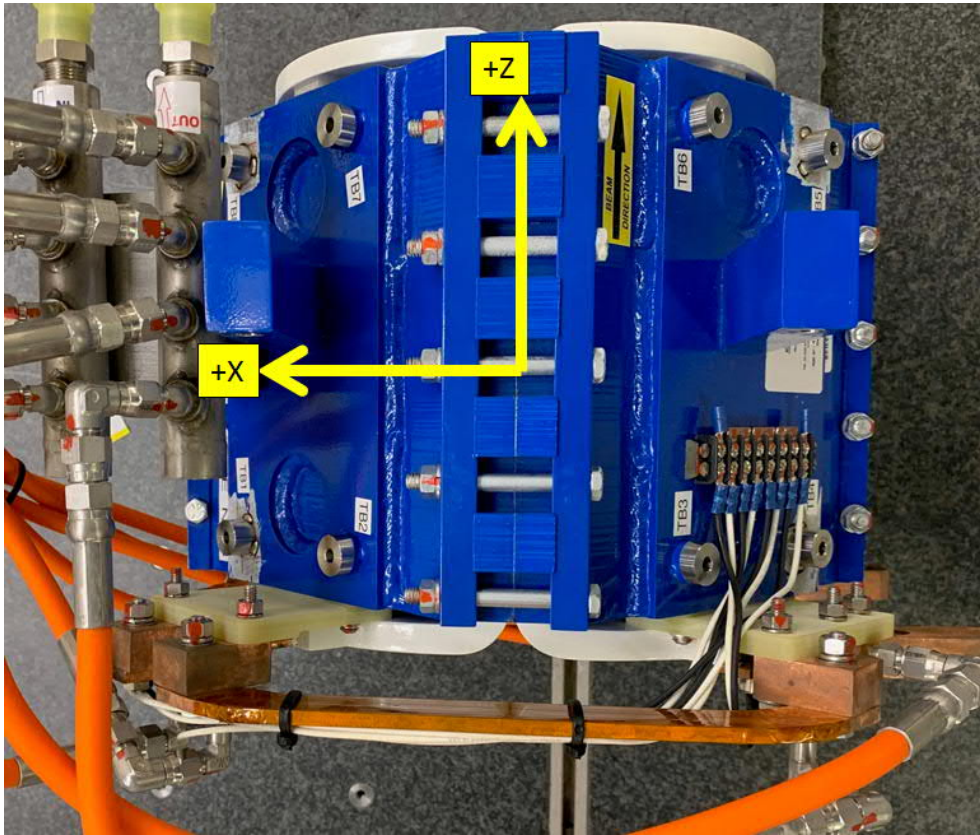
Inspector : K. Caban  
Engineer : J. Amann  
Drawing No. : SA-344-113-30  
Barcode # : 4221  
Mfg. S/N : MFG SN 12

## 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	6.4738	4.0047	-3.7112
TB 2	3.9741	6.4649	-3.7344
TB 3	-3.9787	6.4670	-3.7290
TB 4	-6.5653	3.9211	-3.7200
TB 5	-6.5279	3.9536	3.7285
TB 6	-3.9811	6.4666	3.7570
TB 7	3.9499	6.4821	3.7430
TB 8	6.4726	4.0073	3.7437

