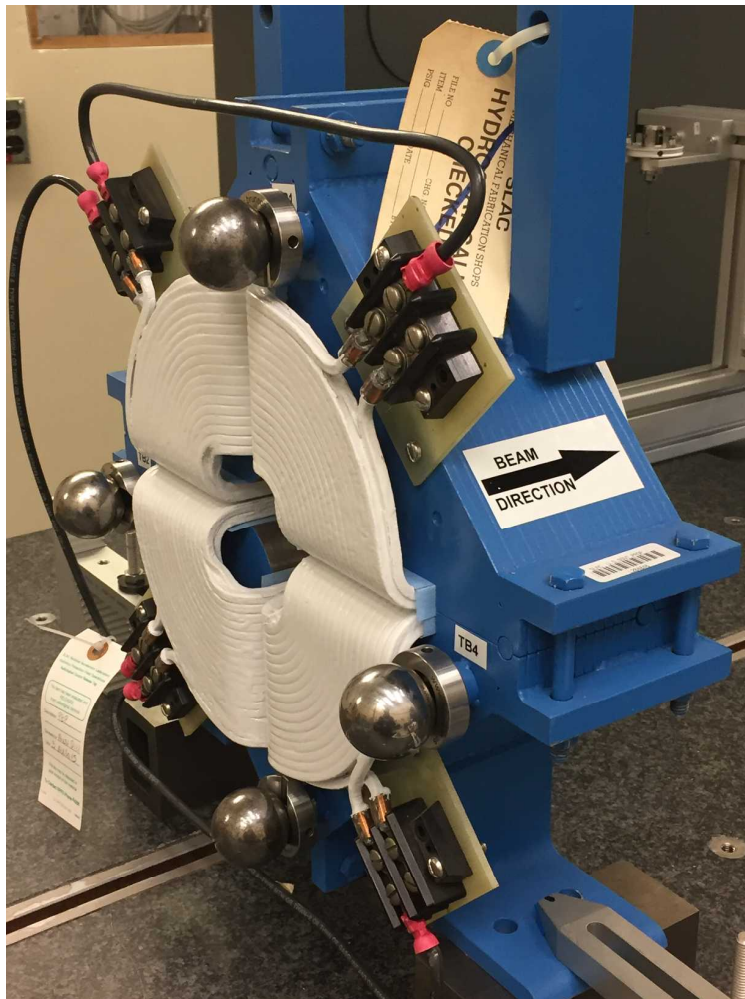


LCLS II 2Q4 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-344-112-01
Barcode # : 4052
Old S/N : P02
Old MAD Element Name : LX05QU8
Old Unit : QD6830

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.

