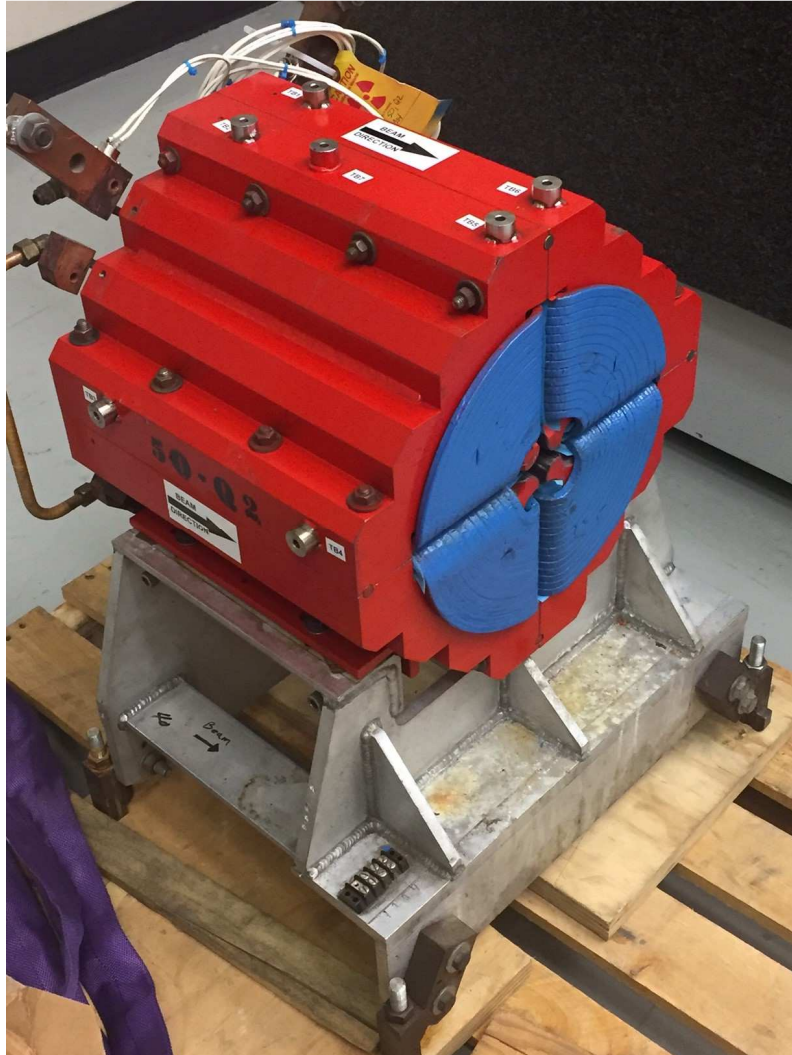


LCLS II 50Q2 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann/K. Grouev
Drawing No. : AD-902-672-00
Barcode # : 4109
Mfg. S/N : 50Q2

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 .100 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.

Planar Alignment

The Planar Alignment of the magnet is created by averaging the rotations of the composite best-fits of the upstream pole tips and downstream pole tips. This direction defines the Y and X directions of the magnet.

Coordinate Origins

The origins of the magnet coordinate system are as follows. The XY origin lies on the axis of spatial alignment. The Z origin is the intersection of the mid-plane between the upstream and downstream magnet faces and the Z axis.

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Tooling Ball Locations



Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	1.2971	8.7369	-3.3738
TB 2	-1.3680	8.7300	-3.3458
TB 3	-8.7293	1.3651	-3.4450
TB 4	-8.7298	1.2255	4.5972
TB 5	-1.0057	8.7278	5.4999
TB 6	1.0635	8.7271	5.2422
TB 7	-1.0567	8.7721	-0.5085