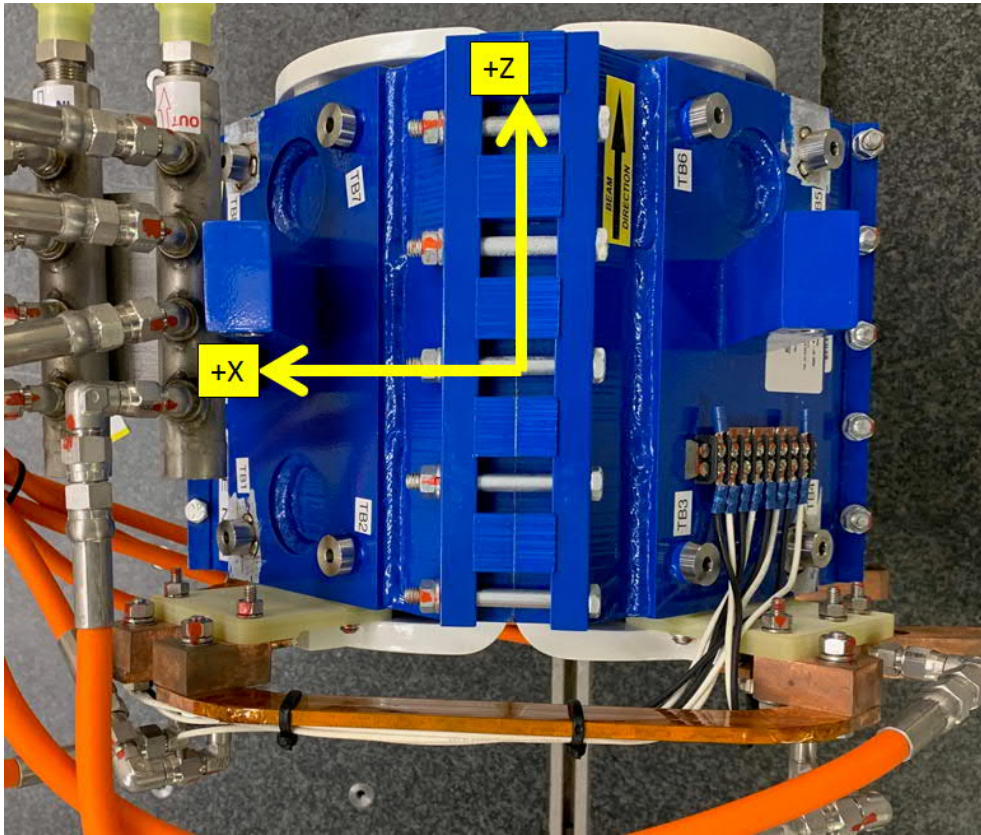
Tooling Ball Locations are 1 inch above Tooling Ball Adapter Plane  
Dimensions in Inch

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## Tooling Ball Locations



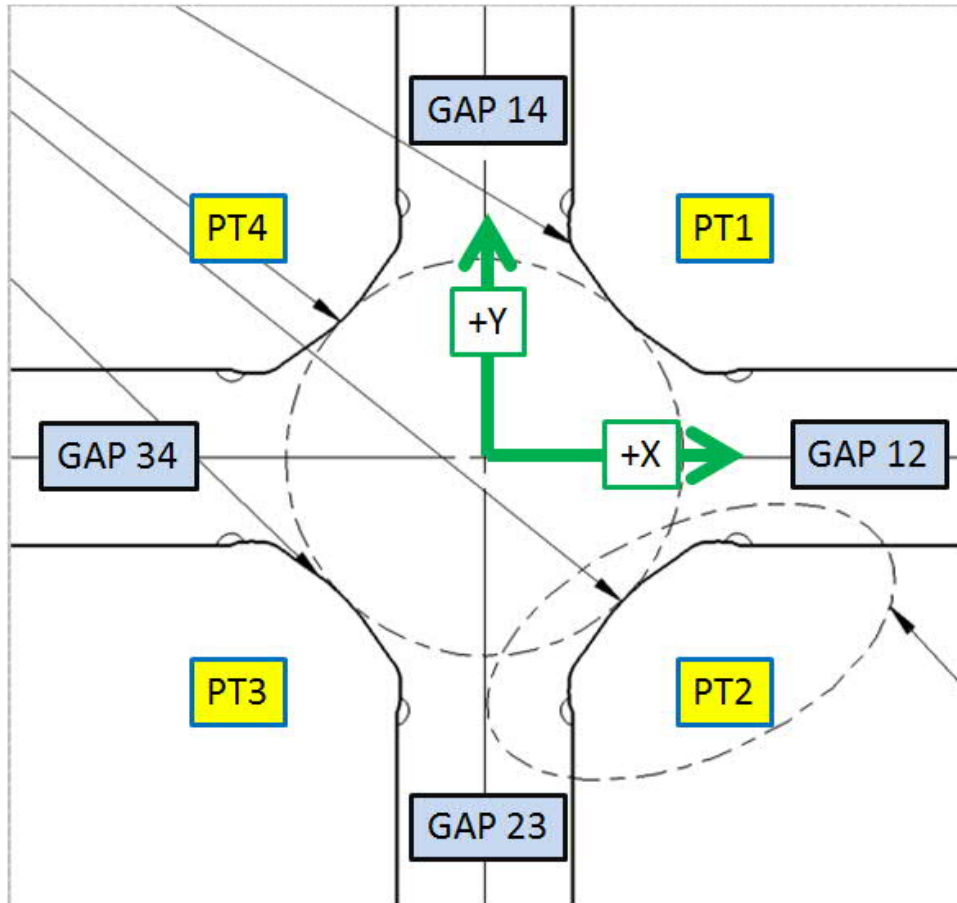
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	5.9842	3.5222	-3.7118
TB 2	3.4868	5.9802	-3.7352
TB 3	-3.4924	5.9813	-3.7294
TB 4	-6.0790	3.4349	-3.7230
TB 5	-6.0417	3.4675	3.7302
TB 6	-3.4940	5.9809	3.7572
TB 7	3.4637	5.9964	3.7429
TB 8	5.9831	3.5206	3.7422

