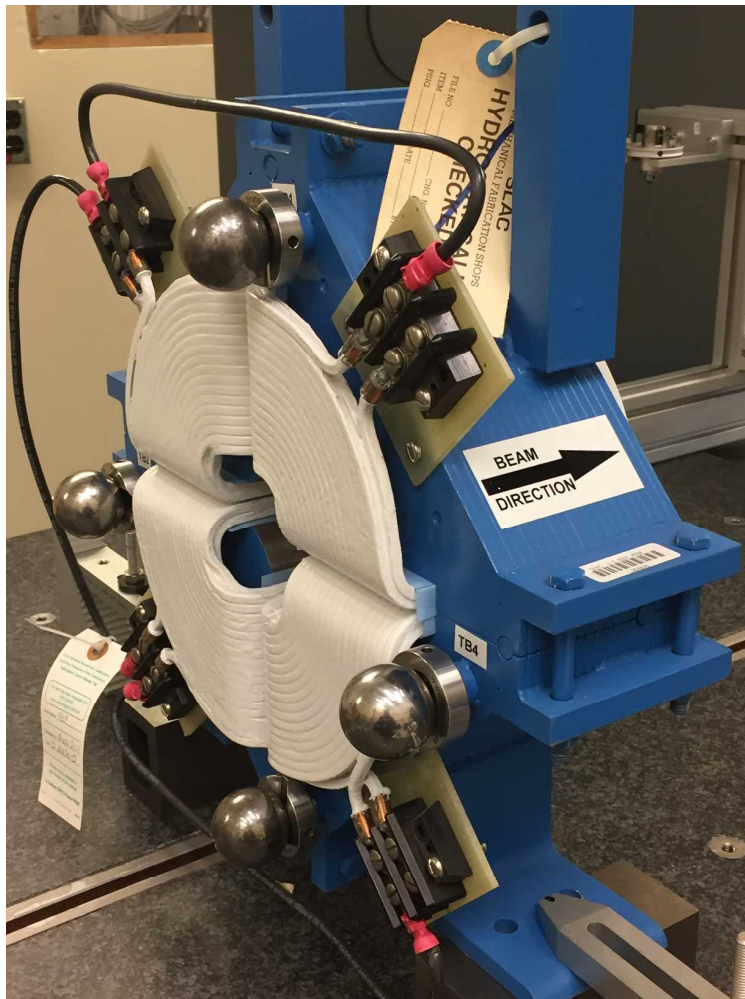


LCLS II 2Q4 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-344-112-01
Barcode # : 4048
Old S/N : P03
Old MAD Element Name :
Old Unit : QF7130

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. The Terminals & Tooling Ball Sockets are UPSTREAM, therefore +Z (DOWNSTREAM) points away from the Terminals & Tooling Ball Sockets.

Planar Alignment

The Planar Alignment of the magnet is the 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.

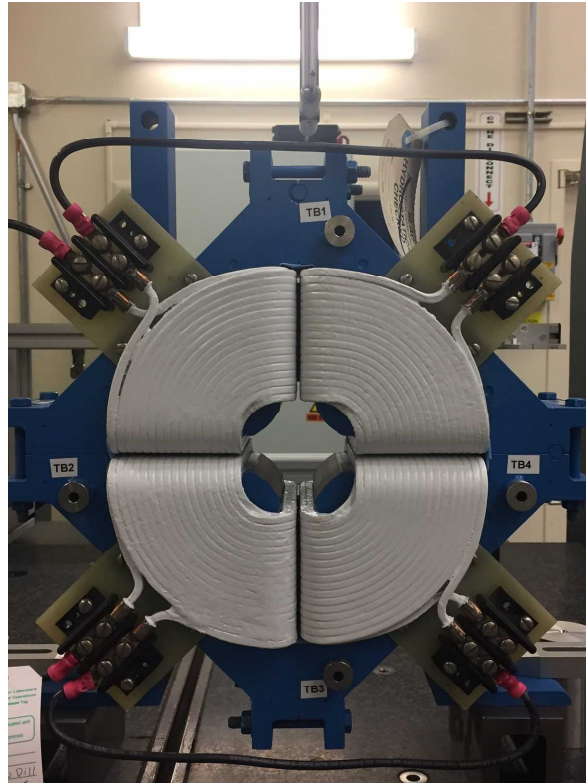
Coordinate Origins

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.

