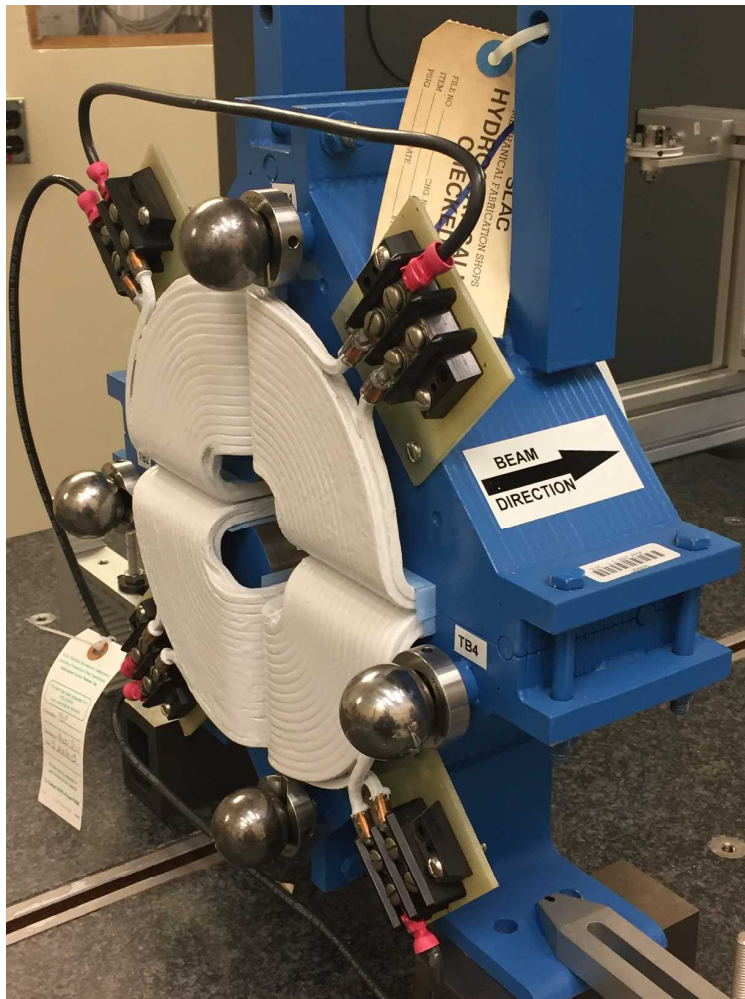


LCLS II 2Q4 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-344-112-01
Barcode # : 4044
Old S/N : P21
Old MAD Element Name :
Old Unit : Q07430

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.

