

## LCLS II 2Q4W Fiducialization Report



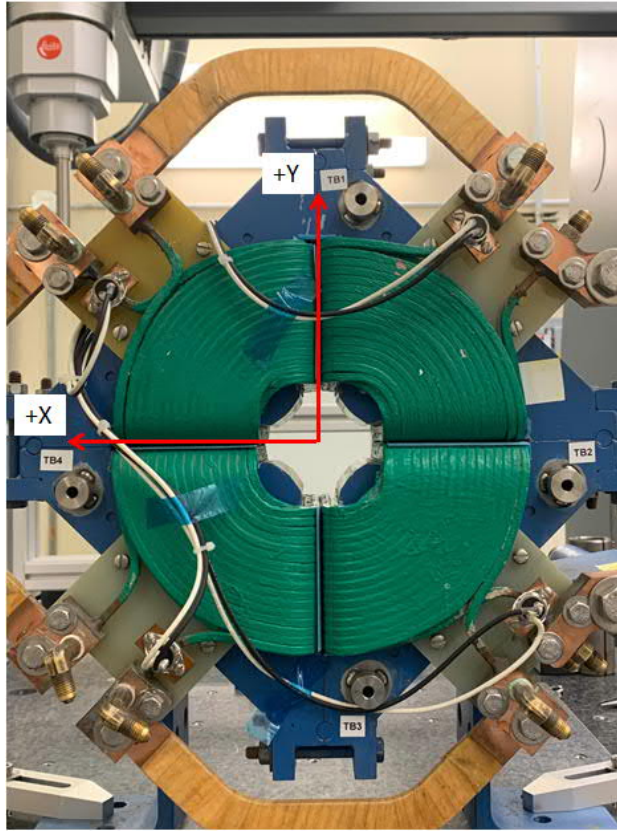
Inspector : K. Caban  
Engineer : J. Amann  
Drawing No. : SA-344-112-08  
Barcode # : 4234  
Mfg. S/N : #08

## 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



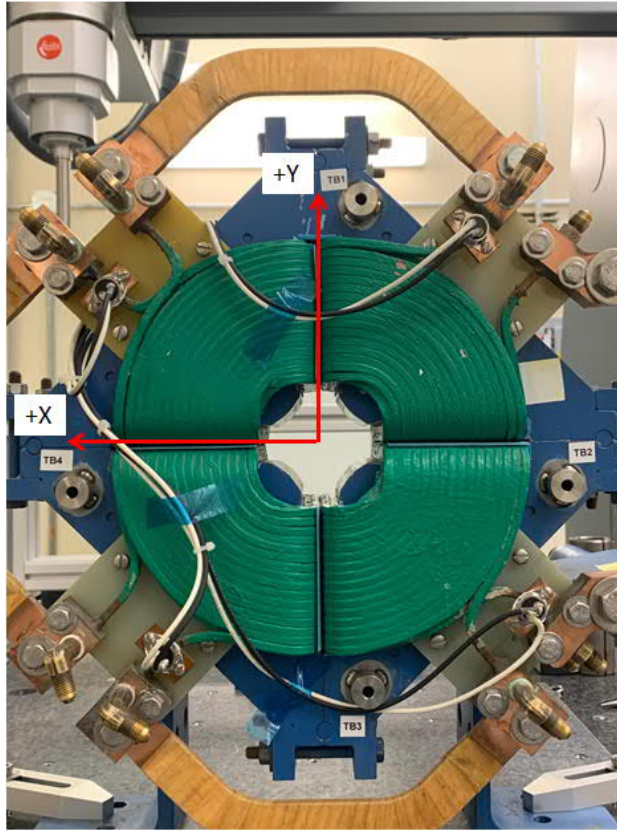
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0027	5.5037	-3.4393
TB 2	-5.5126	-1.0169	-3.4405
TB 3	-1.0046	-5.5002	-3.4419
TB 4	5.5059	-1.0038	-3.4421

