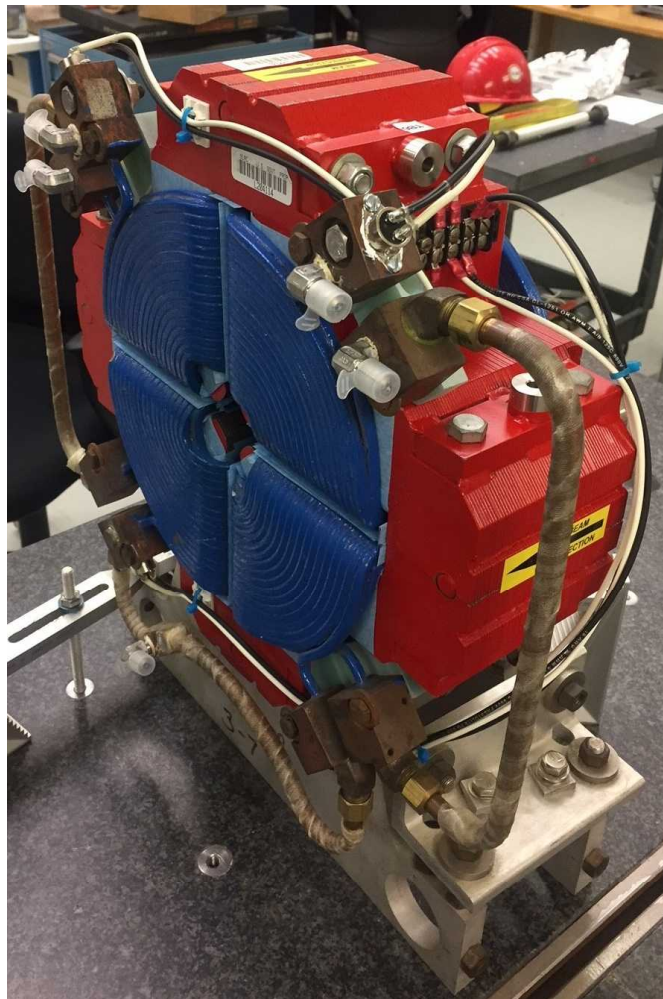


LCLS II 1.085Q4.31 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-902-675-01
Barcode # : 4127
Mfg. S/N : E050

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.

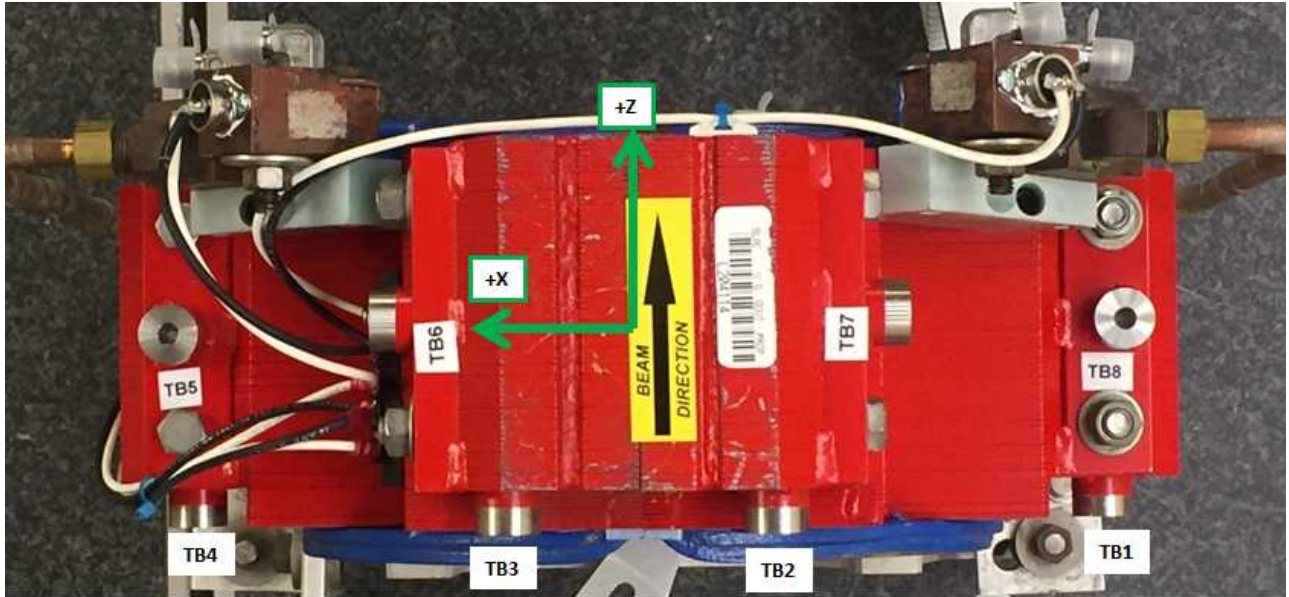
Coordinate Origins

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.

