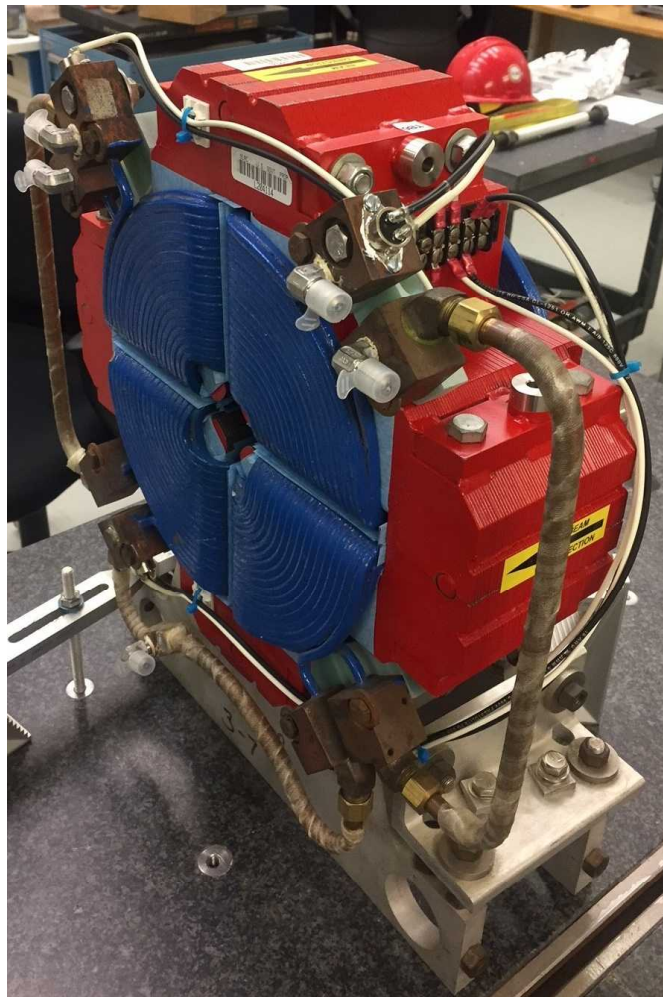


LCLS II 1.085Q4.31 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-902-675-01
Barcode # : 4131
Mfg. S/N : E044

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 0.100 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.

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.

