

## LCLS II 2Q10 Fiducialization Report



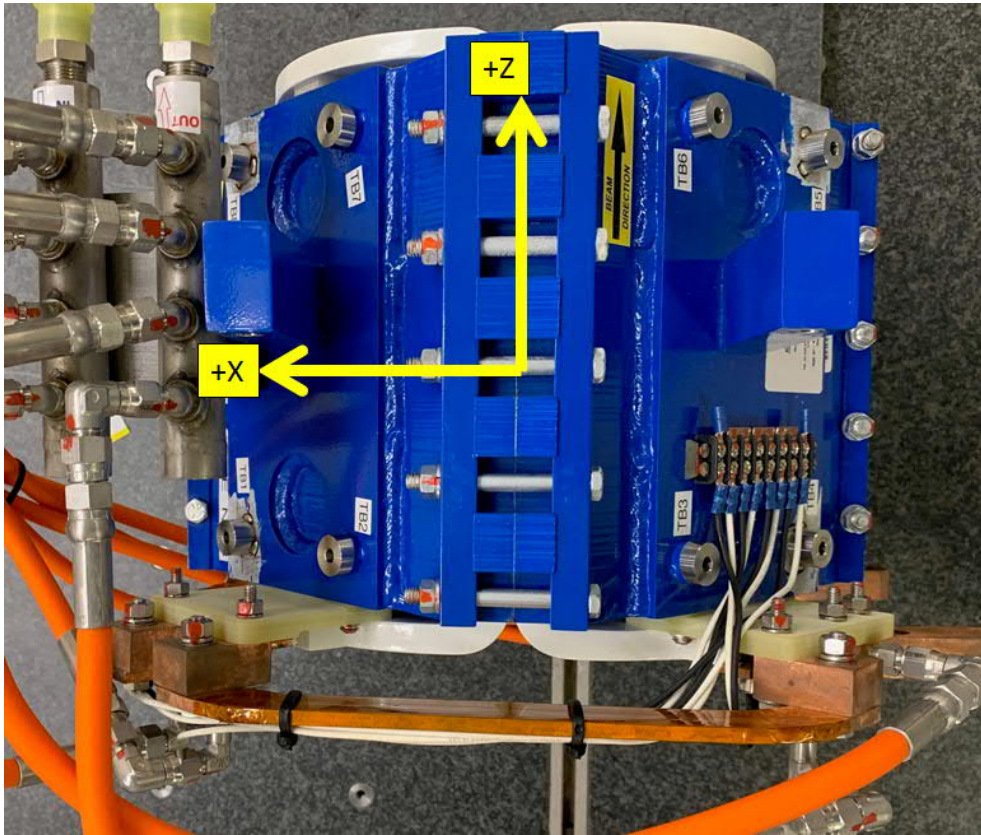
Inspector : K. Caban  
Engineer : J. Amann  
Drawing No. : SA-344-113-30  
Barcode # : 4223  
Mfg. S/N : MFG SN 14