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

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## Pole Tip Gap Measurements



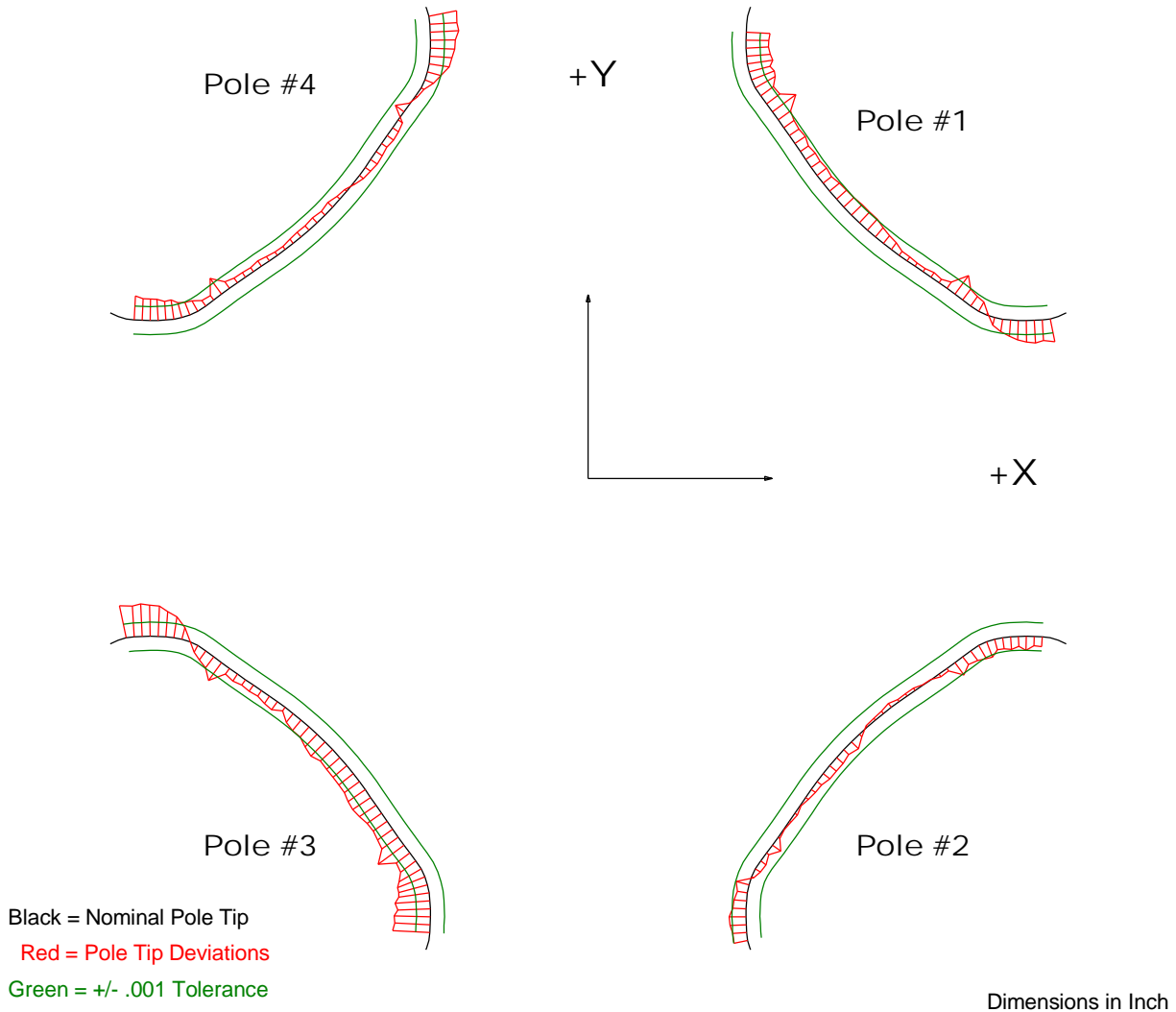
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.02849	2.02768
PT Distance 2-4	2.026	2.027	2.02821
Gap 1-2	0.8602	0.86021	0.85777
Gap 2-3	0.8602	0.8594	0.85952
Gap 3-4	0.8602	0.85753	0.85718
Gap 1-4	0.8602	0.858	0.85894