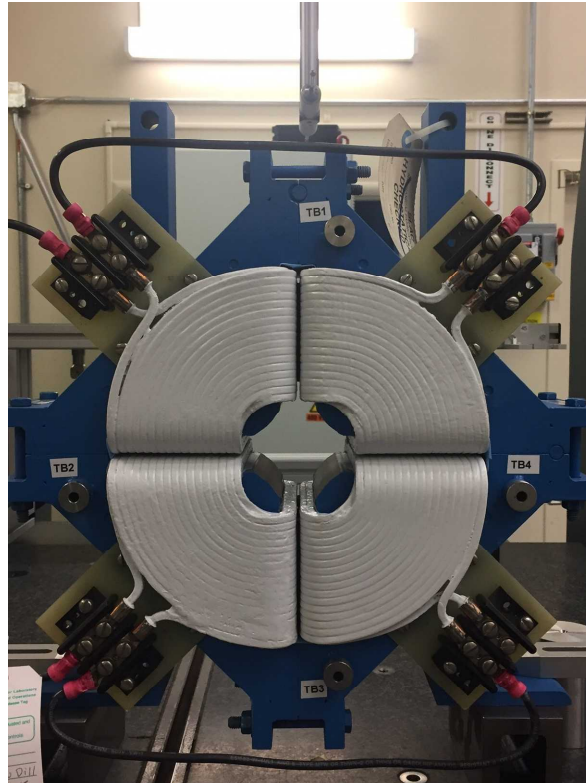
Coordinate Origins

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 # : 4044

Mfg. S/N : P21

Tooling Ball Locations



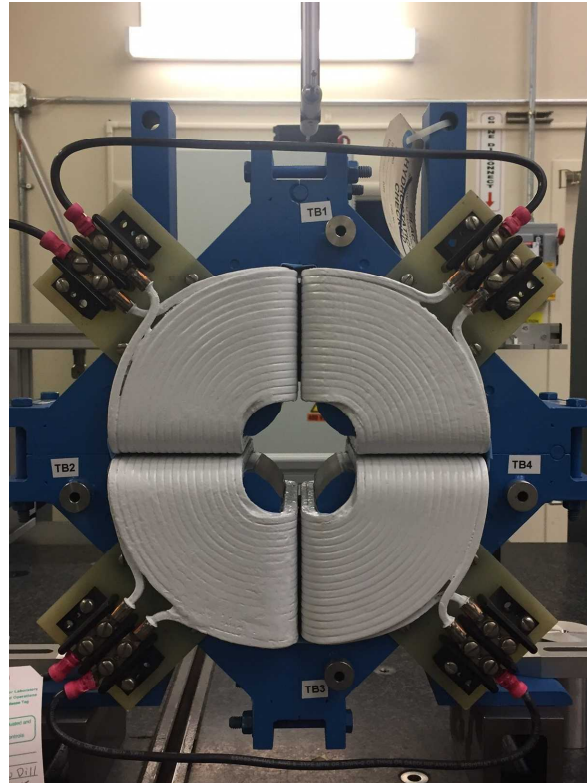
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0016	5.4929	-3.4363
TB 2	5.5012	-1.0032	-3.4323
TB 3	-0.9959	-5.5027	-3.4324
TB 4	-5.5002	-1.0057	-3.4357

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

Barcode # : 4044

Mfg. S/N : P21

Tooling Ball Locations



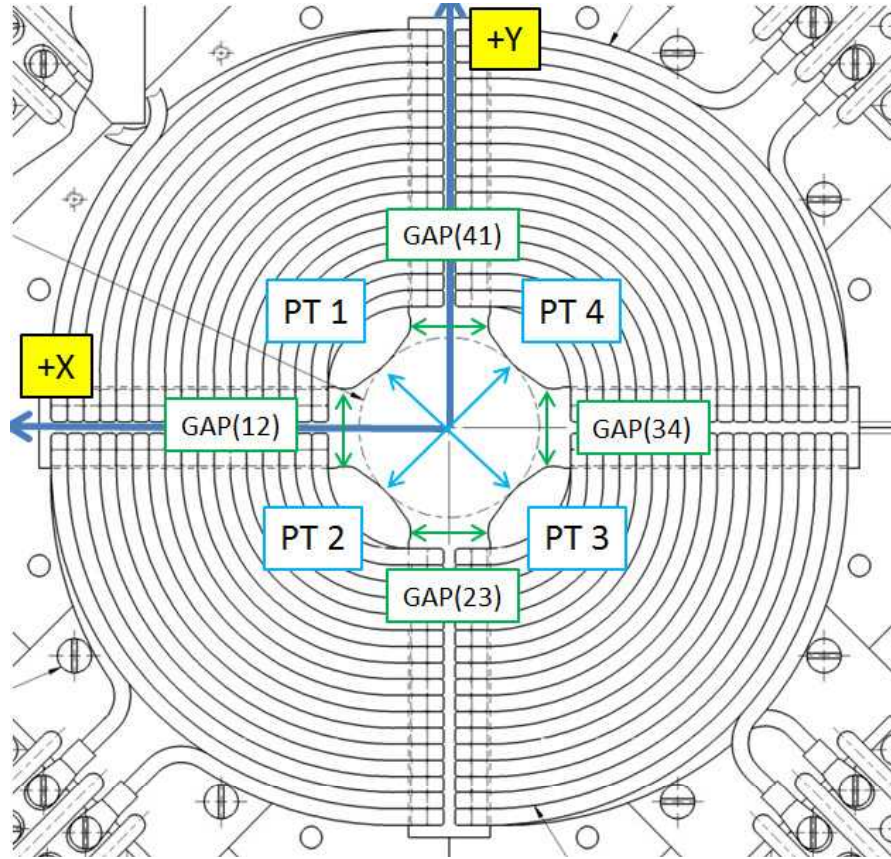
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0014	5.4964	-2.7489
TB 2	5.5027	-1.0014	-2.7444
TB 3	-0.9972	-5.4988	-2.7448
TB 4	-5.5009	-1.0021	-2.7481

