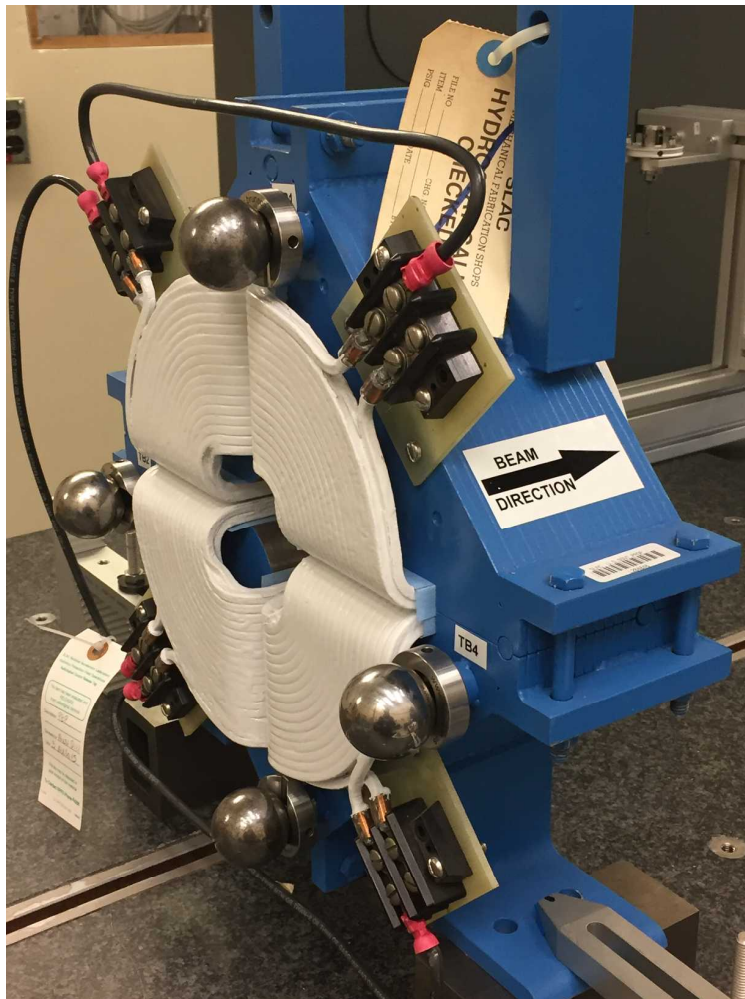


LCLS II 2Q4 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-344-112-01
Barcode # : 4053
Old S/N : P11
Old MAD Element Name :
Old Unit : QF7530

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.