Barcode # : 4048

Mfg. S/N : P03

Tooling Ball Locations



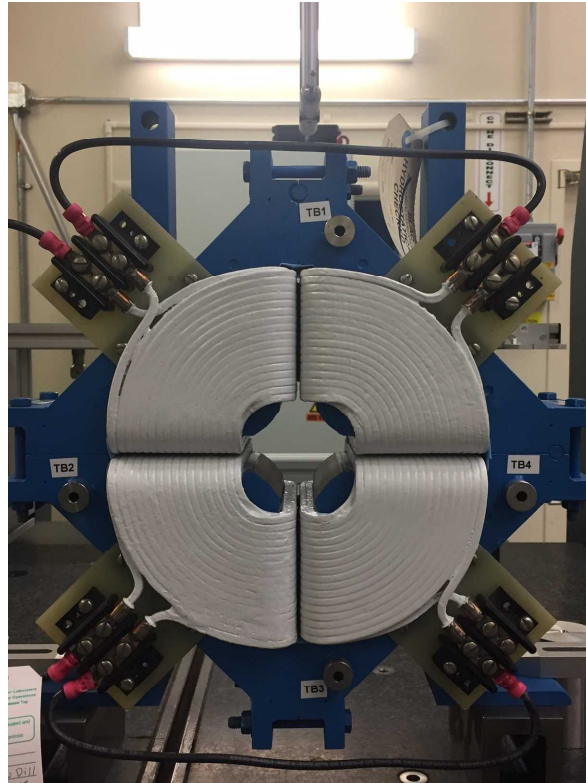
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0042	5.4976	-3.4348
TB 2	5.5002	-0.9999	-3.4414
TB 3	-1.0015	-5.5013	-3.4421
TB 4	-5.5071	-0.9992	-3.4393

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

Barcode # : 4048

Mfg. S/N : P03

Tooling Ball Locations



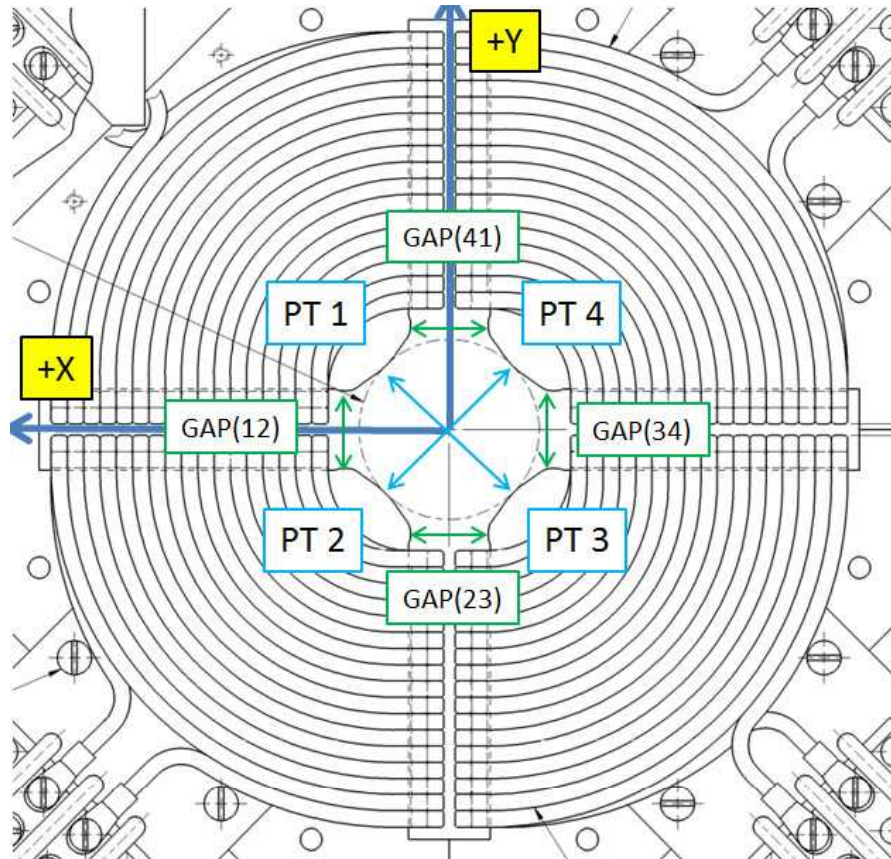
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0046	5.4973	-2.7477
TB 2	5.4999	-0.9993	-2.7544
TB 3	-1.0007	-5.4994	-2.7547
TB 4	-5.5047	-0.9979	-2.7523