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

Barcode # : 4044

Mfg. S/N : P21

Pole Tip Gap Measurements



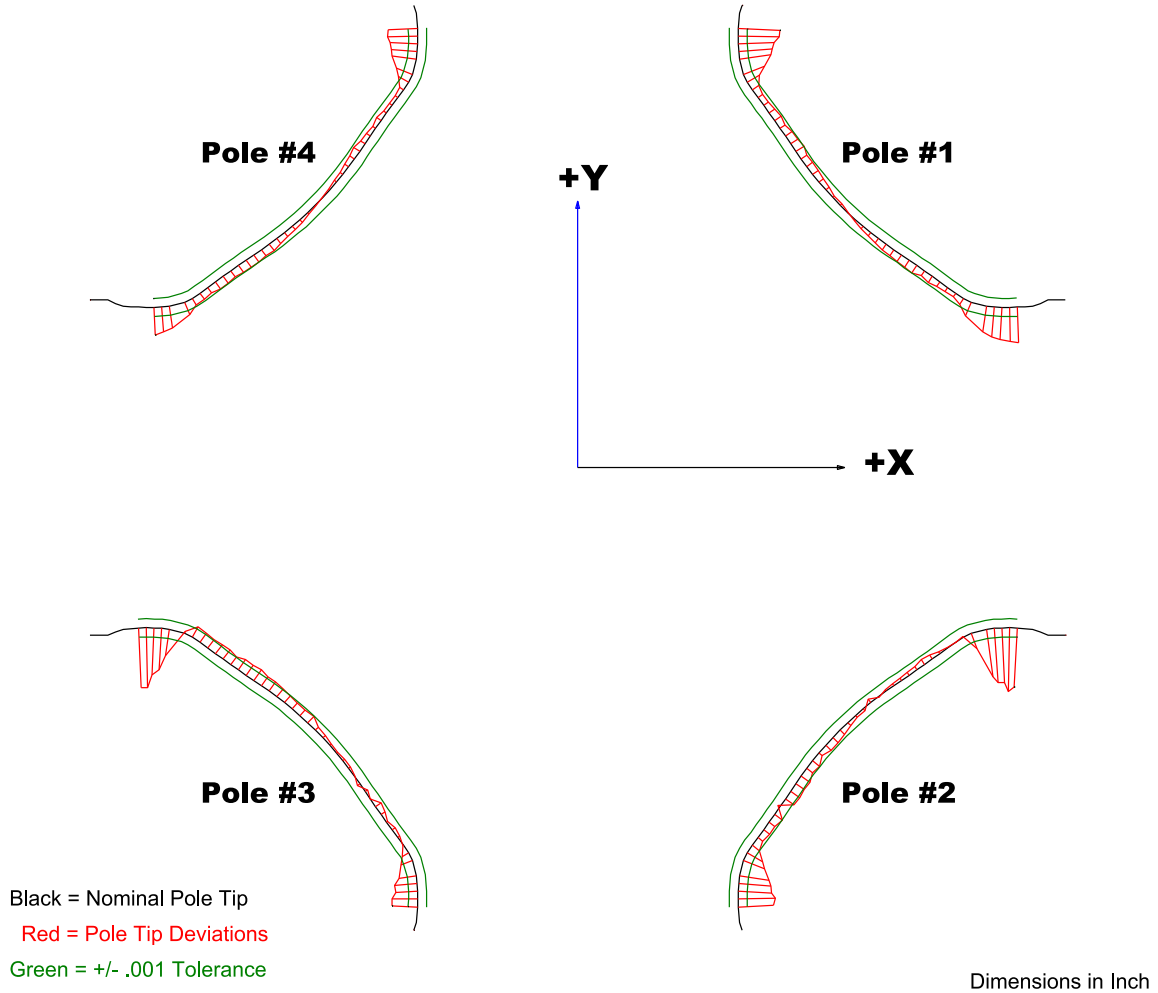
	Nominal Distance	Downstream Pole End	Upstream Pole End
Pole Tip Distance 1-3	2.086 ± .002	2.0857	2.08451
Pole Tip Distance 2-4	2.086 ± .002	2.08659	2.08663
Gap 1-2	0.900	0.90343	0.8938
Gap 2-3	0.900	0.90736	0.90636
Gap 3-4	0.900	0.90335	0.89507
Gap 4-1	0.900	0.90834	0.90782

