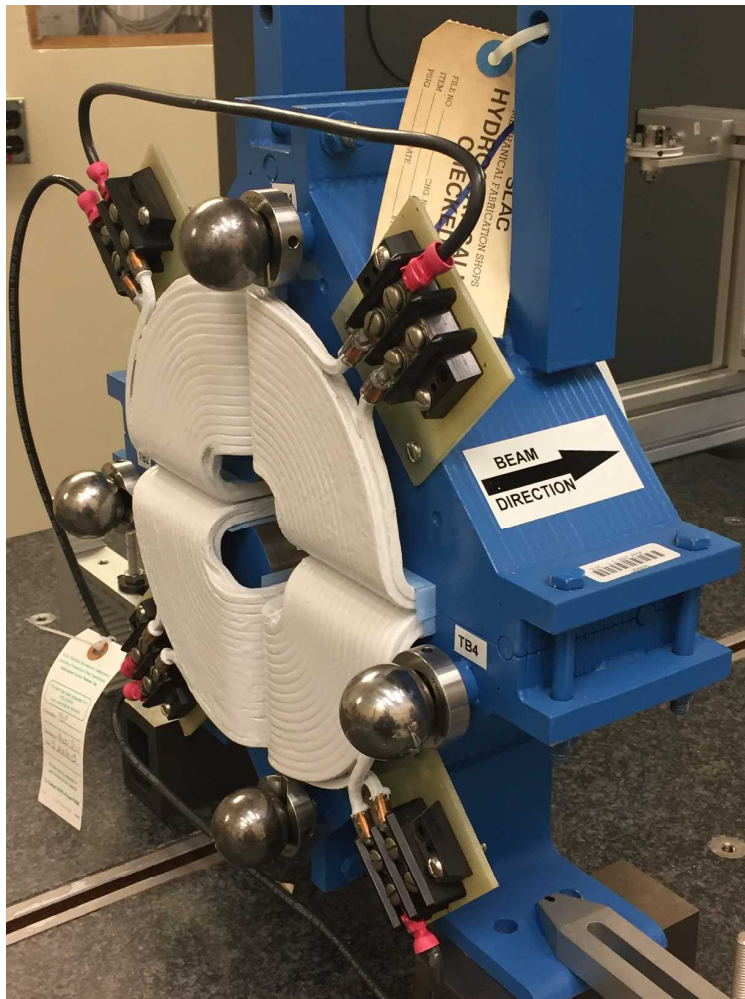


LCLS II 2Q4 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-344-112-01
Barcode # : 4043
Old S/N : P10
Old MAD Element Name : QF7330
Old Unit : 2.086Q3.88

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.