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

Barcode # : 4048

Mfg. S/N : P03

Pole Tip Gap Measurements



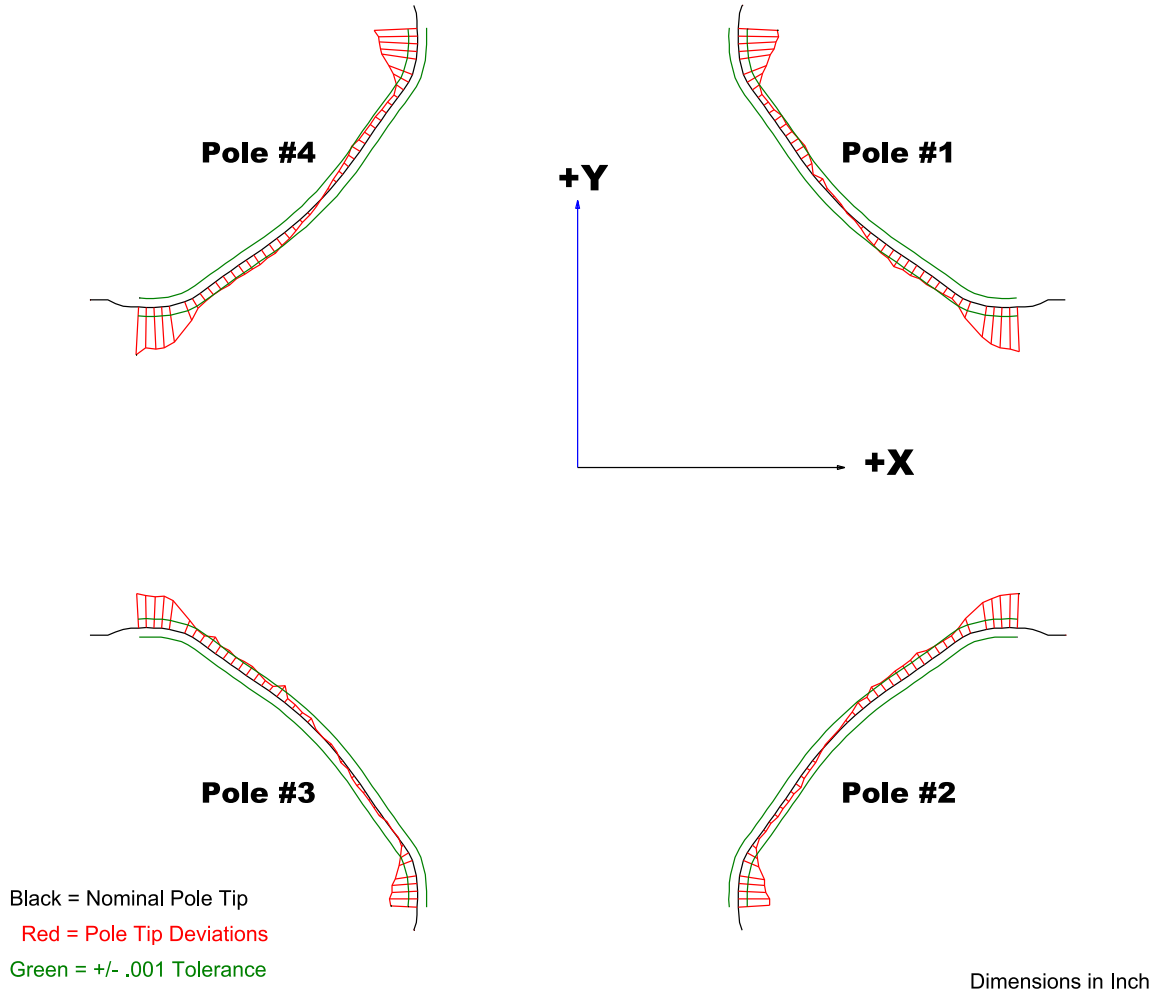
	Nominal Distance	Downstream Pole End	Upstream Pole End
Pole Tip Distance 1-3	2.086 ± .002	2.08605	2.08641
Pole Tip Distance 2-4	2.086 ± .002	2.08568	2.08563
Gap 1-2	0.900	0.8922	0.89444
Gap 2-3	0.900	0.90614	0.90683
Gap 3-4	0.900	0.89249	0.89521
Gap 4-1	0.900	0.90922	0.90738