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

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Tooling Ball Locations



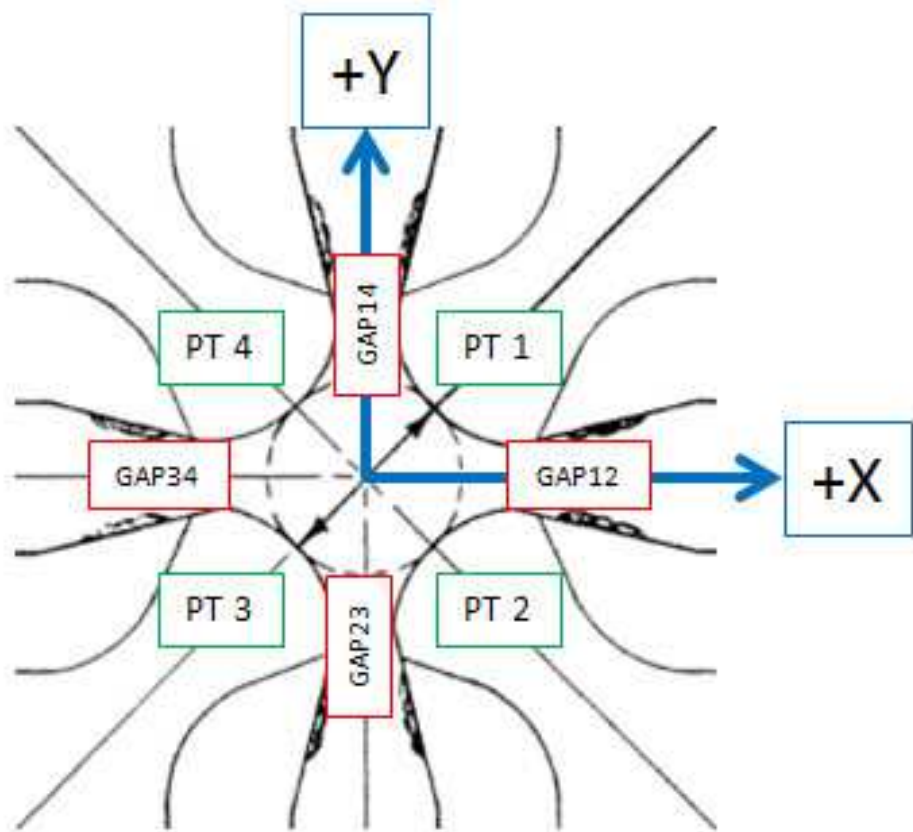
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB A	1.3083	8.0491	-3.3672
TB B	-1.3713	8.0399	-3.3432
TB C	-8.0412	1.3652	-3.4456
TB D	-8.0418	1.2266	4.5979
TB E	-1.0081	8.0392	5.5004
TB F	1.0633	8.0389	5.2411
TB G	-1.0684	8.0838	-0.5215

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

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Pole Tip Gap Measurements



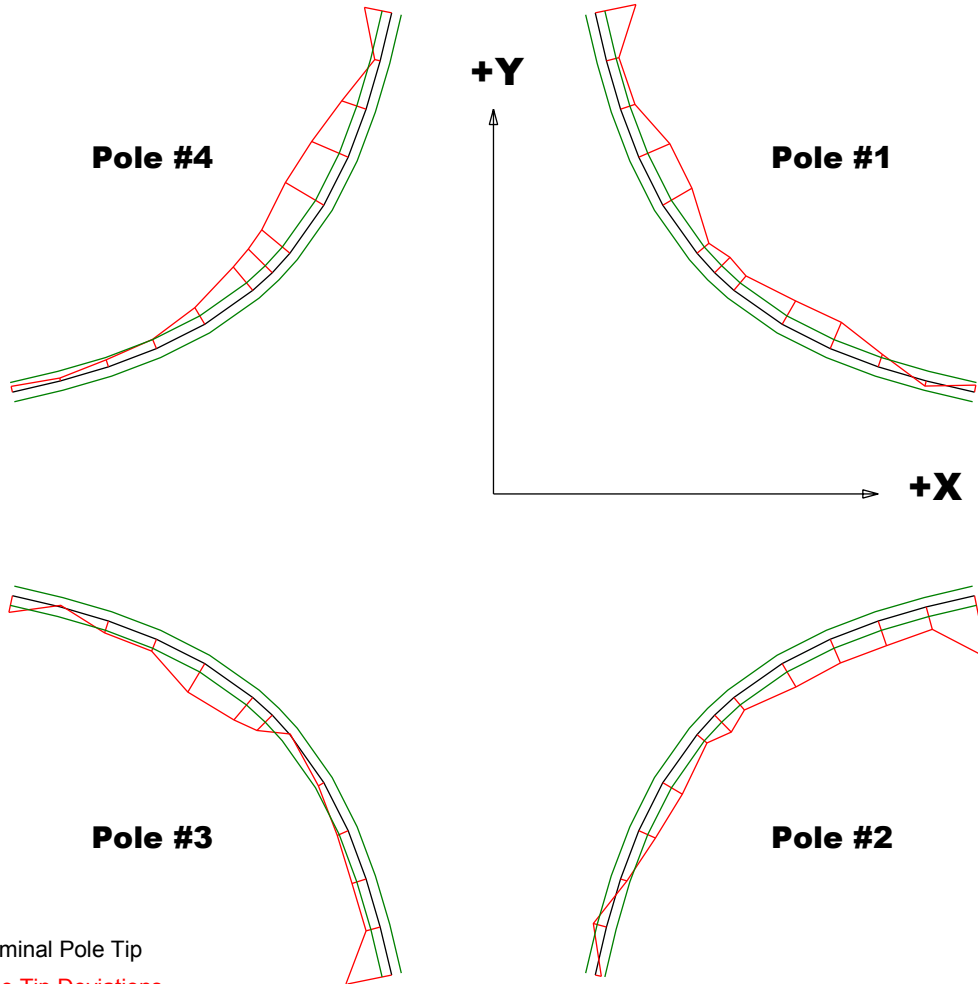
	Nominal Distance	Downstream Pole End	Upstream Pole End
Pole Tip Distance 1-3	0.813	0.81702	0.8164
Pole Tip Distance 2-4	0.813	0.81859	0.81761
Gap 1-2	0.2644	0.26981	0.26454
Gap 2-3	0.2644	0.26938	0.28161
Gap 3-4	0.2644	0.2653	0.26499
Gap 4-1	0.2644	0.27082	0.27688