## 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



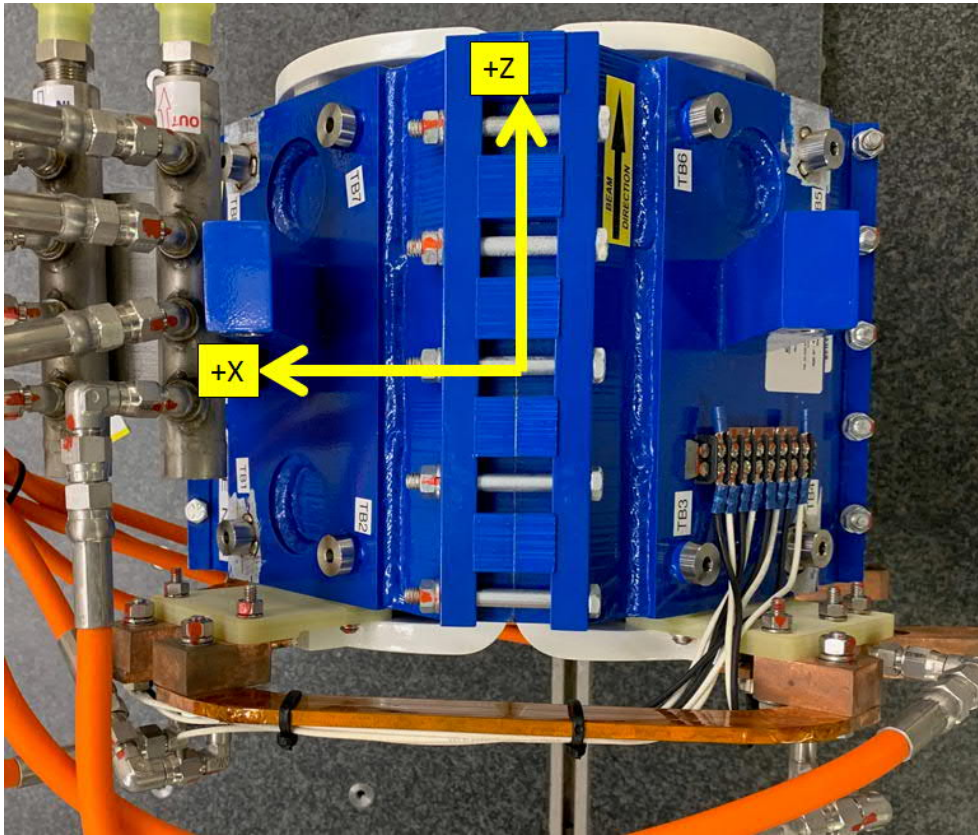
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	6.5287	3.9513	-3.7334
TB 2	3.9777	6.4630	-3.7479
TB 3	-3.9673	6.4748	-3.7328
TB 4	-6.5136	3.9662	-3.7369
TB 5	-6.5436	3.9288	3.7056
TB 6	-3.9652	6.4748	3.7471
TB 7	3.9684	6.4745	3.7451
TB 8	6.4825	4.0037	3.7323

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

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## Tooling Ball Locations



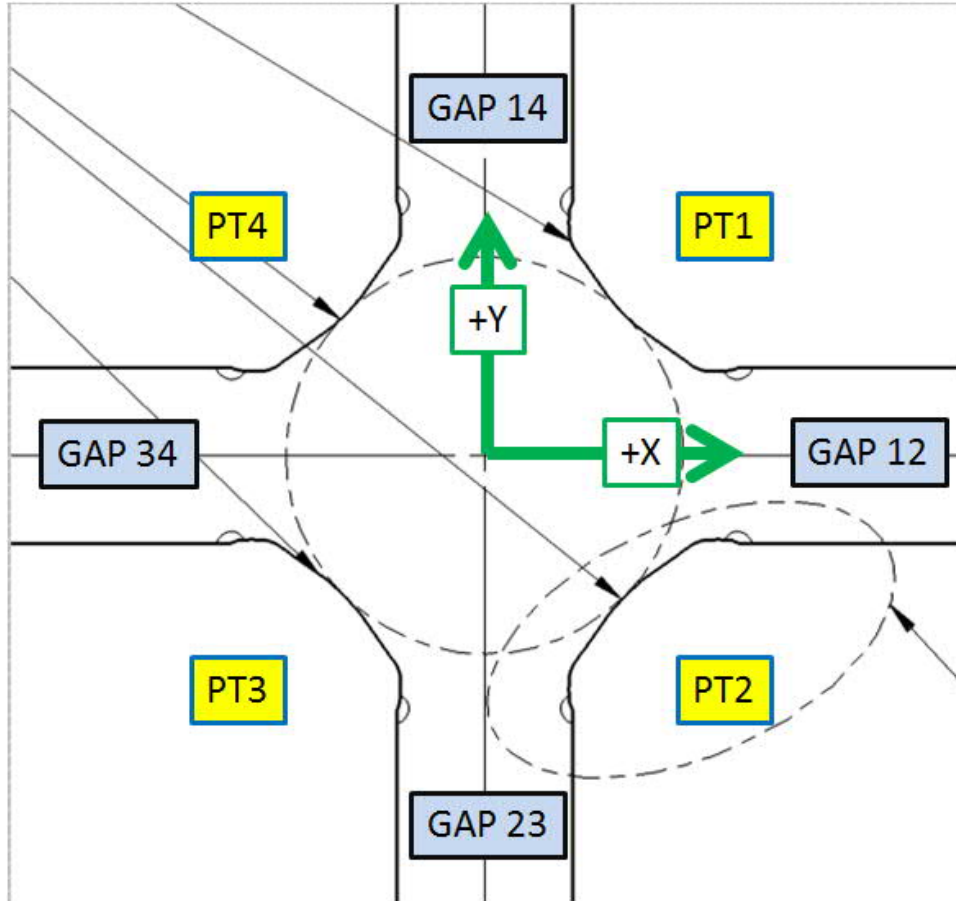
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	6.0005	3.5126	-3.7252
TB 2	3.4901	5.9776	-3.7491
TB 3	-3.4821	5.9877	-3.7327
TB 4	-6.0257	3.4815	-3.7411
TB 5	-6.0560	3.4446	3.7091
TB 6	-3.4795	5.9880	3.7472
TB 7	3.4805	5.9871	3.7434
TB 8	5.9935	3.5197	3.7329