Barcode # : 4048

Dimensions in Inch

Mfg. S/N : P03

Composite Best-fit of Pole Tips, Downstream



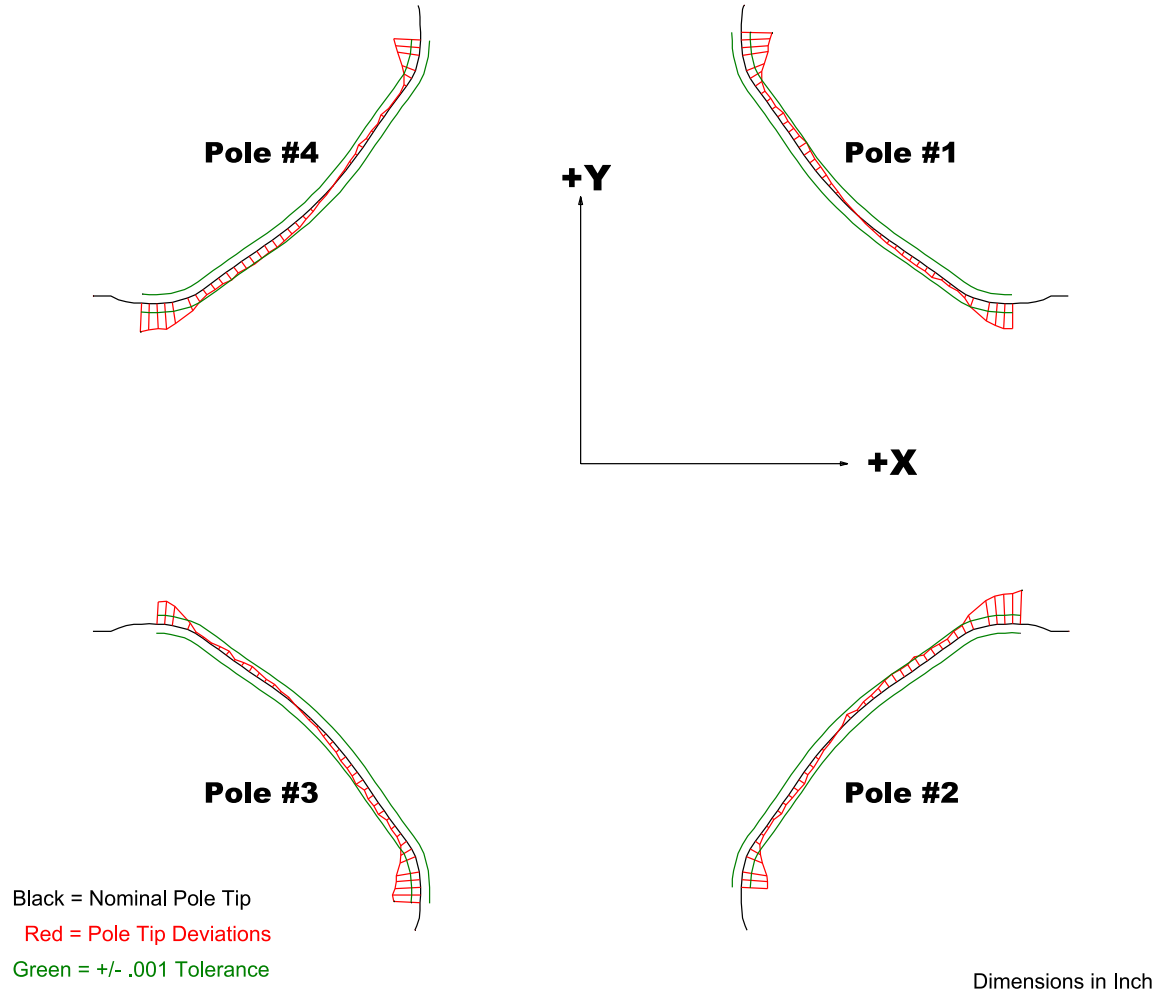
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00496	-0.00385	-0.00383	-0.00527
Max. Dev.	0.0045	0.00352	0.00309	0.00476