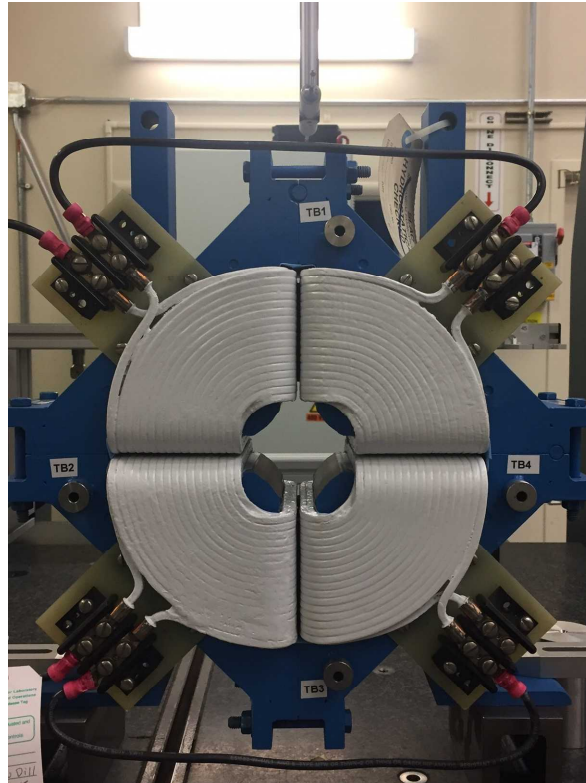
Coordinate Origins

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 # : 4052

Mfg. S/N : P02

Tooling Ball Locations



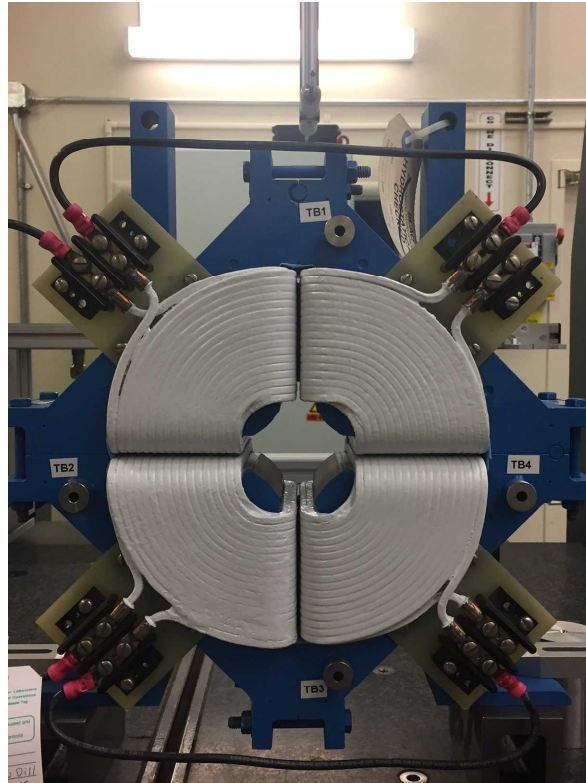
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0085	5.4972	-3.4390
TB 2	5.5069	-0.9902	-3.4395
TB 3	-0.9935	-5.5054	-3.4464
TB 4	-5.5044	-1.0103	-3.4405

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

Barcode # : 4052

Mfg. S/N : P02

Tooling Ball Locations



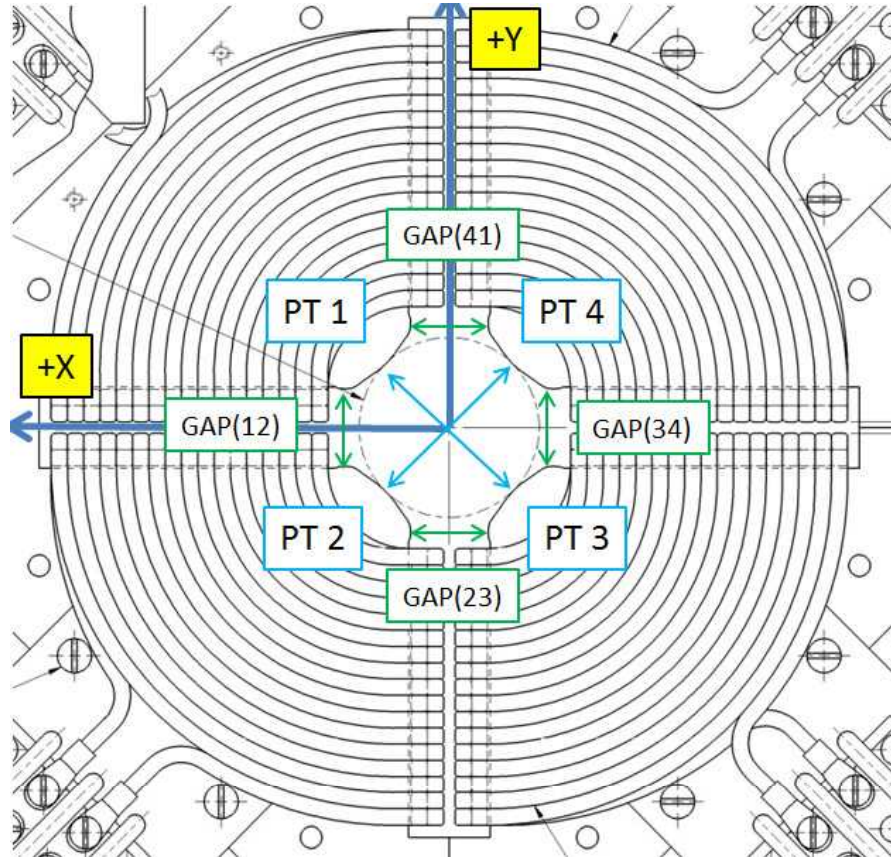
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0061	5.4979	-2.7515
TB 2	5.5061	-0.9894	-2.7510
TB 3	-0.9948	-5.5008	-2.7587
TB 4	-5.5028	-1.0062	-2.7524