Dimensions in Inch

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## Composite Best-fit of Pole Tips, Downstream



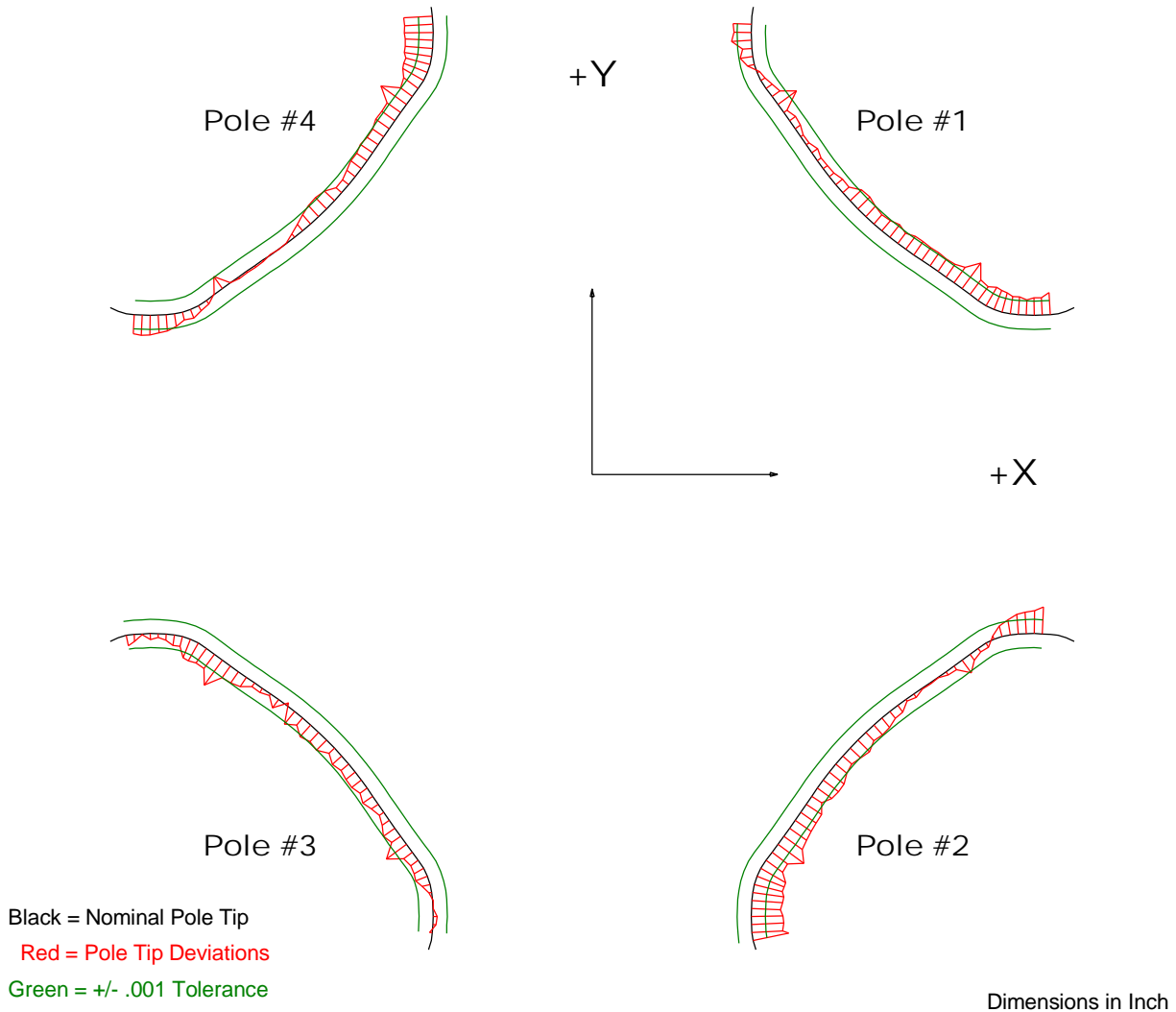
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00207	-0.00117	-0.00265	-0.00172
Max. Dev.	0.00165	0.00119	0.00235	0.00205