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

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## Pole Tip Gap Measurements



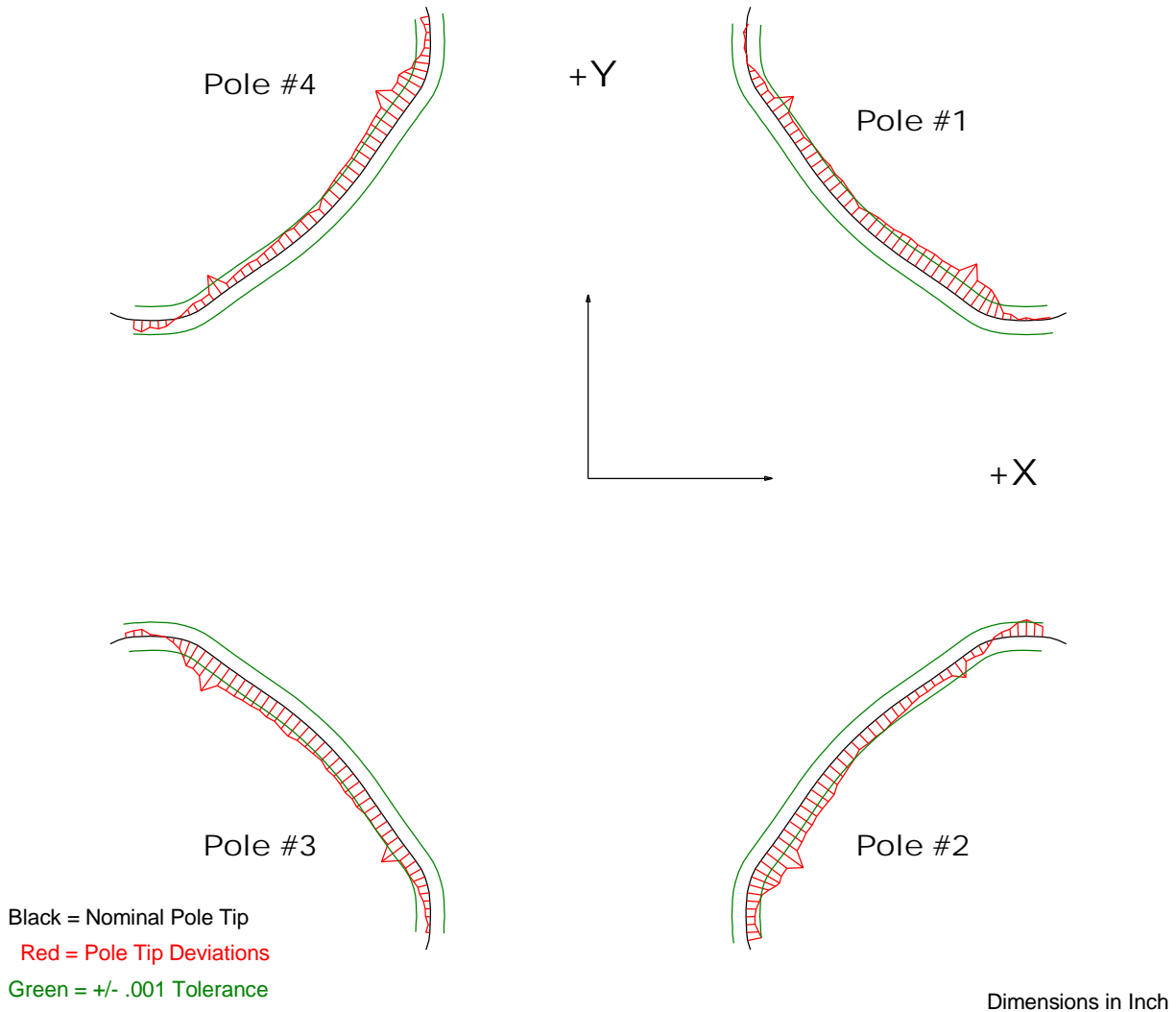
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.02799	2.02911
PT Distance 2-4	2.026	2.0274	2.02883
Gap 1-2	0.8602	0.85571	0.85658
Gap 2-3	0.8602	0.85913	0.86248
Gap 3-4	0.8602	0.85756	0.85755
Gap 1-4	0.8602	0.85855	0.85968