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Tooling Ball Locations



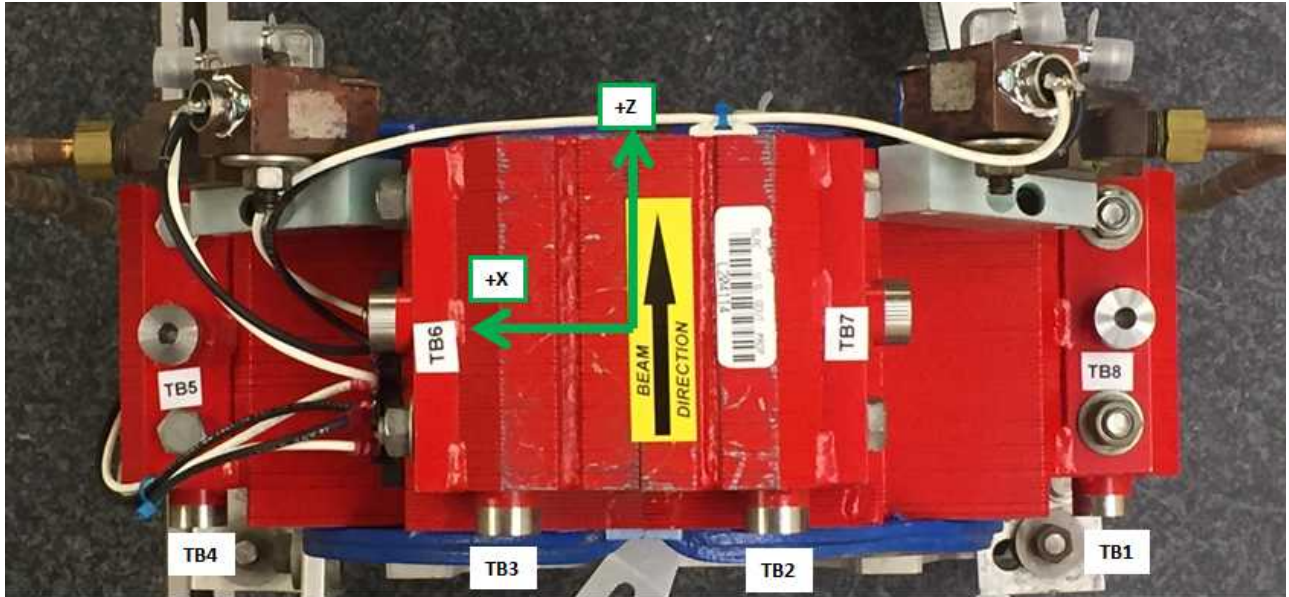
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7213	1.4800	-3.1614
TB 2	-1.4763	5.7209	-3.1680
TB 3	1.5019	5.7483	-3.1677
TB 4	5.7597	1.4873	-3.1746
TB 5	5.8628	4.0008	0.1984
TB 6	4.0024	5.7757	0.2304
TB 7	-4.0004	5.8651	0.2168
TB 8	-5.8410	4.0001	0.2285