Barcode # : 4044

Dimensions in Inch

Mfg. S/N : P21

Composite Best-fit of Pole Tips, Downstream



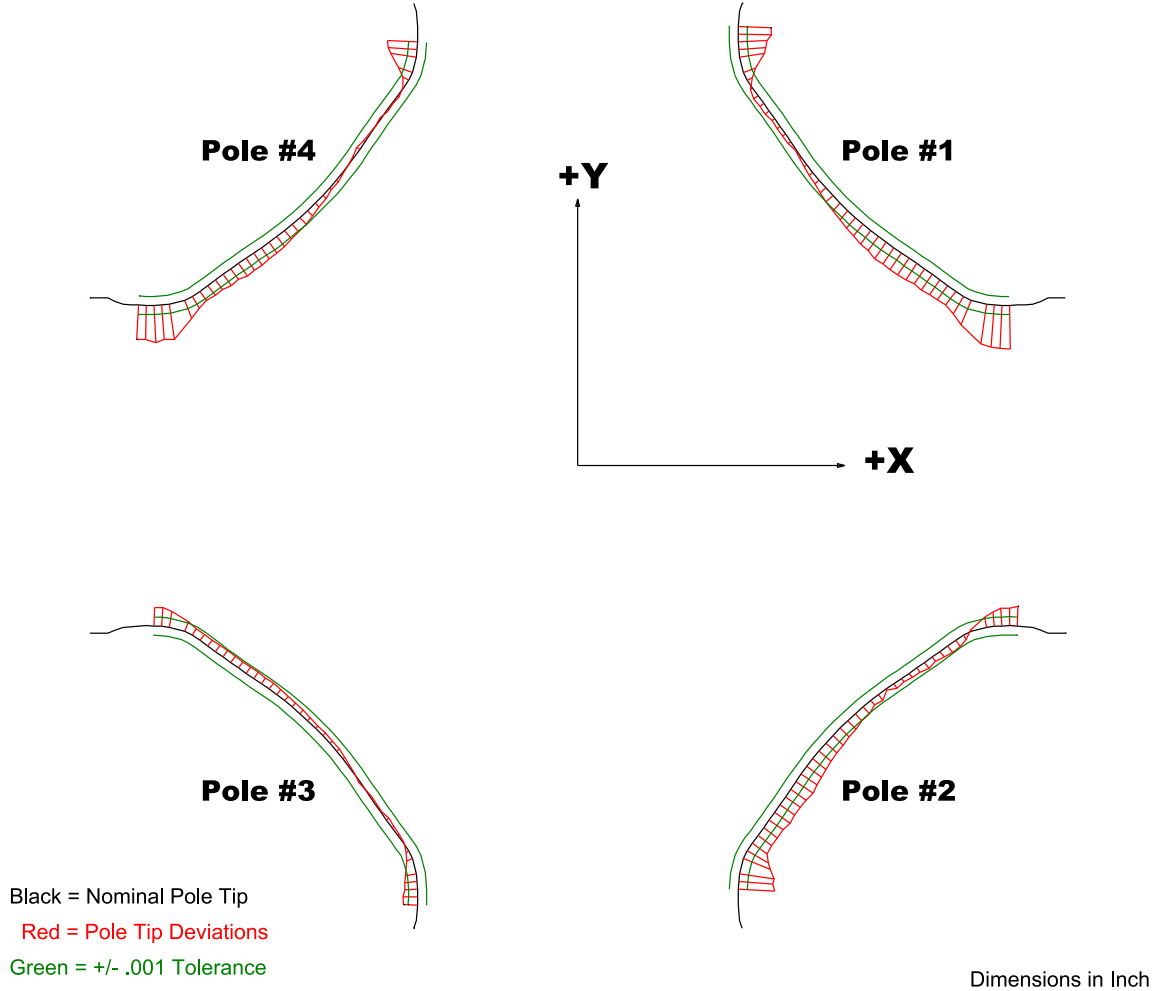
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00394	-0.00067	-0.00143	-0.00304
Max. Dev.	0.00459	0.00701	0.00663	0.00337