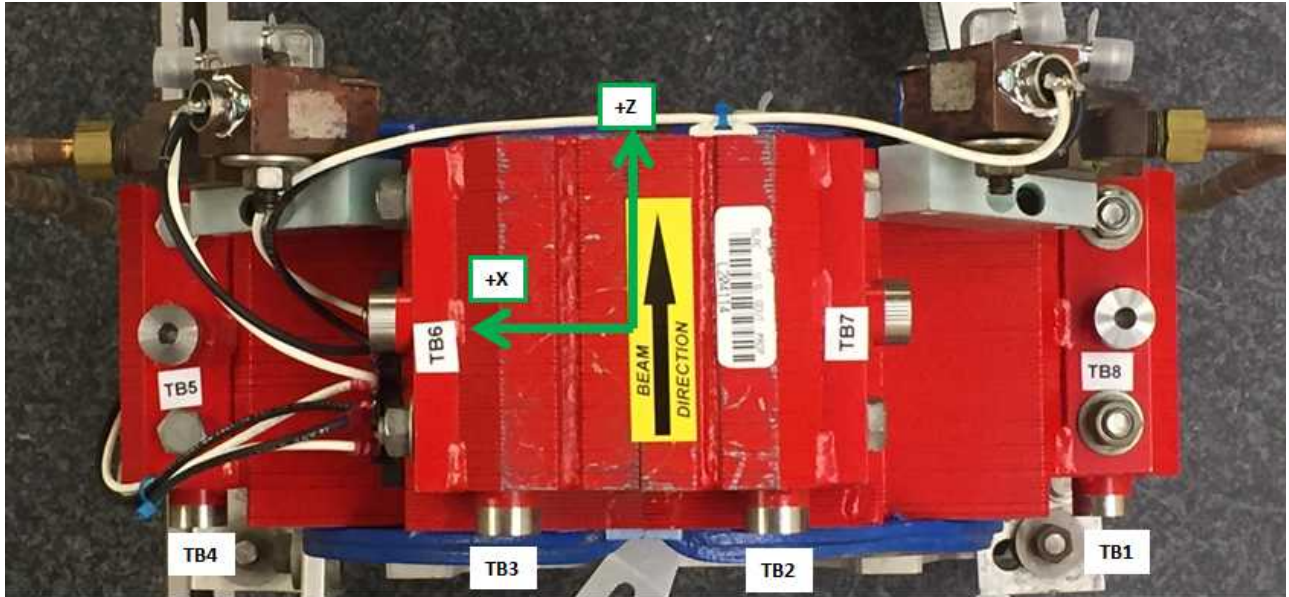
Coordinate Origins

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 # : 4131

Mfg. S/N : E044

Tooling Ball Locations



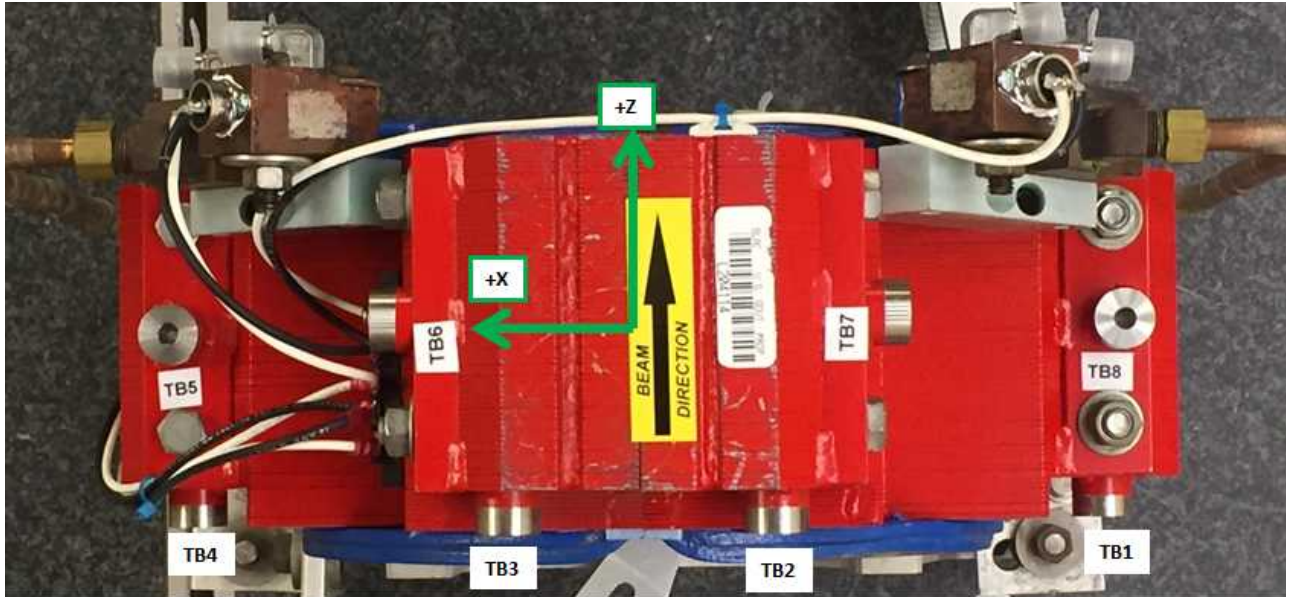
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7555	1.5132	-3.1958
TB 2	-1.5127	5.7406	-3.1987
TB 3	1.5239	5.7496	-3.1937
TB 4	5.7562	1.5076	-3.1941
TB 5	5.8612	4.0007	0.2374
TB 6	4.0025	5.8580	0.2475
TB 7	-3.9983	5.8695	0.2303
TB 8	-5.8676	4.0028	0.2470