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

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Tooling Ball Locations



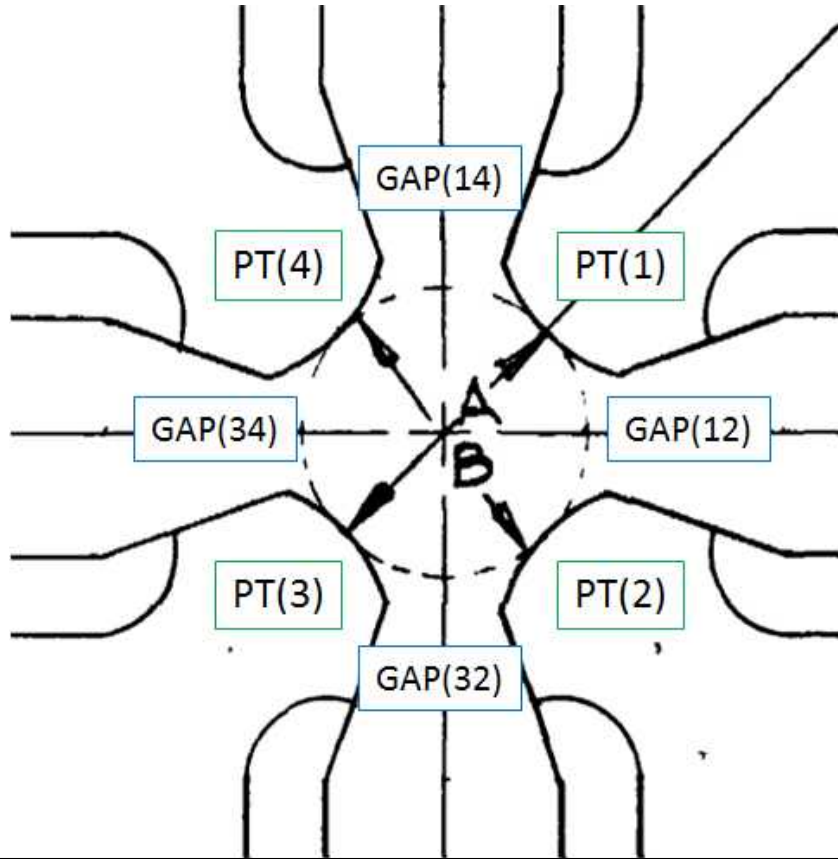
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7238	1.4813	-2.4735
TB 2	-1.4778	5.7275	-2.4804
TB 3	1.4981	5.7472	-2.4794
TB 4	5.7593	1.4889	-2.4862
TB 5	5.8625	3.3129	0.1978
TB 6	3.3141	5.7755	0.2293
TB 7	-3.3133	5.8630	0.2167
TB 8	-5.8379	3.3128	0.2294

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

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Pole Tip Gap Measurements



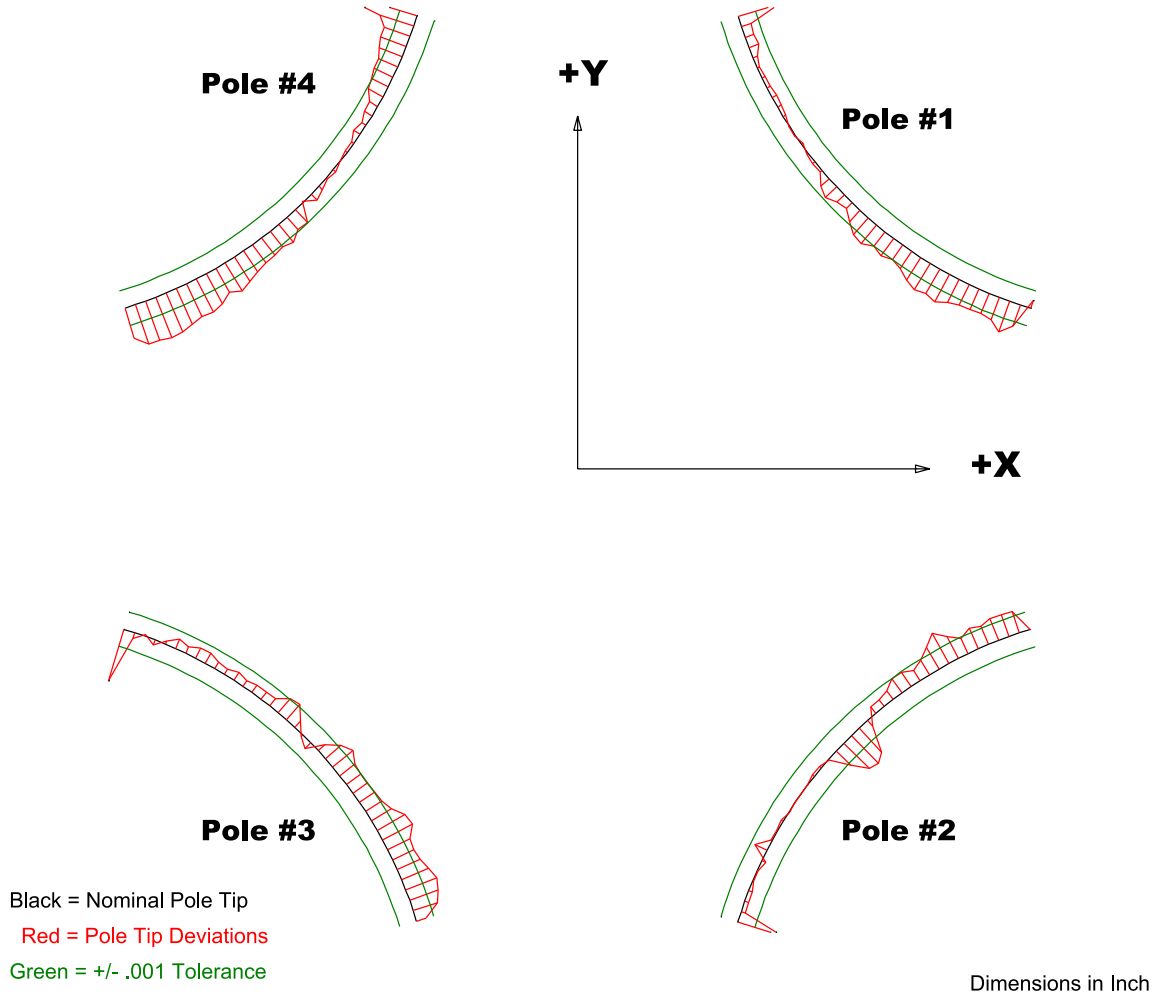
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3(A)	1.085	1.08469	1.08807
PT Distance 2-4(B)	1.085	1.08679	1.08899
Gap 1-2	0.4546	0.45593	0.46262
Gap 2-3	0.4546	0.4575	0.46134
Gap 3-4	0.4546	0.45628	0.46089
Gap 4-1	0.4546	0.46319	0.4622