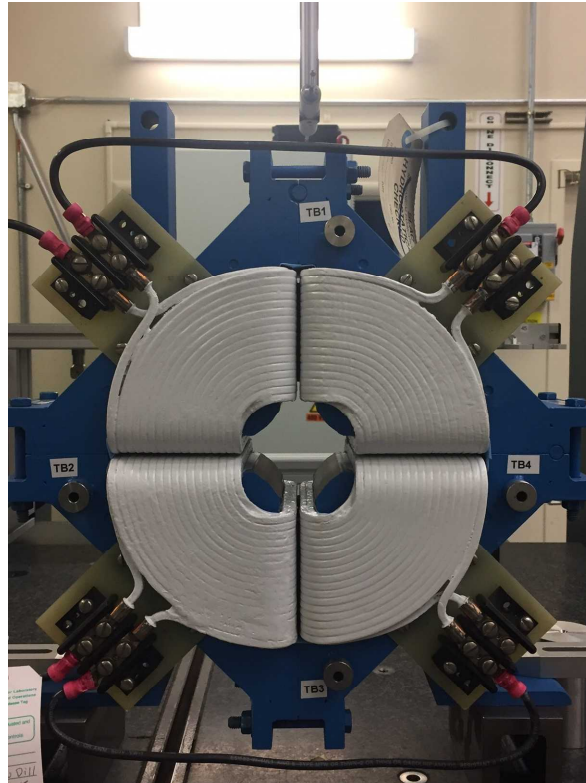
Coordinate Origins

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 # : 4053

Mfg. S/N : P11

Tooling Ball Locations



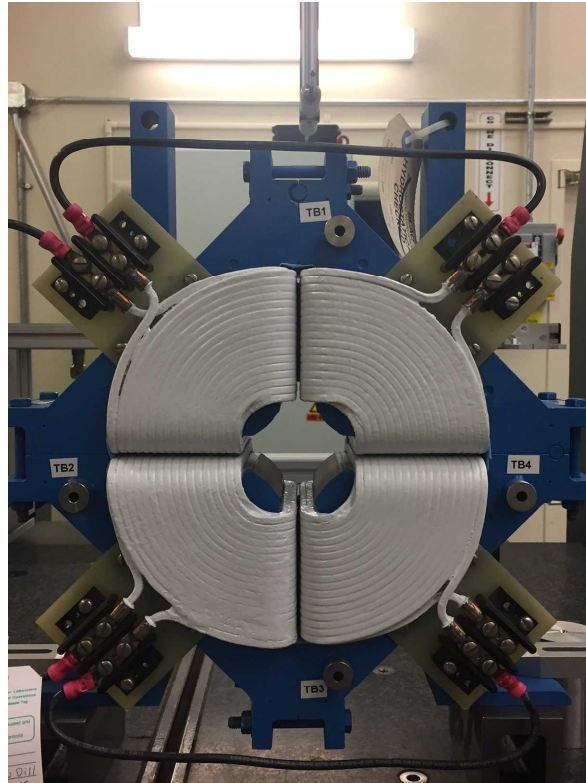
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0020	5.4935	-3.4314
TB 2	5.5008	-0.9989	-3.4340
TB 3	-1.0026	-5.4991	-3.4316
TB 4	-5.5040	-1.0013	-3.4313

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

Barcode # : 4053

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Tooling Ball Locations



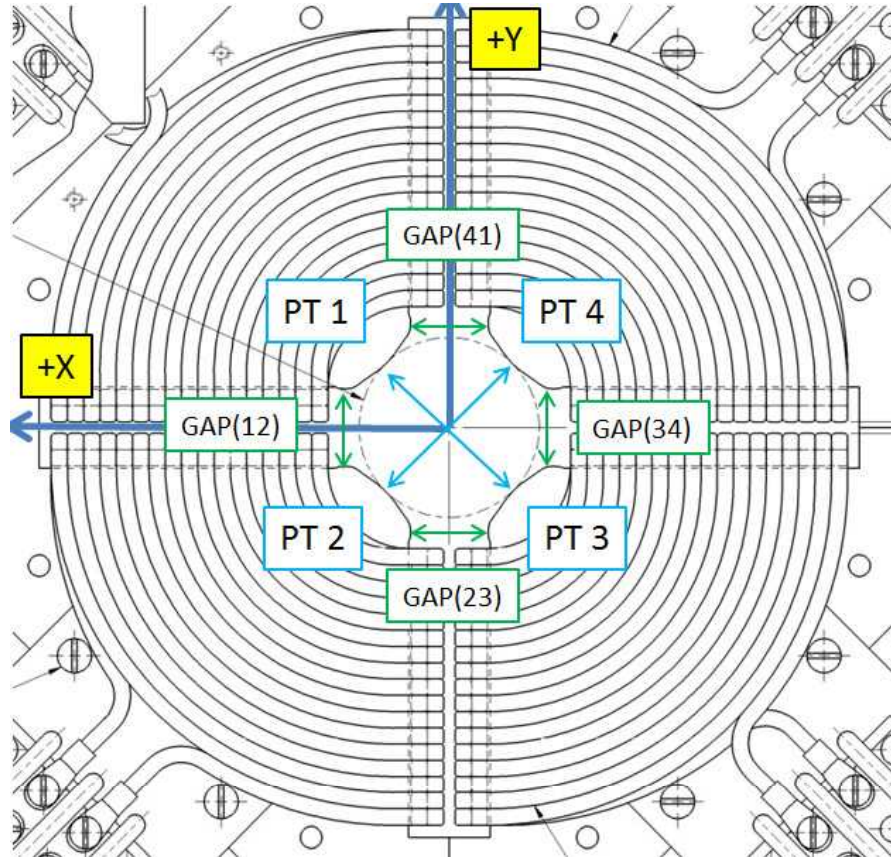
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-1.0004	5.4953	-2.7434
TB 2	5.5018	-0.9978	-2.7467
TB 3	-1.0019	-5.4960	-2.7442
TB 4	-5.5059	-0.9993	-2.7440