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

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Tooling Ball Locations



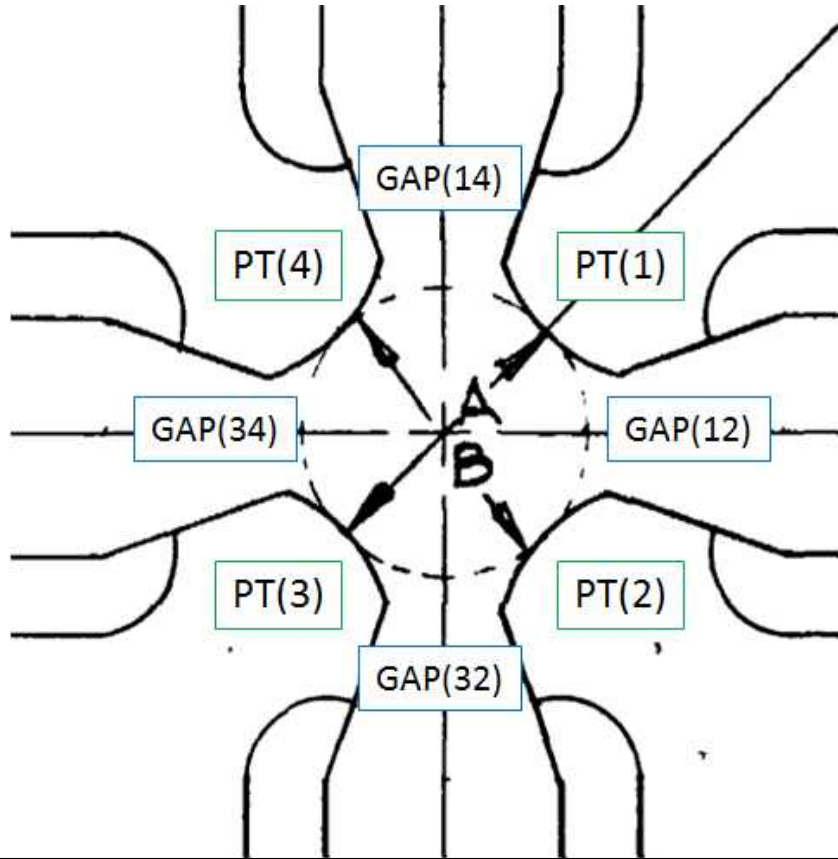
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7539	1.5117	-2.5066
TB 2	-1.5112	5.7435	-2.5111
TB 3	1.5209	5.7528	-2.5054
TB 4	5.7567	1.5068	-2.5056
TB 5	5.8599	3.3128	0.2371
TB 6	3.3145	5.8572	0.2474
TB 7	-3.3105	5.8699	0.2313
TB 8	-5.8663	3.3152	0.2459

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

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Pole Tip Gap Measurements



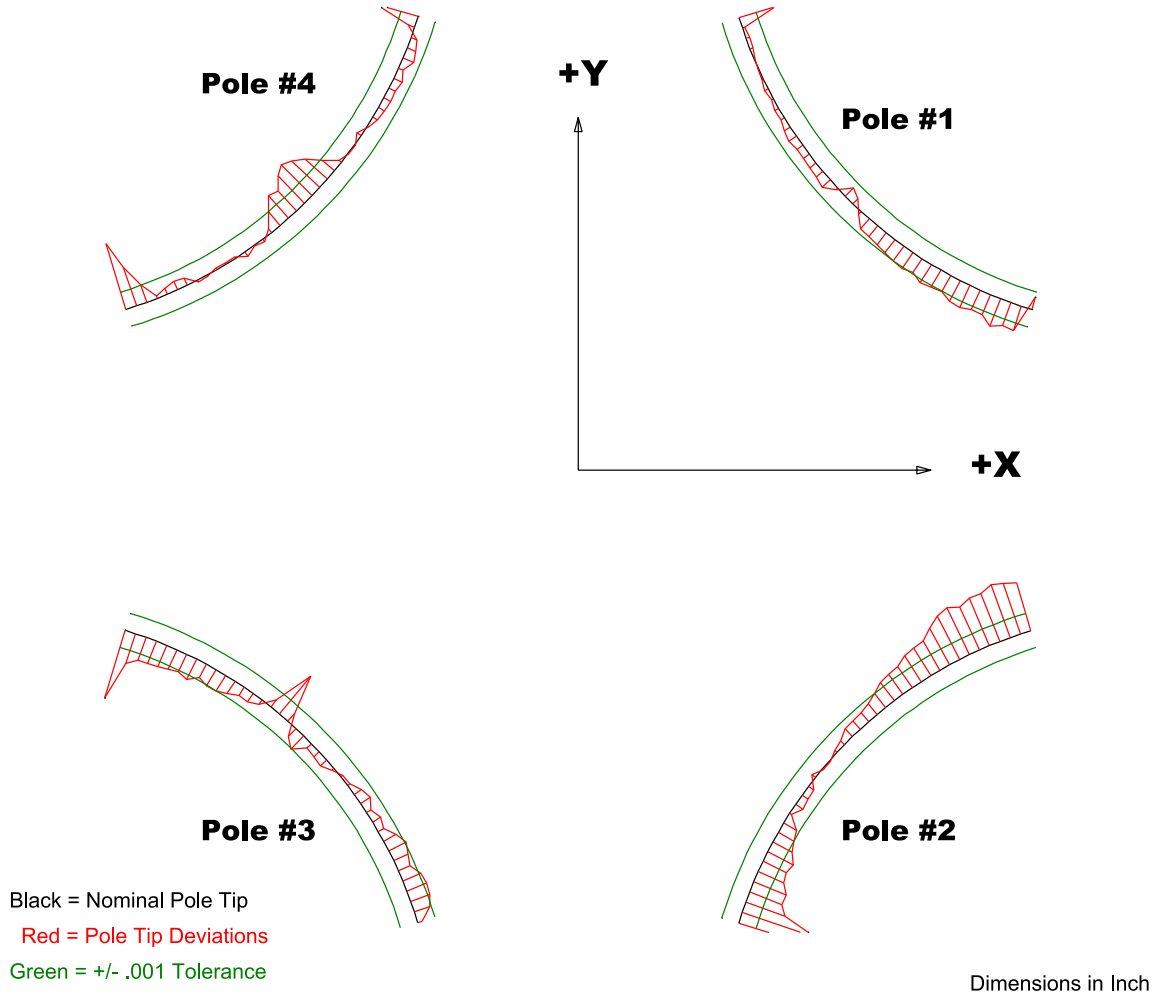
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3(A)	1.085	1.08553	1.08858
PT Distance 2-4(B)	1.085	1.08659	1.08949
Gap 1-2	0.4546	0.45279	0.45523
Gap 2-3	0.4546	0.46366	0.46818
Gap 3-4	0.4546	0.46302	0.45968
Gap 4-1	0.4546	0.45999	0.46358