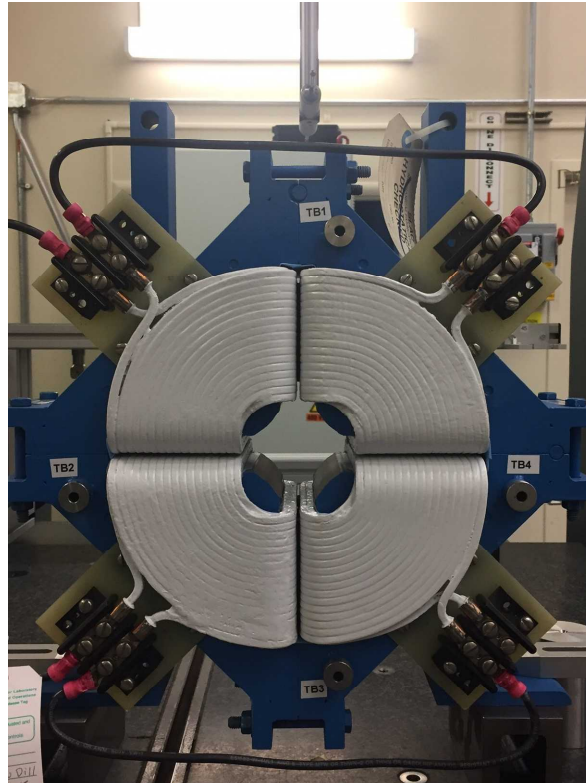
Coordinate Origins

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 # : 4043

Mfg. S/N : P10

Tooling Ball Locations



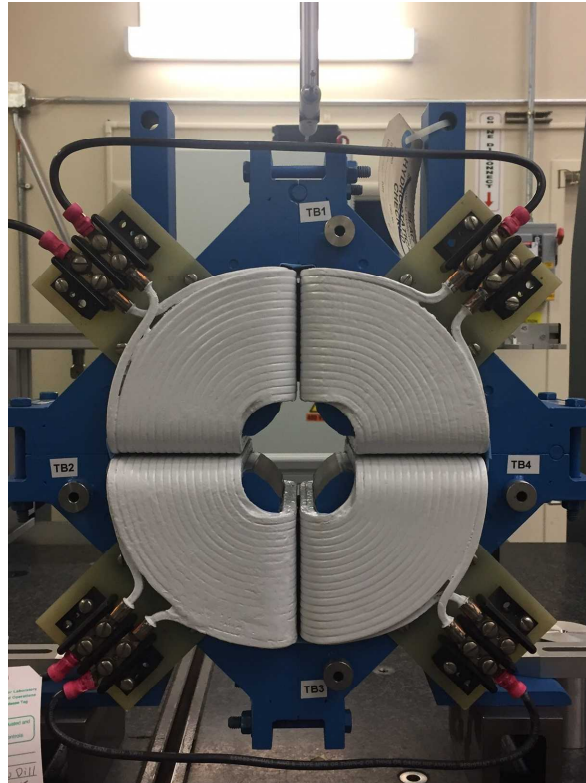
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0020	5.4948	-3.4348
TB 2	5.5080	-0.9998	-3.4284
TB 3	-0.9999	-5.4999	-3.4338
TB 4	-5.5058	-1.0052	-3.4307

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

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Tooling Ball Locations



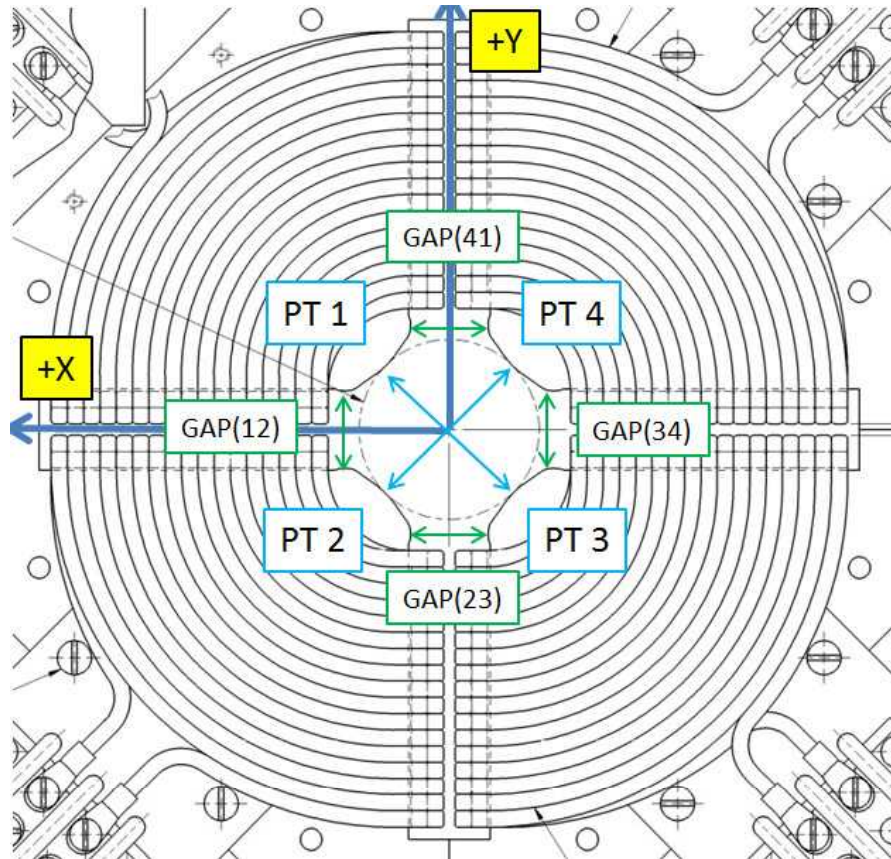
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0031	5.4952	-2.7471
TB 2	5.5057	-0.9981	-2.7407
TB 3	-1.0007	-5.4989	-2.7466
TB 4	-5.5061	-1.0046	-2.7438

