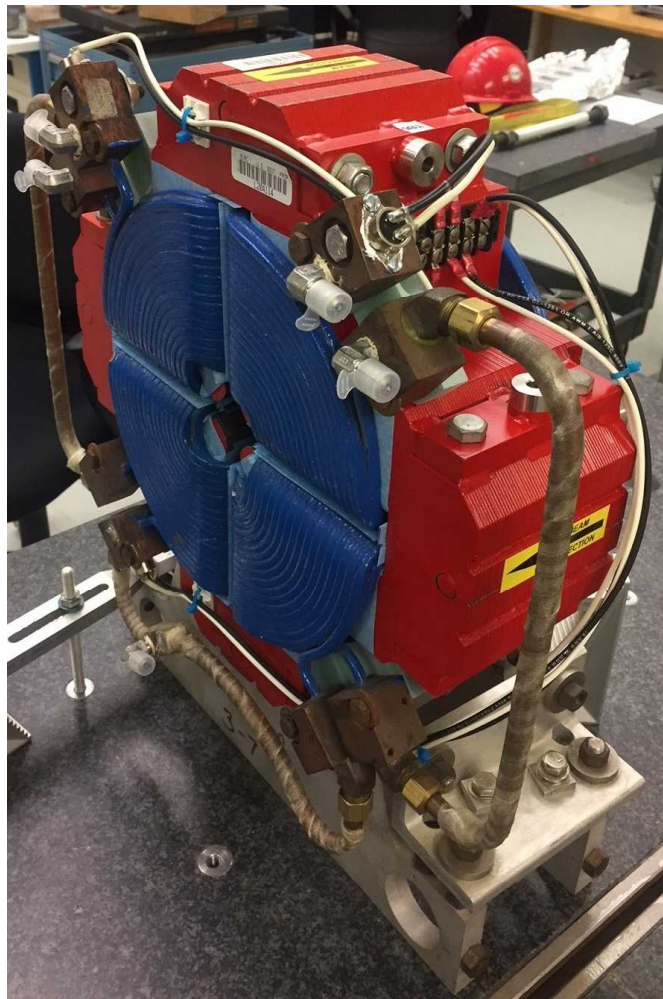


LCLS II 1.085Q4.31 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-902-675-01
Barcode # : 4115
Mfg. S/N : E053

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.