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

Barcode # : 4053

Mfg. S/N : P11

Pole Tip Gap Measurements



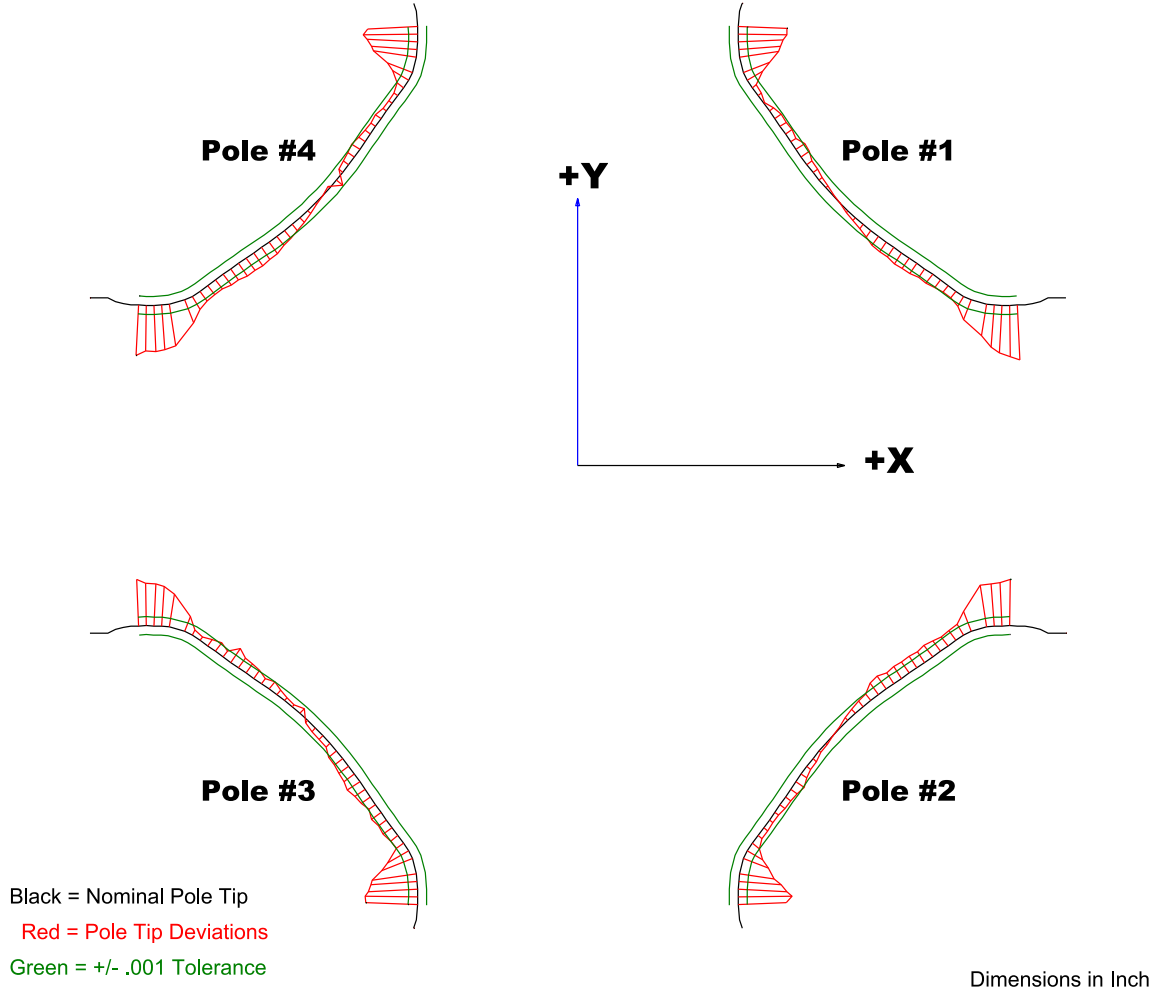
	Nominal Distance	Downstream Pole End	Upstream Pole End
Pole Tip Distance 1-3	2.086 ± .002	2.0865	2.08635
Pole Tip Distance 2-4	2.086 ± .002	2.08564	2.08633
Gap 1-2	0.900	0.88896	0.89291
Gap 2-3	0.900	0.91219	0.90993
Gap 3-4	0.900	0.89059	0.89296
Gap 4-1	0.900	0.91174	0.90916