Dimensions in Inch

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## Composite Best-fit of Pole Tips, Downstream



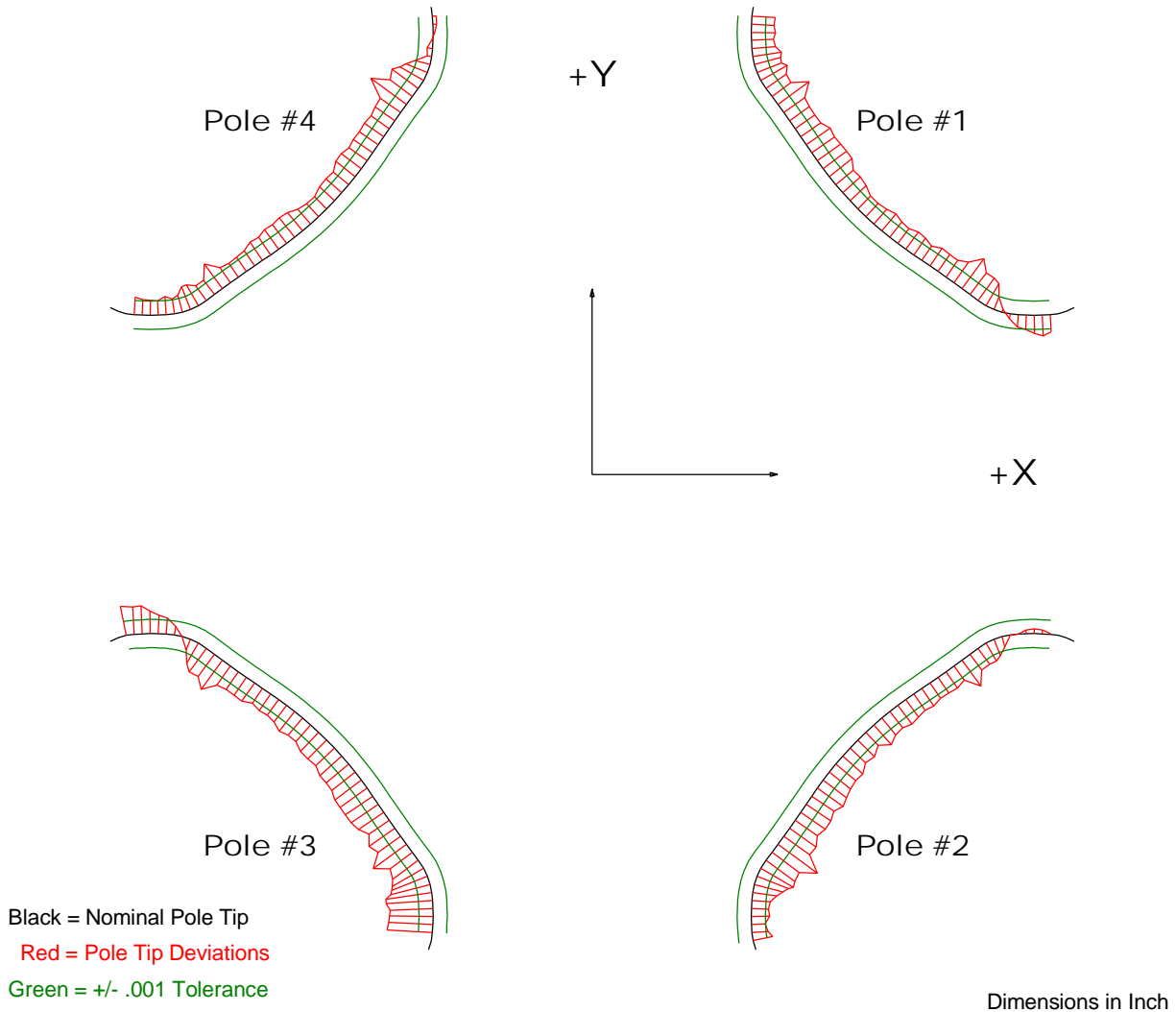
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00266	-0.00271	-0.00251	-0.00251
Max. Dev.	0.00019	0.00116	0.00052	0.00082