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

Barcode # : 4052

Mfg. S/N : P02

Pole Tip Gap Measurements



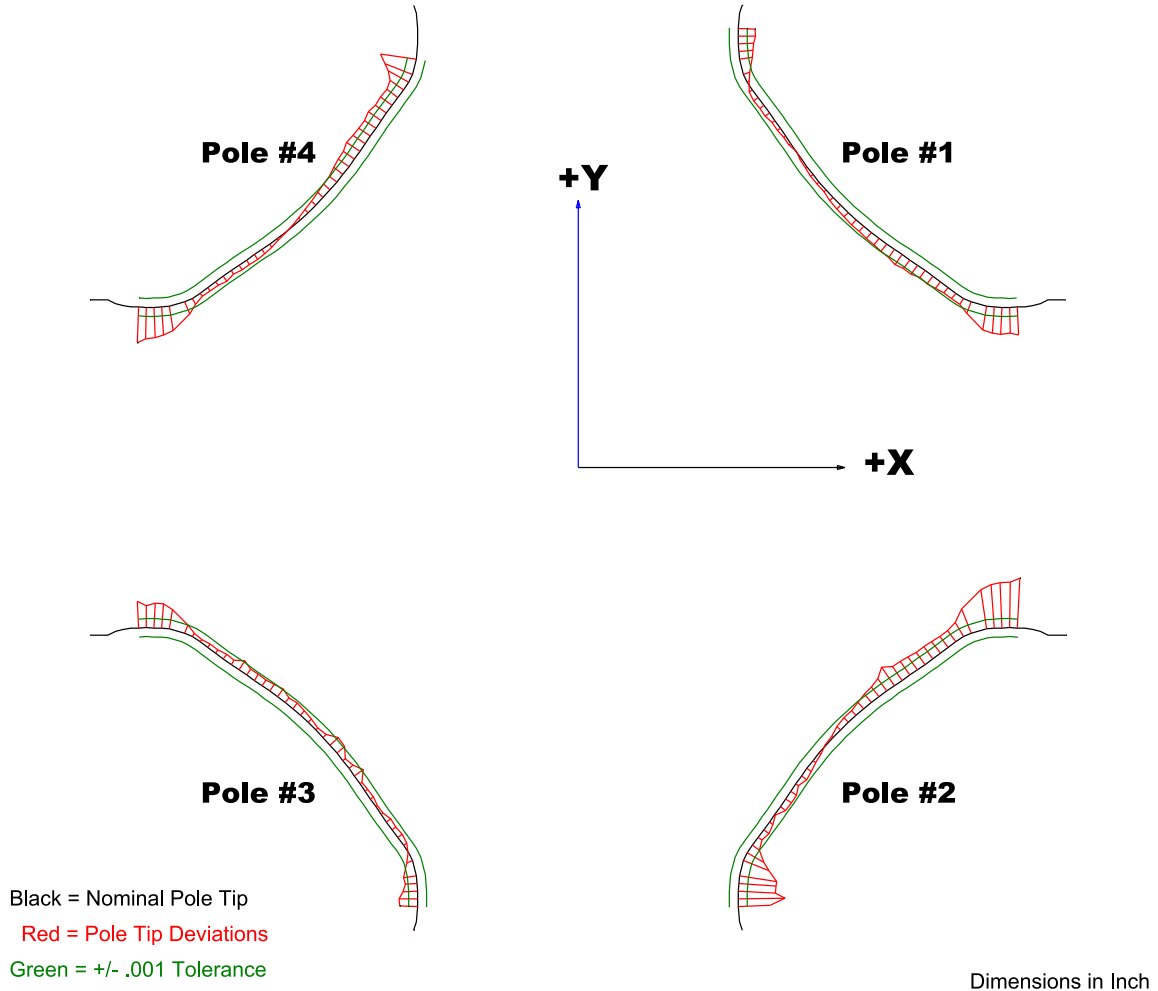
	Nominal Distance	Downstream Pole End	Upstream Pole End
Pole Tip Distance 1-3	2.086 ± .002	2.08507	2.08715
Pole Tip Distance 2-4	2.086 ± .002	2.08605	2.08595
Gap 1-2	0.900	0.89271	0.89563
Gap 2-3	0.900	0.90691	0.90575
Gap 3-4	0.900	0.89438	0.89632
Gap 4-1	0.900	0.78854	0.90567