Dimensions in Inch

Barcode # : 4127

Mfg. S/N : E050

Composite Best-fit of Pole Tips, Downstream



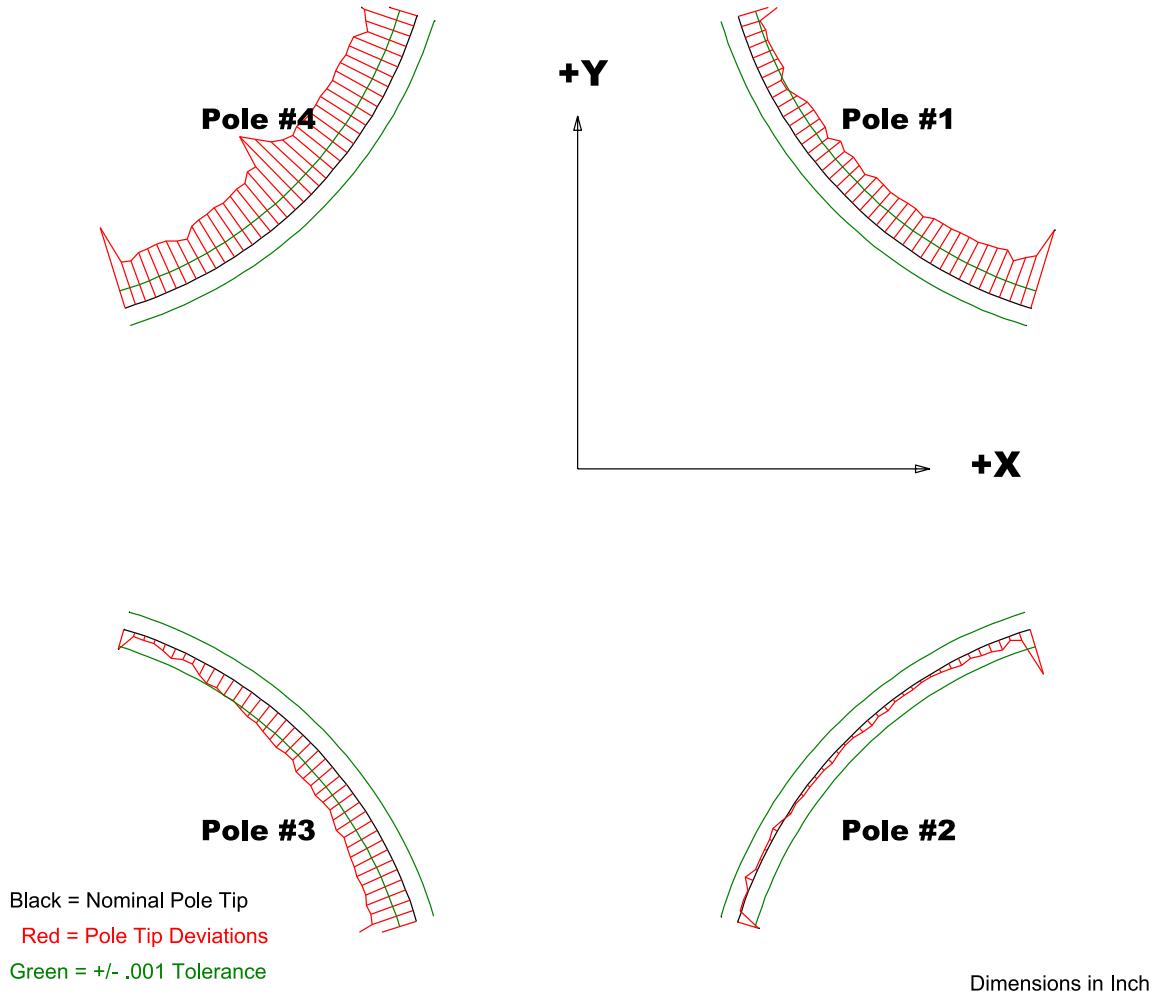
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00237	-0.00255	-0.003	-0.00552
Max. Dev.	0.00183	0.00193	0.00189	0.00244