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

Barcode # : 4043

Mfg. S/N : P10

Pole Tip Gap Measurements



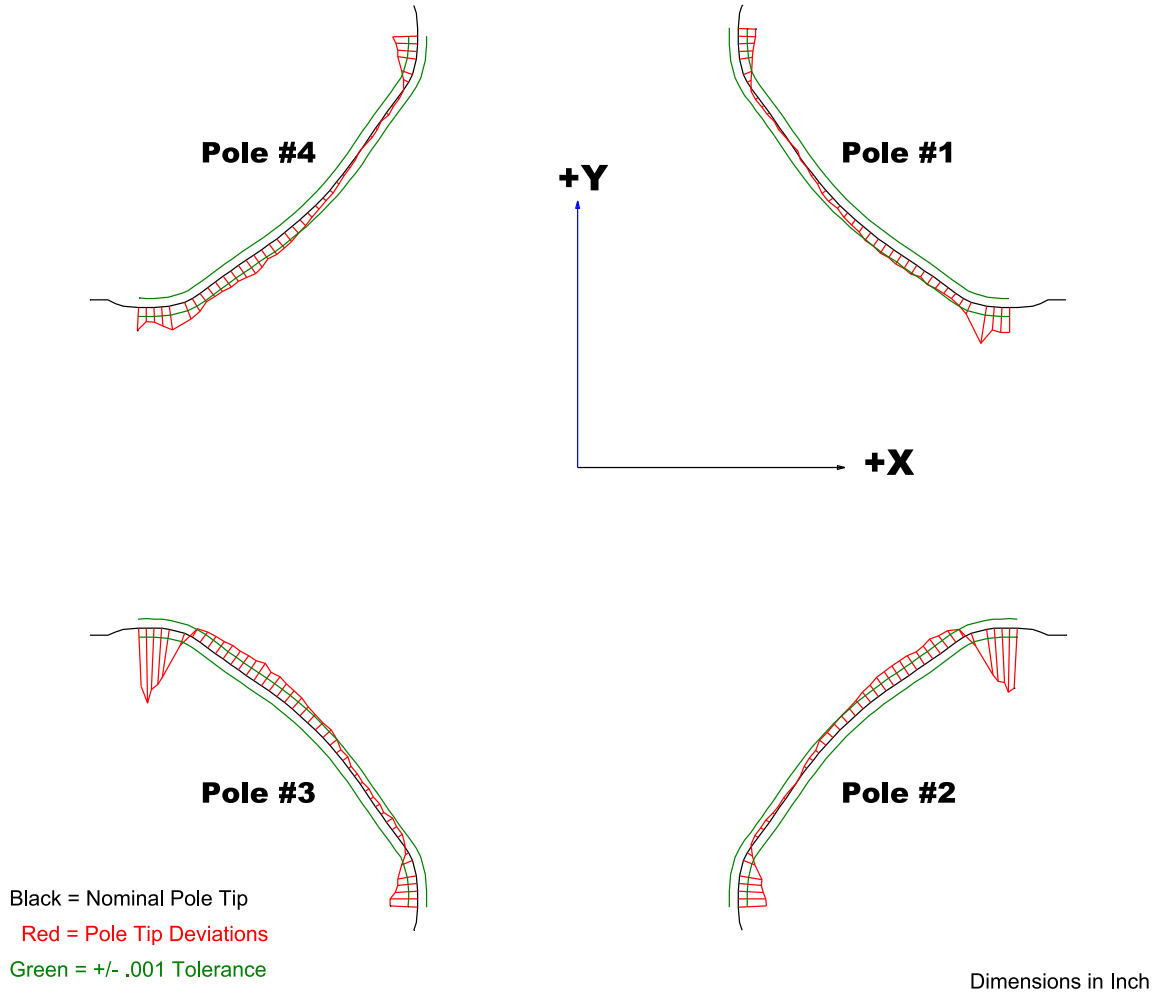
	Nominal Distance	Downstream Pole End	Upstream Pole End
Pole Tip Distance 1-3	2.086 ± .002	2.08443	2.08701
Pole Tip Distance 2-4	2.086 ± .002	2.08455	2.08729
Gap 1-2	0.900	0.90436	0.89298
Gap 2-3	0.900	0.90647	0.91131
Gap 3-4	0.900	0.90622	0.89382
Gap 4-1	0.900	0.90466	0.90955