Barcode # : 4052

Dimensions in Inch

Mfg. S/N : P02

Composite Best-fit of Pole Tips, Downstream



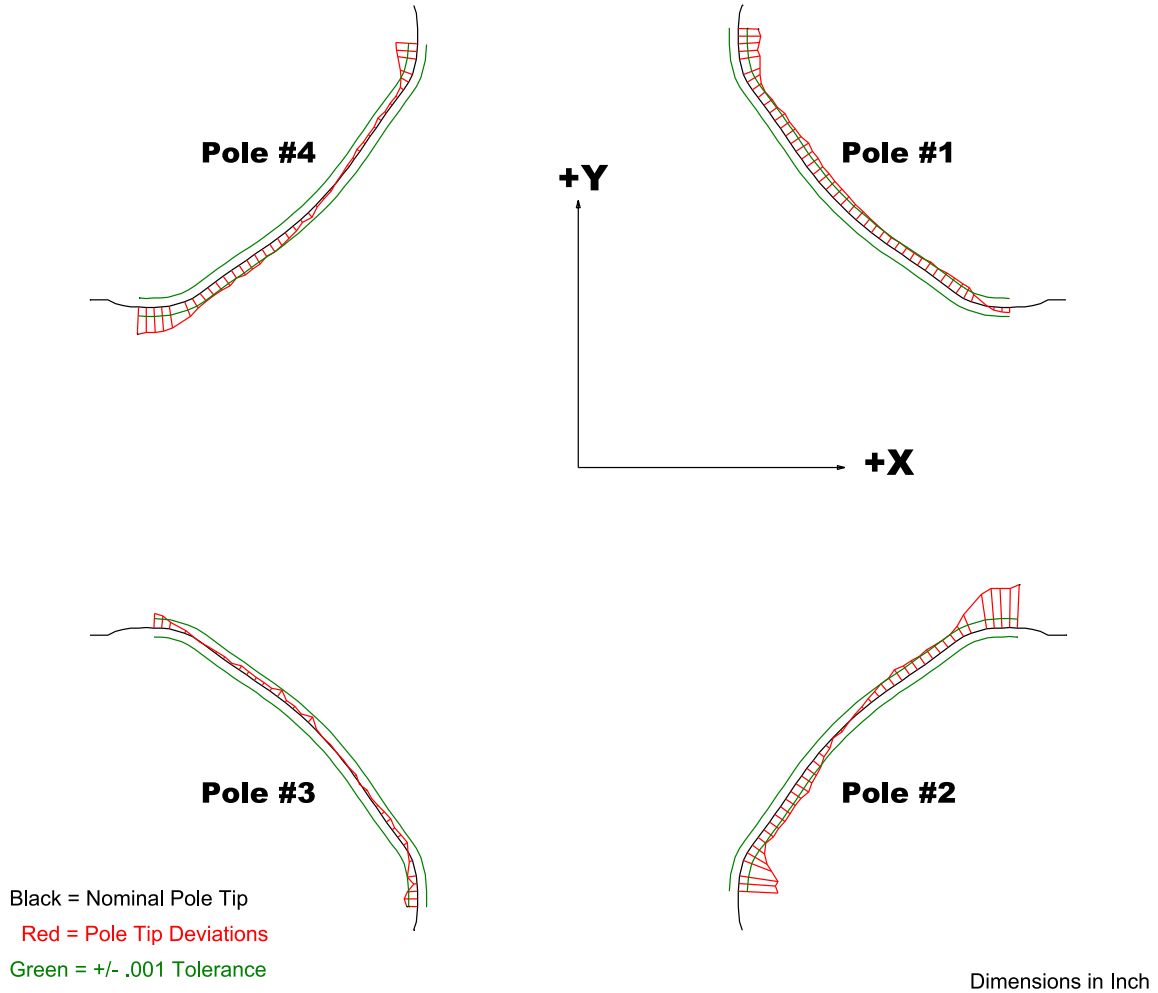
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00307	-0.00555	-0.00297	-0.00395
Max. Dev.	0.00191	0.0052	0.00207	0.00405