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

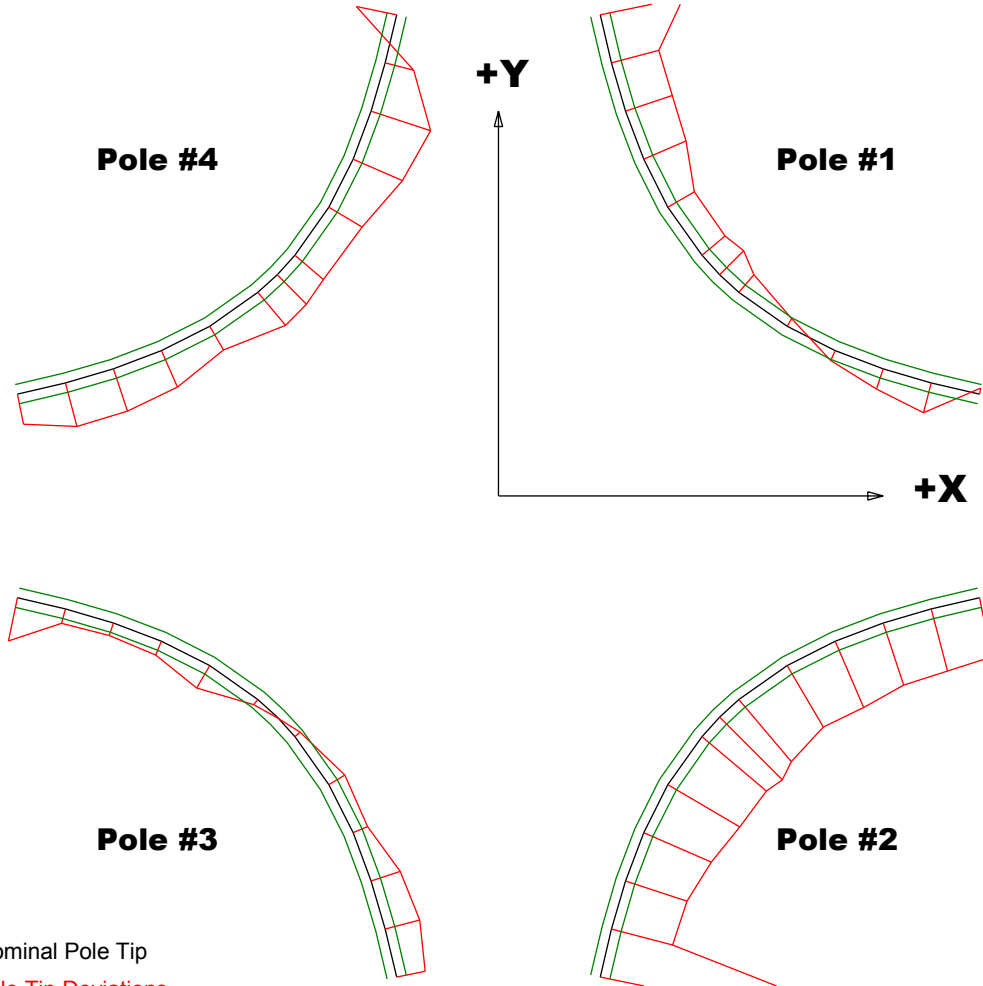
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00424	-0.00649	-0.00478	-0.00457
Max. Dev.	0.00054	0.00141	0.00019	-0.00029