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

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## Tooling Ball Locations



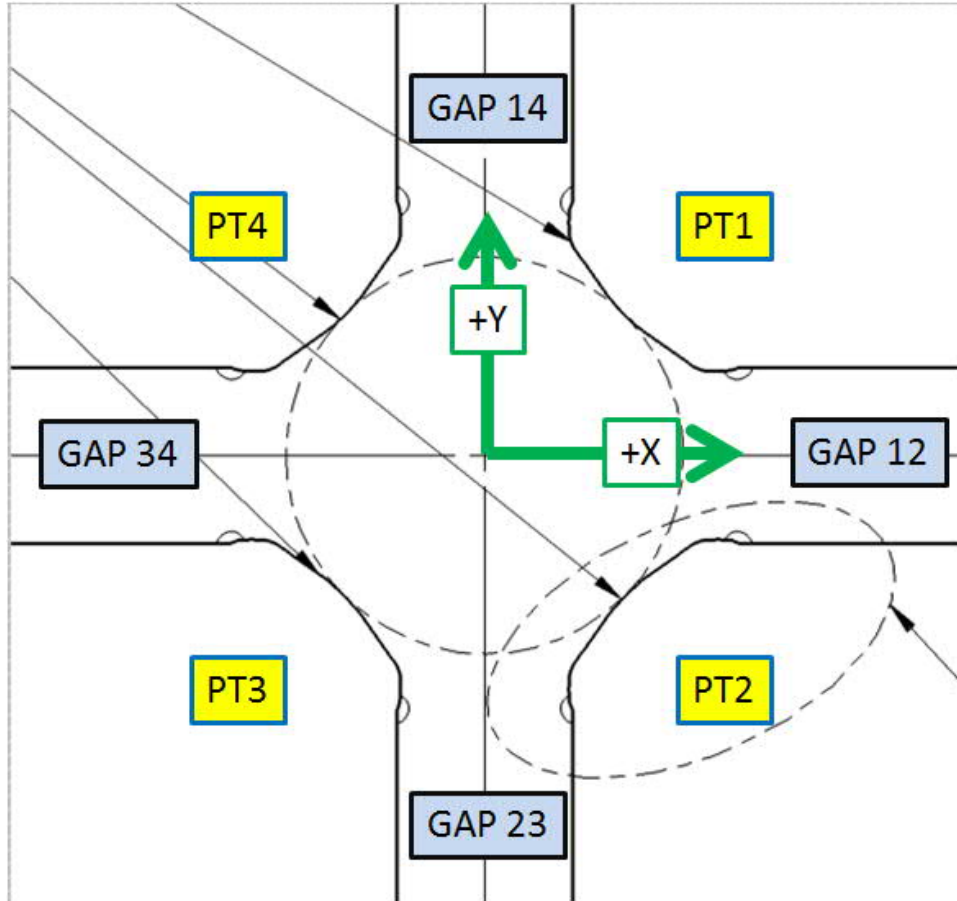
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0020	5.5026	-2.7511
TB 2	-5.5104	-1.0165	-2.7527
TB 3	-1.0042	-5.4993	-2.7529
TB 4	5.5043	-1.0008	-2.7540

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

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## Pole Tip Gap Measurements