Barcode # : 4052

Mfg. S/N : P02

Composite Best-fit of Pole Tips, Upstream



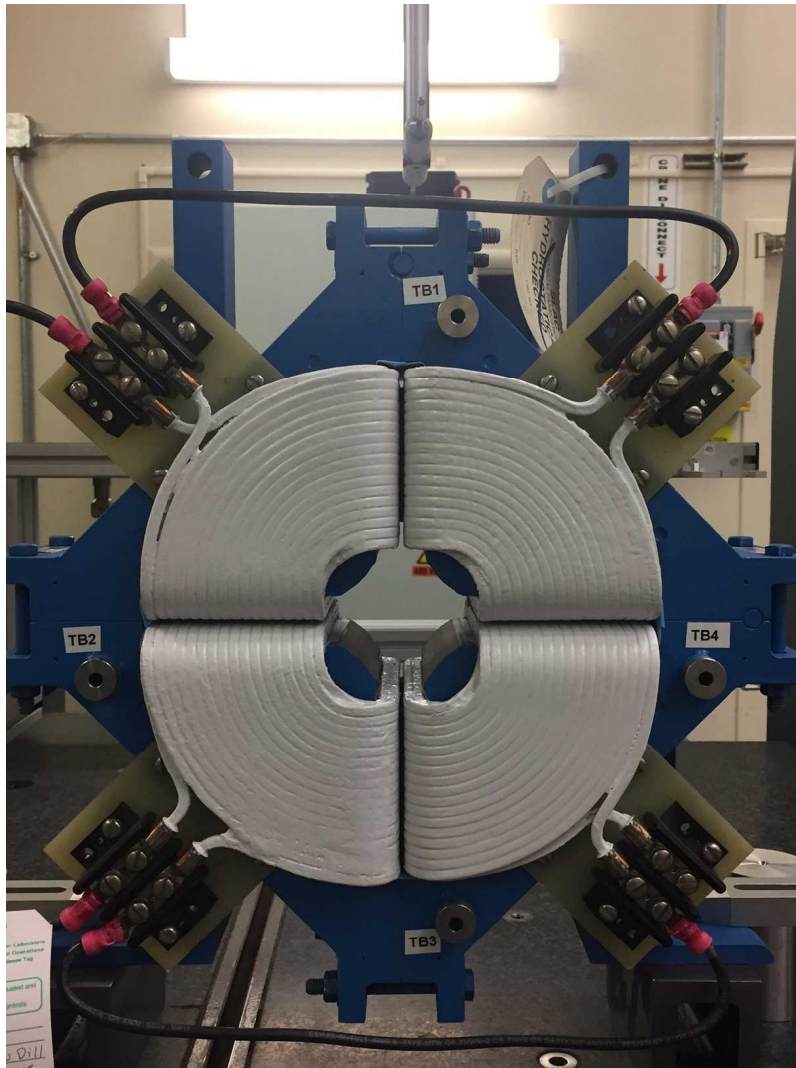
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00059	-0.00481	-0.00157	-0.00301
Max. Dev.	0.00249	0.00438	0.00148	0.00238

Barcode # : 4052

Mfg. S/N : P02

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



Angle in Decimal Degrees $^{\circ}$:-0.11317

Angle in Milliradians :-1.97523

Barcode # : 4052

Mfg. S/N : P02