Barcode # : 4043

Dimensions in Inch

Mfg. S/N : P10

Composite Best-fit of Pole Tips, Downstream



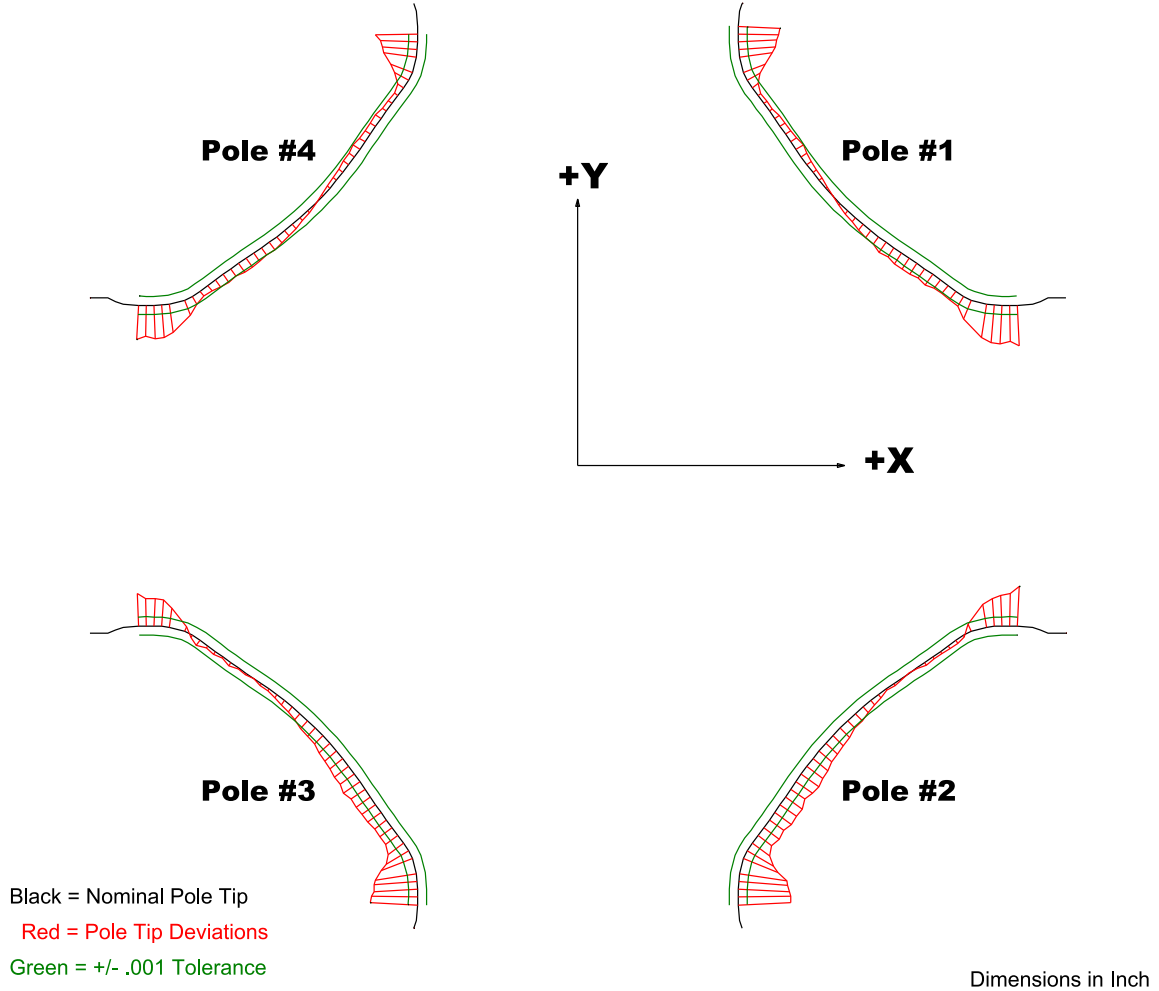
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00418	-0.00196	-0.00228	-0.00267
Max. Dev.	0.00194	0.00713	0.0083	0.00274