Barcode # : 4053

Dimensions in Inch

Mfg. S/N : P11

Composite Best-fit of Pole Tips, Downstream



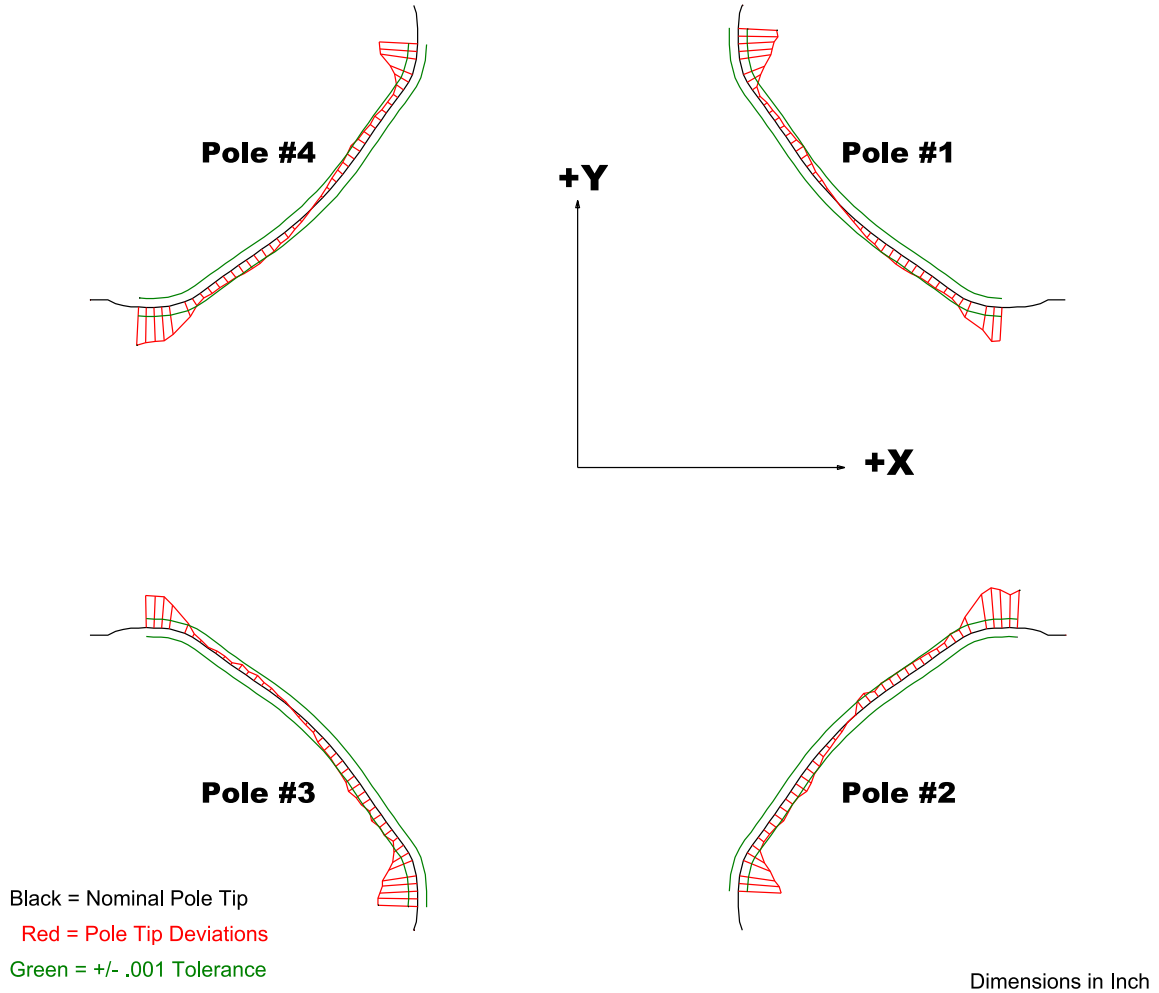
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00607	-0.00514	-0.00515	-0.0056
Max. Dev.	0.00543	0.00596	0.00581	0.00602