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## Composite Best-fit of Pole Tips, Upstream



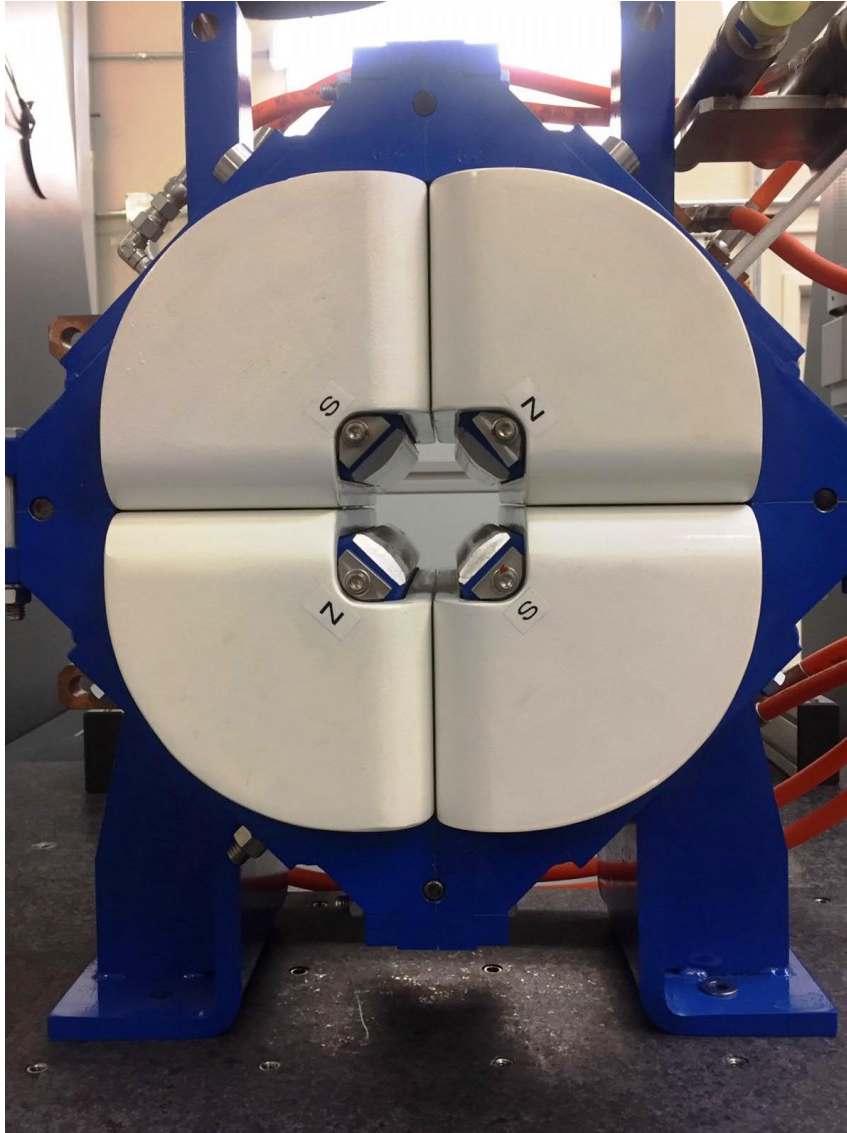
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00224	-0.00258	-0.00218	-0.00223
Max. Dev.	0.00141	0.00191	0.00029	0.00144

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## Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° :