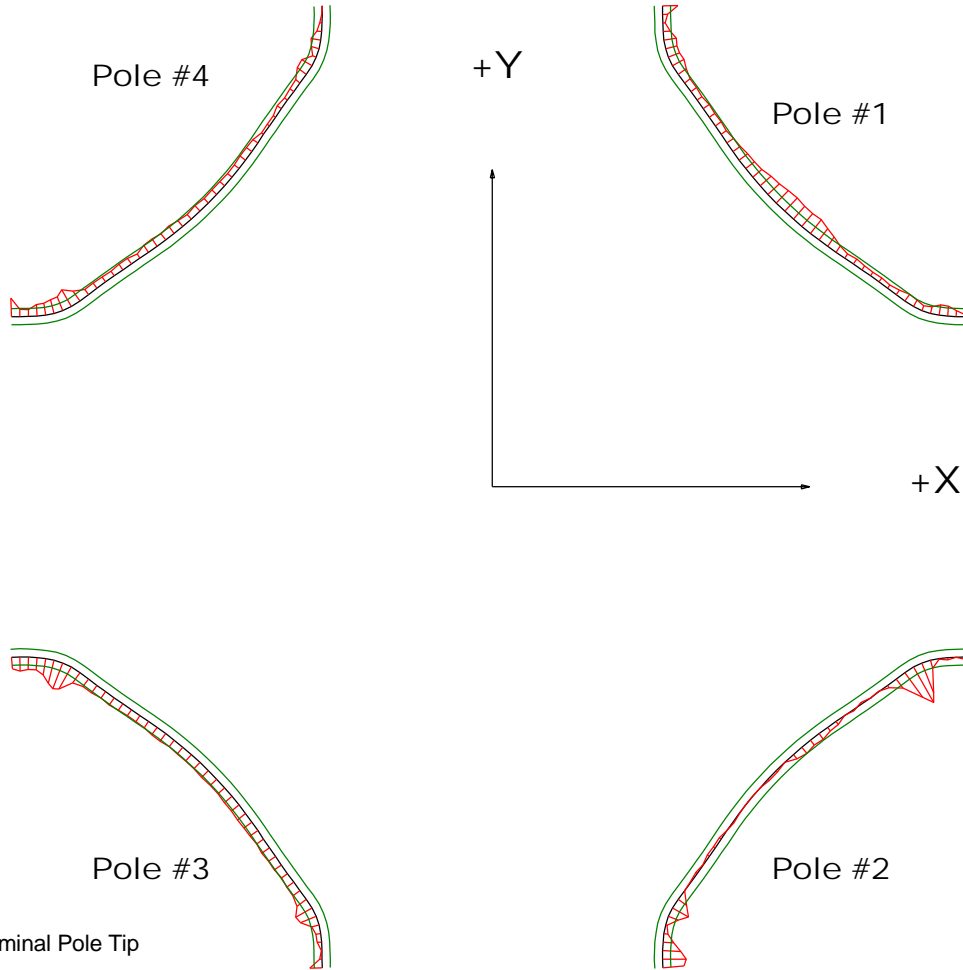
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.0293	2.0275
PT Distance 2-4	2.026	2.0271	2.0272
Gap 1-2	0.8602	0.86	0.8606
Gap 2-3	0.8602	0.8611	0.86
Gap 3-4	0.8602	0.8612	0.8609
Gap 1-4	0.8602	0.8593	0.859

Dimensions in Inch

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## Composite Best-fit of Pole Tips, Downstream



Black = Nominal Pole Tip  
 Red = Pole Tip Deviations  
 Green = +/- .001 Tolerance

Dimensions in Inch

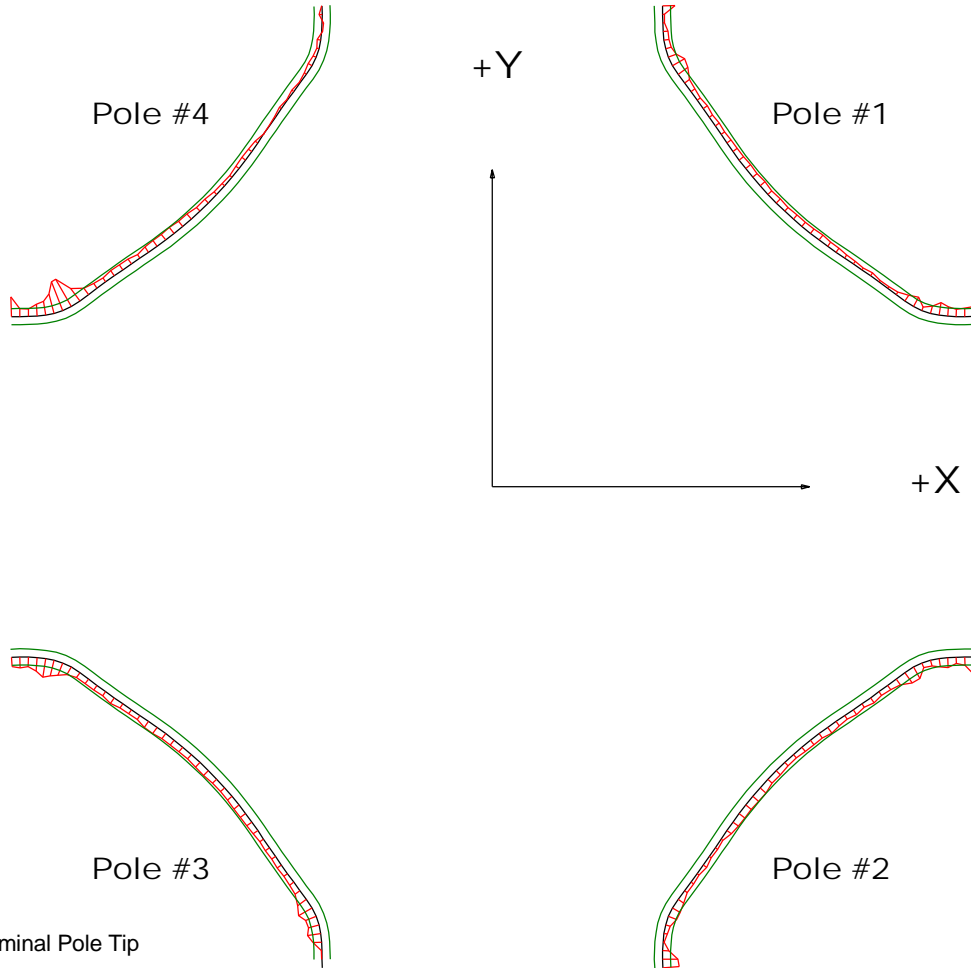
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.0023	-0.0051	-0.0034	-0.0024
Max. Dev.	0	0.0003	-0.0001	0.0001