Barcode # : 4053

Mfg. S/N : P11

Composite Best-fit of Pole Tips, Upstream



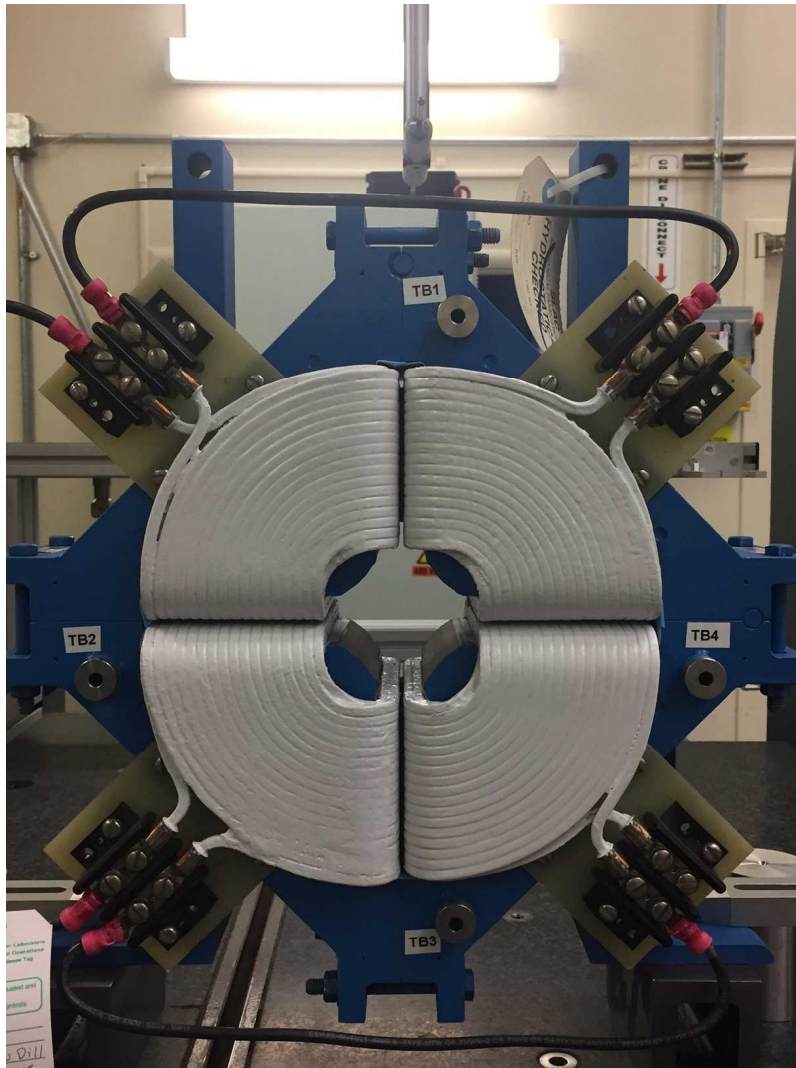
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00382	-0.00452	-0.00356	-0.00426
Max. Dev.	0.00445	0.00479	0.0044	0.00421

Barcode # : 4053

Mfg. S/N : P11

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



Angle in Decimal Degrees $^{\circ}$:-0.00491
Angle in Milliradians :-0.08568

Barcode # : 4053
Mfg. S/N : P11