Barcode # : 4043

Mfg. S/N : P10

Composite Best-fit of Pole Tips, Upstream



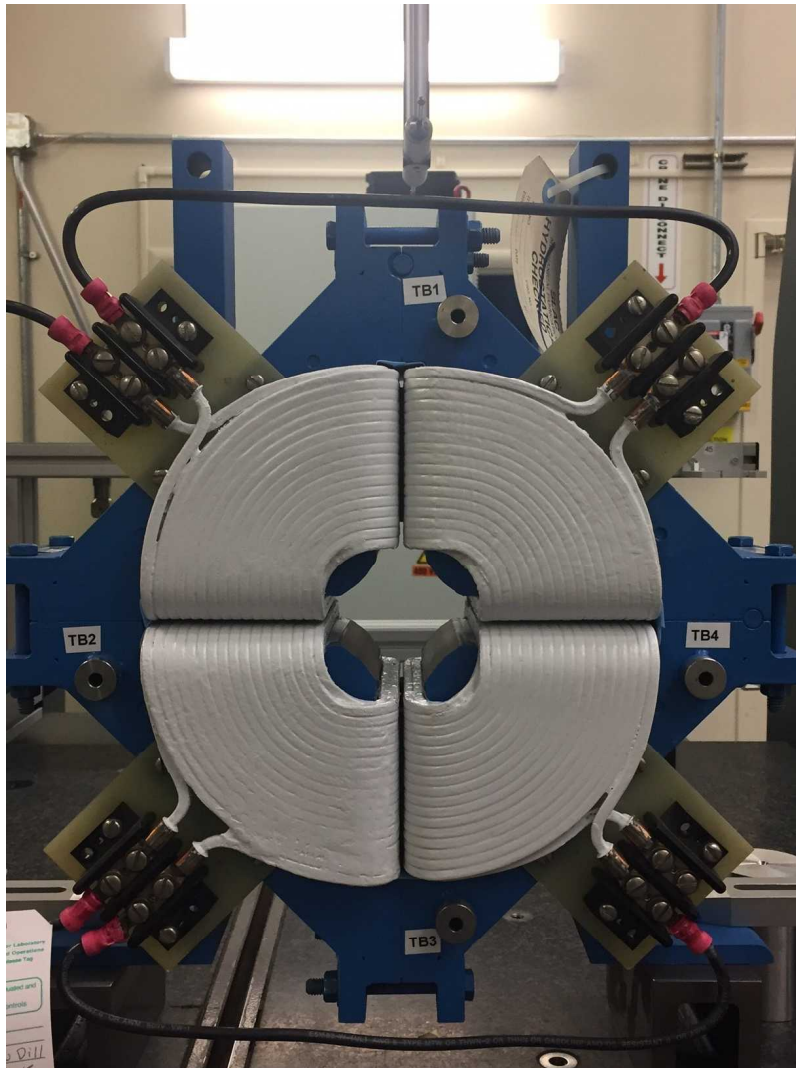
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00449	-0.00439	-0.00362	-0.00382
Max. Dev.	0.00459	0.00583	0.00521	0.00471

Barcode # : 4043

Mfg. S/N : P10

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



Angle in Decimal Degrees $^{\circ}$:-0.07281
Angle in Milliradians :-1.27070

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Mfg. S/N : P10