Barcode # : 4127

Mfg. S/N : E050

Composite Best-fit of Pole Tips, Upstream



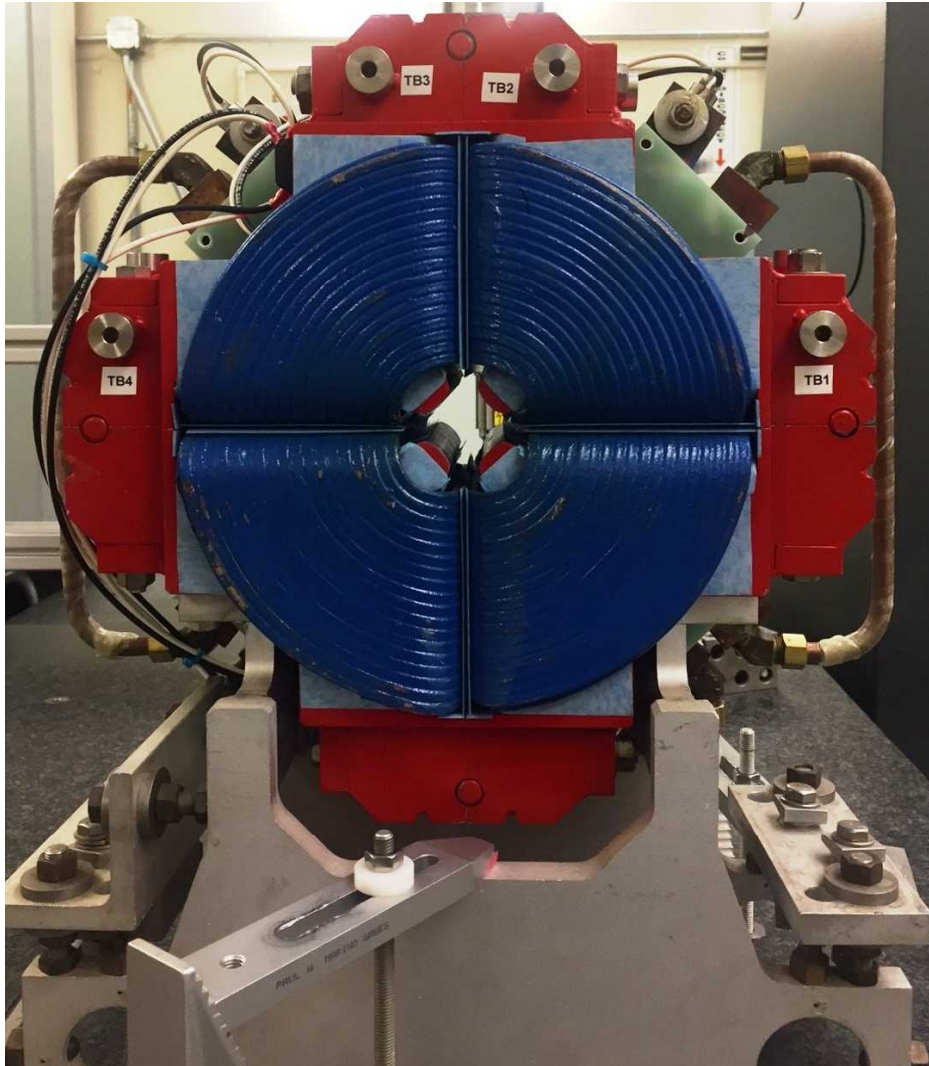
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00457	-0.0026	-0.00478	-0.00509
Max. Dev.	-0.0009	0.00046	-0.00023	-0.00221

Barcode # : 4127

Mfg. S/N : E050

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



Angle in Decimal Degrees ° :0.00298

Angle in Milliradians :0.05201

Barcode # : 4127

Mfg. S/N : E050