Barcode # : 4044

Mfg. S/N : P21

Composite Best-fit of Pole Tips, Upstream



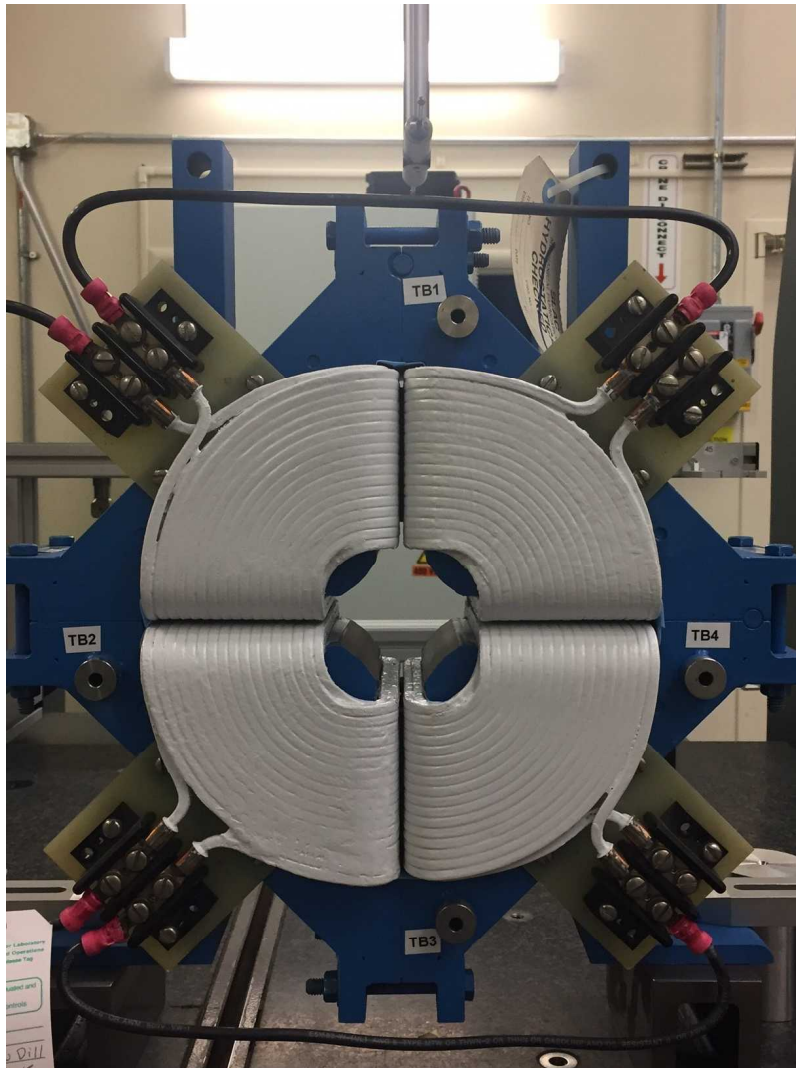
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00481	-0.00222	-0.00209	-0.00411
Max. Dev.	0.00372	0.00408	0.00161	0.00336

Barcode # : 4044

Mfg. S/N : P21

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



Angle in Decimal Degrees ° :0.01992

Angle in Milliradians :0.34761

Barcode # : 4044

Mfg. S/N : P21