Barcode # : 4048

Mfg. S/N : P03

Composite Best-fit of Pole Tips, Upstream



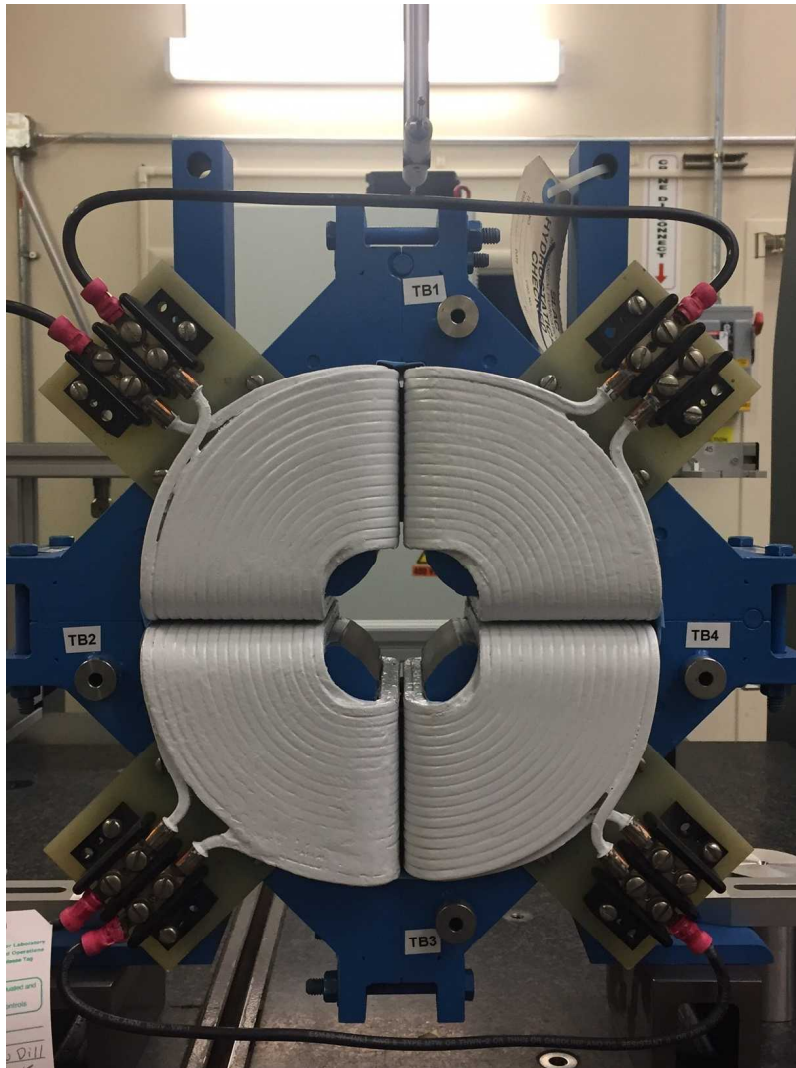
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00279	-0.00373	-0.0026	-0.00318
Max. Dev.	0.00343	0.00294	0.00315	0.00298

Barcode # : 4048

Mfg. S/N : P03

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



Angle in Decimal Degrees ° :-0.01592

Angle in Milliradians :-0.27792

Barcode # : 4048

Mfg. S/N : P03