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## Composite Best-fit of Pole Tips, Upstream



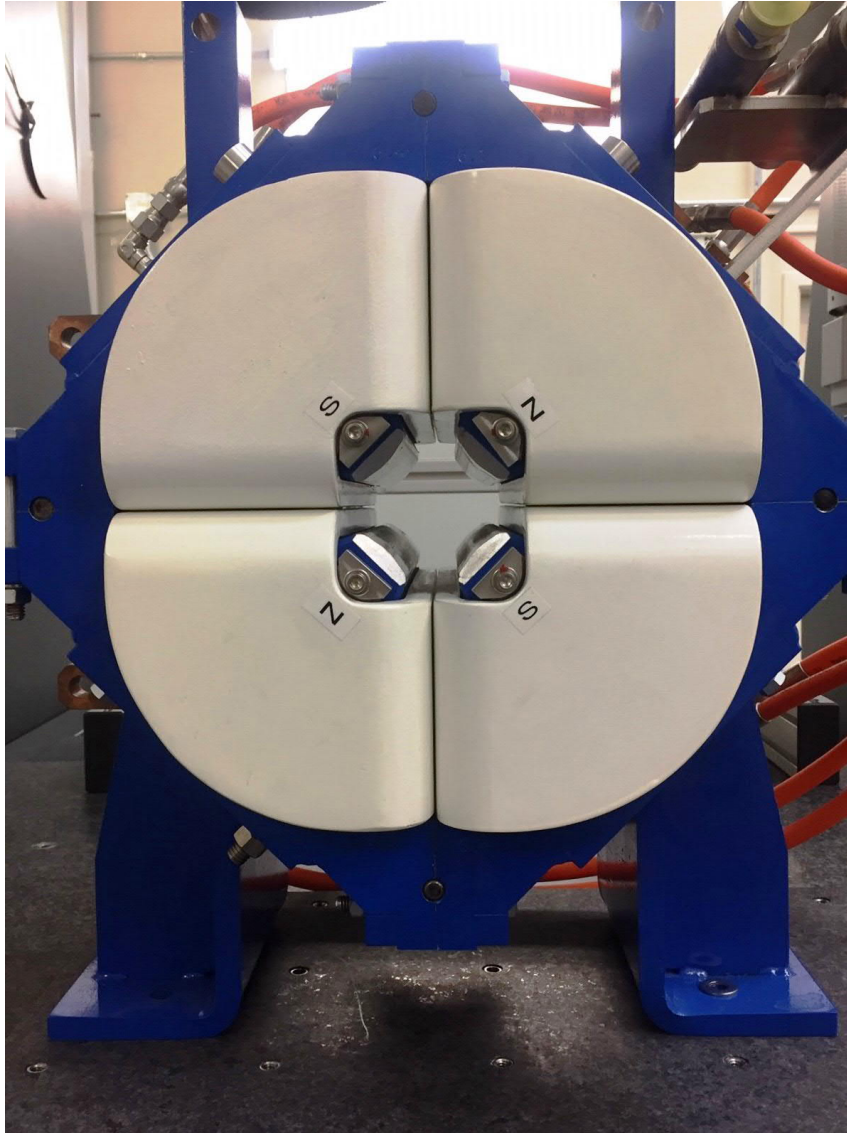
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00271	-0.00346	-0.00328	-0.00312
Max. Dev.	0.00148	0.00035	0.00208	0.00028

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## Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° :