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## Composite Best-fit of Pole Tips, Upstream



Black = Nominal Pole Tip  
 Red = Pole Tip Deviations  
 Green = +/- .001 Tolerance

Dimensions in Inch

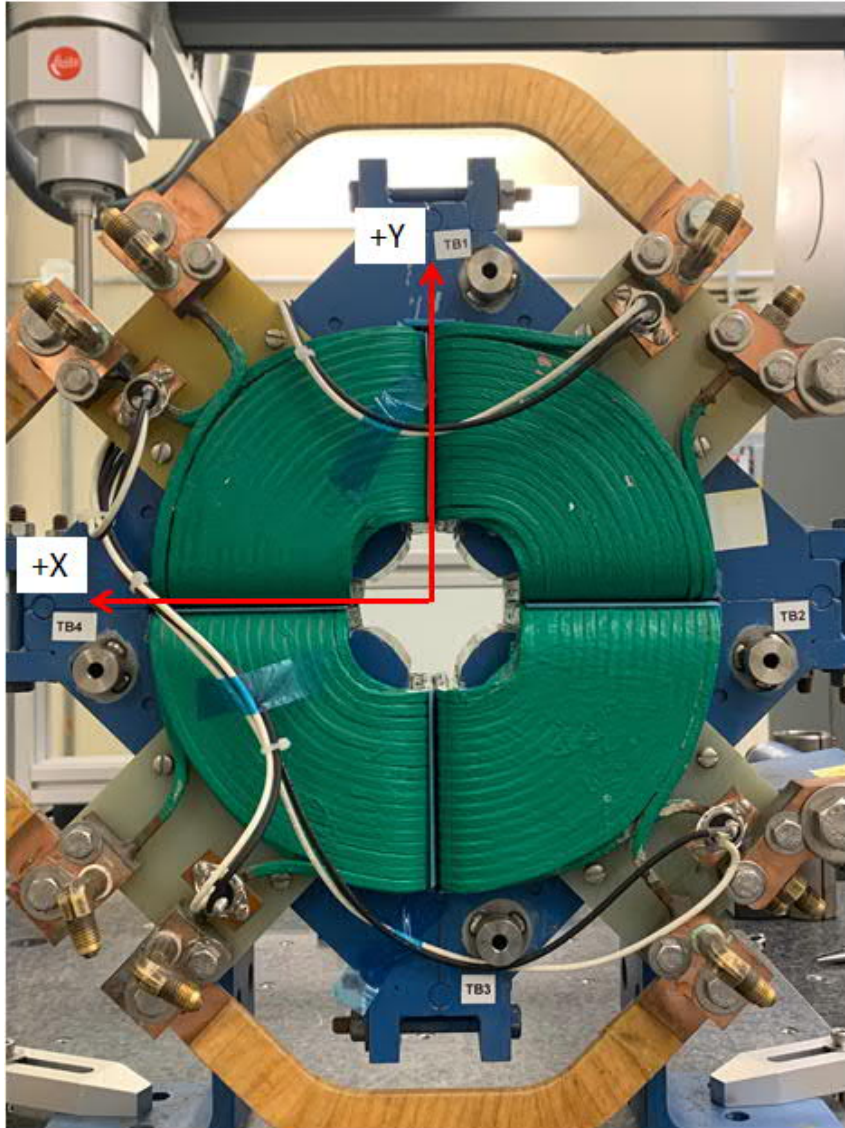
### Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.0018	-0.0022	-0.0024	-0.0039
Max. Dev.	-0.0002	-0.0001	-0.0001	0.0002

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## Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° :