Dimensions in Inch

Barcode # : 4131

Mfg. S/N : E044

Composite Best-fit of Pole Tips, Downstream



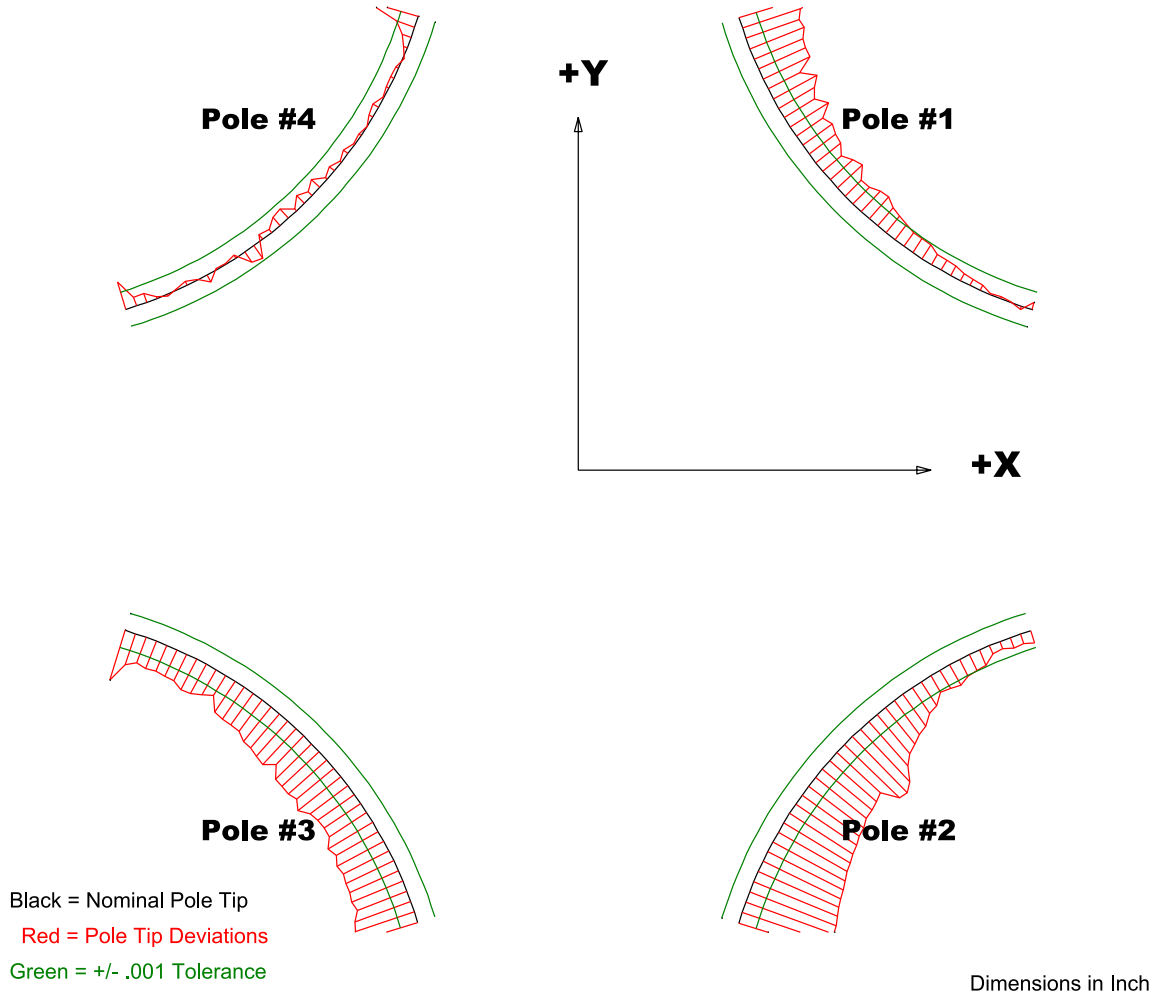
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00209	-0.00948	-0.00395	-0.00382
Max. Dev.	0.00163	0.00314	0.00274	0.00064