Barcode # : 4109

Mfg. S/N : 50Q2

Composite Best-fit of Pole Tips, Upstream



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

Dimensions in Inch

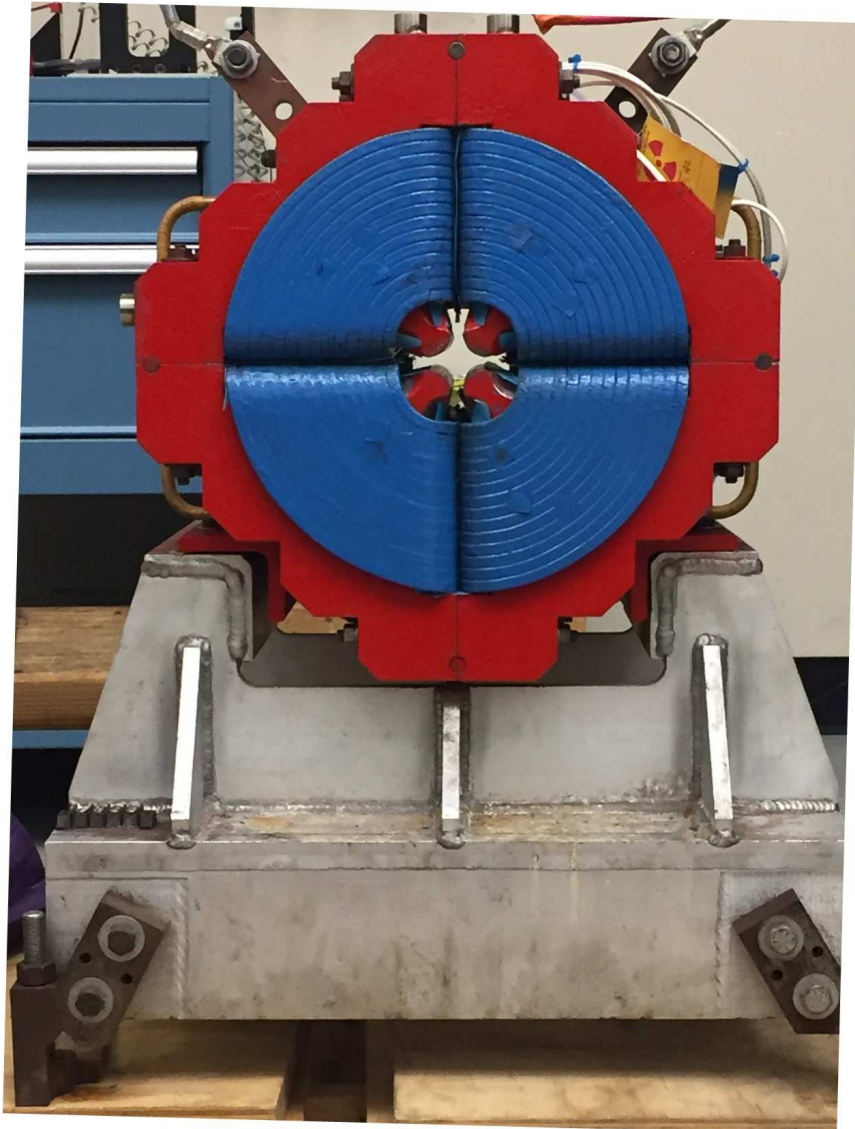
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00866	-0.03307	-0.00451	-0.00421
Max. Dev.	0.00317	-0.00619	0.00363	0.00639

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Angle of the Composite Pole Tip Best-Fit In Relation to Base



Angle in Decimal Degrees ° :0.05507

Angle in Milliradians :0.96116

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