Barcode # : 4131

Mfg. S/N : E044

Composite Best-fit of Pole Tips, Upstream



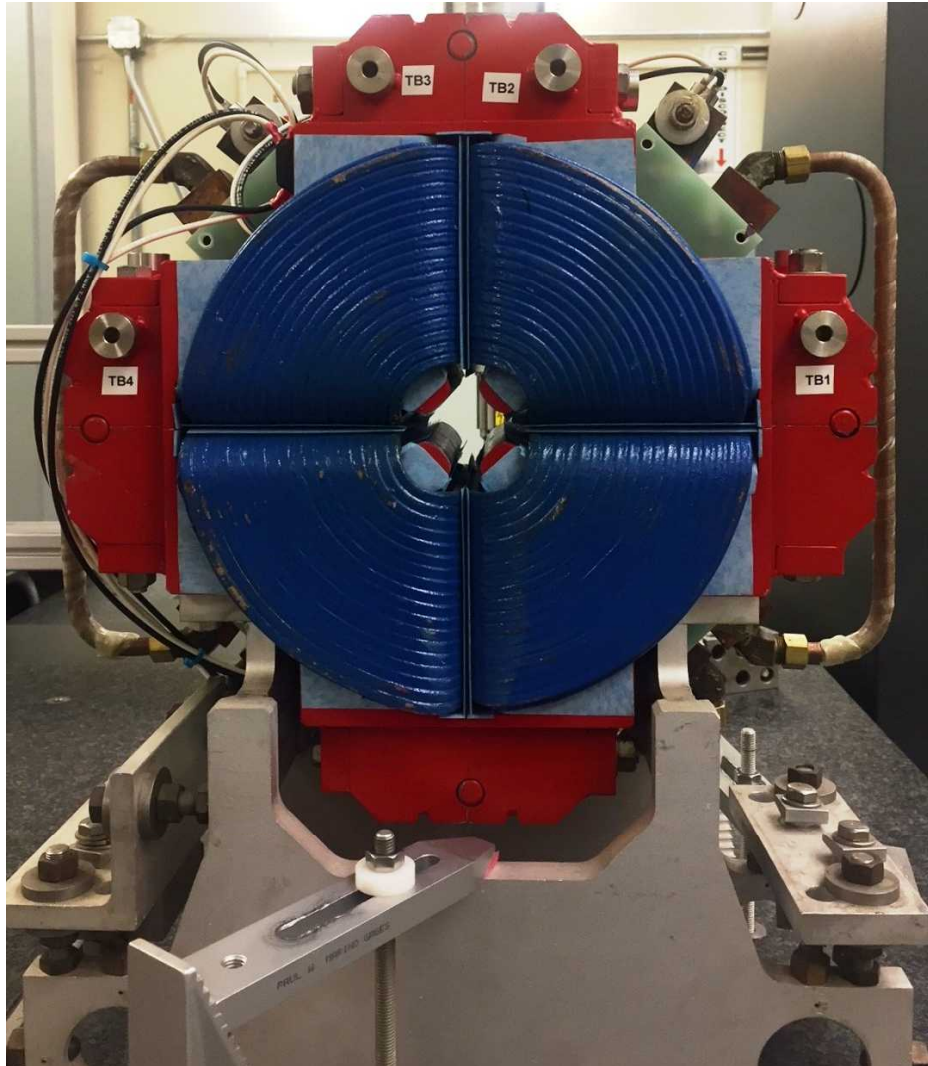
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00537	-0.00833	-0.00486	-0.00293
Max. Dev.	0.00019	-0.00042	-0.00131	0.00087

Barcode # : 4131

Mfg. S/N : E044

Angle of the Composite Pole Tip Best-Fit In Relation to TB 5 Plate and TB 8 Plate



Angle in Decimal Degrees $^{\circ}$:0.01660

Angle in Milliradians :0.28975

Barcode # : 4131

Mfg. S/N : E044