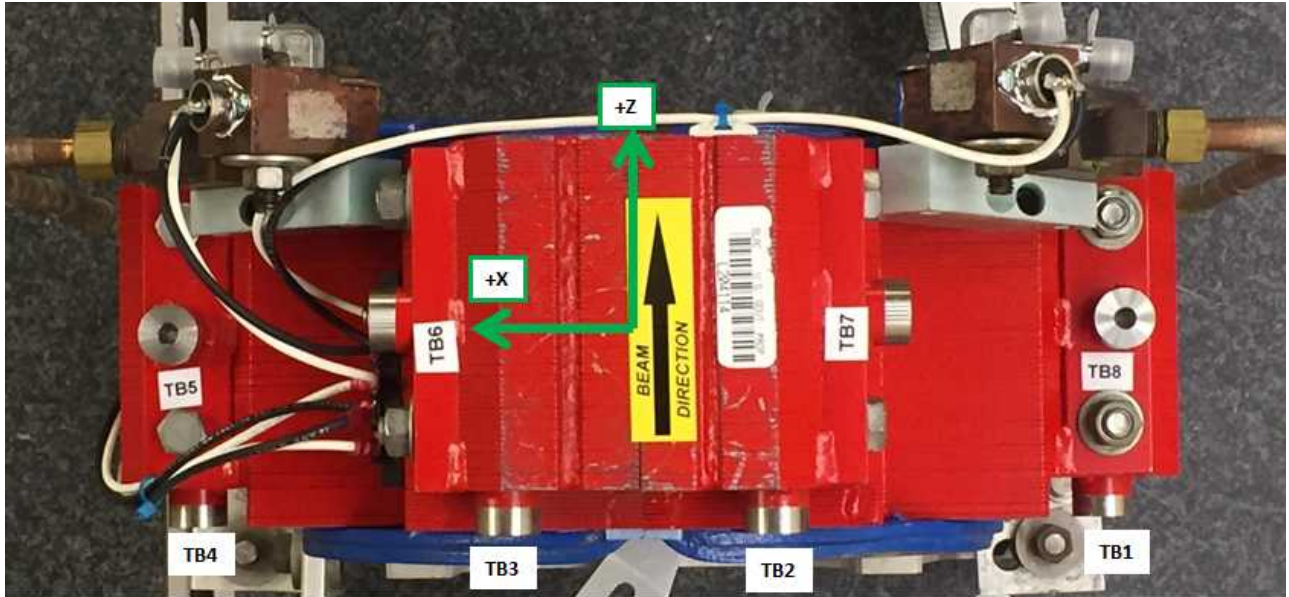
Coordinate Origins

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 # : 4115

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Tooling Ball Locations



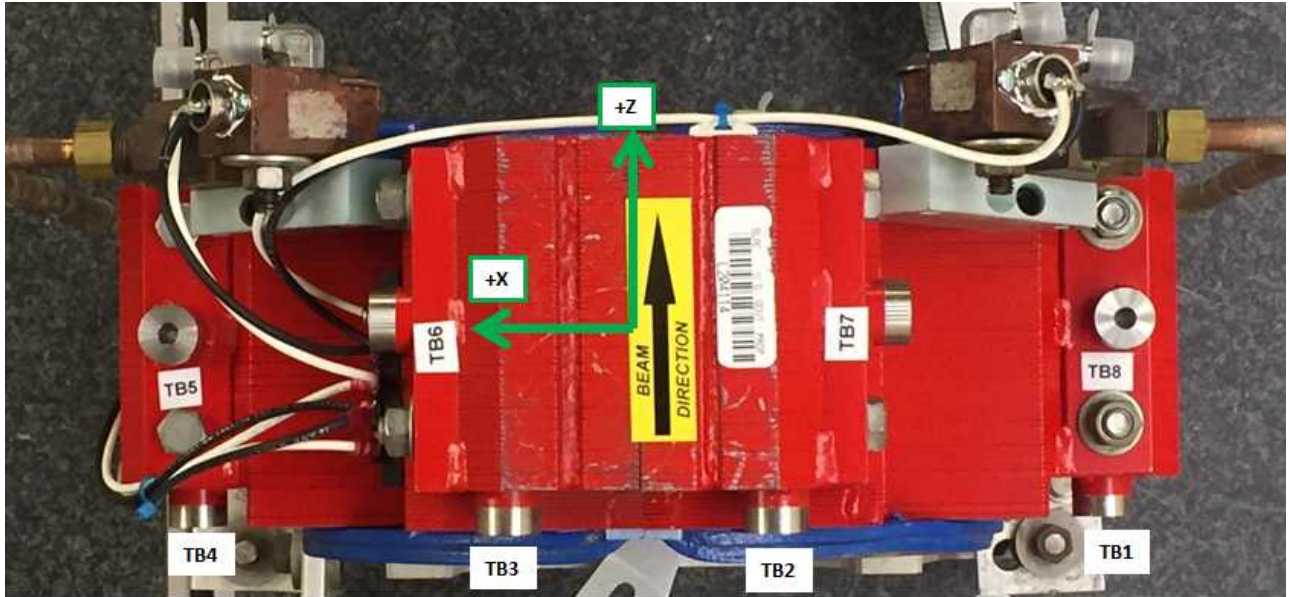
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7843	1.4875	-3.1687
TB 2	-1.5309	5.7649	-3.1813
TB 3	1.4863	5.7748	-3.1780
TB 4	5.7695	1.5217	-3.1904
TB 5	5.8341	4.0154	0.2288
TB 6	3.9844	5.8467	0.2341
TB 7	-4.0185	5.8340	0.2236
TB 8	-5.8582	3.9838	0.2402

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

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Tooling Ball Locations



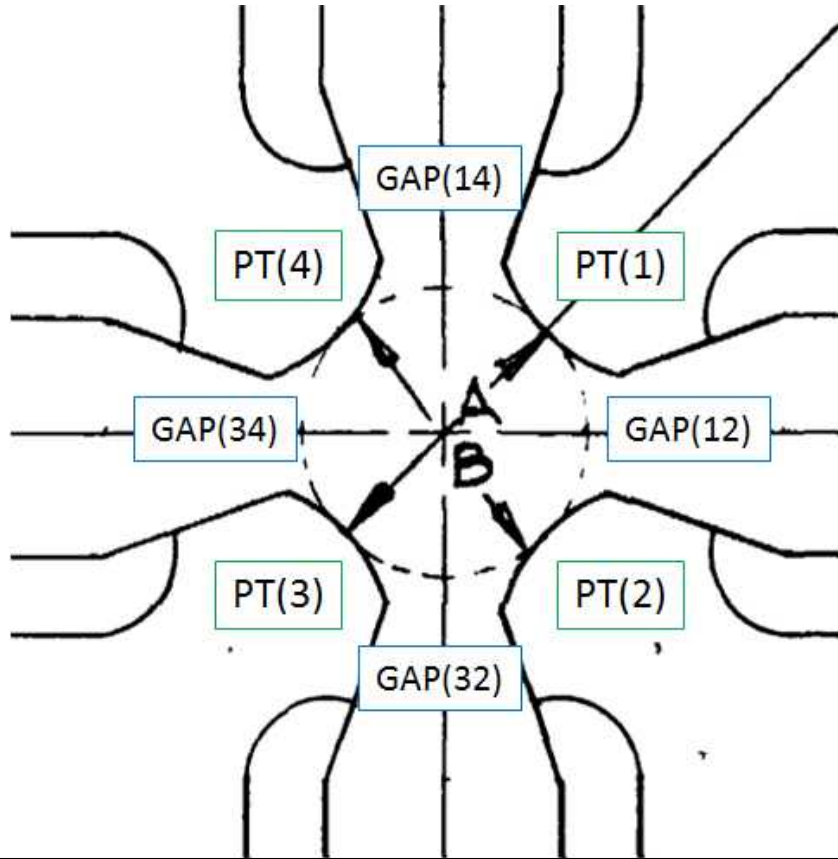
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7847	1.4861	-2.4811
TB 2	-1.5278	5.7675	-2.4933
TB 3	1.4848	5.7774	-2.4897
TB 4	5.7724	1.5232	-2.5015
TB 5	5.8354	3.3282	0.2291
TB 6	3.2962	5.8437	0.2352
TB 7	-3.3298	5.8353	0.2249
TB 8	-5.8547	3.2965	0.2405

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

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Mfg. S/N : E053

Pole Tip Gap Measurements



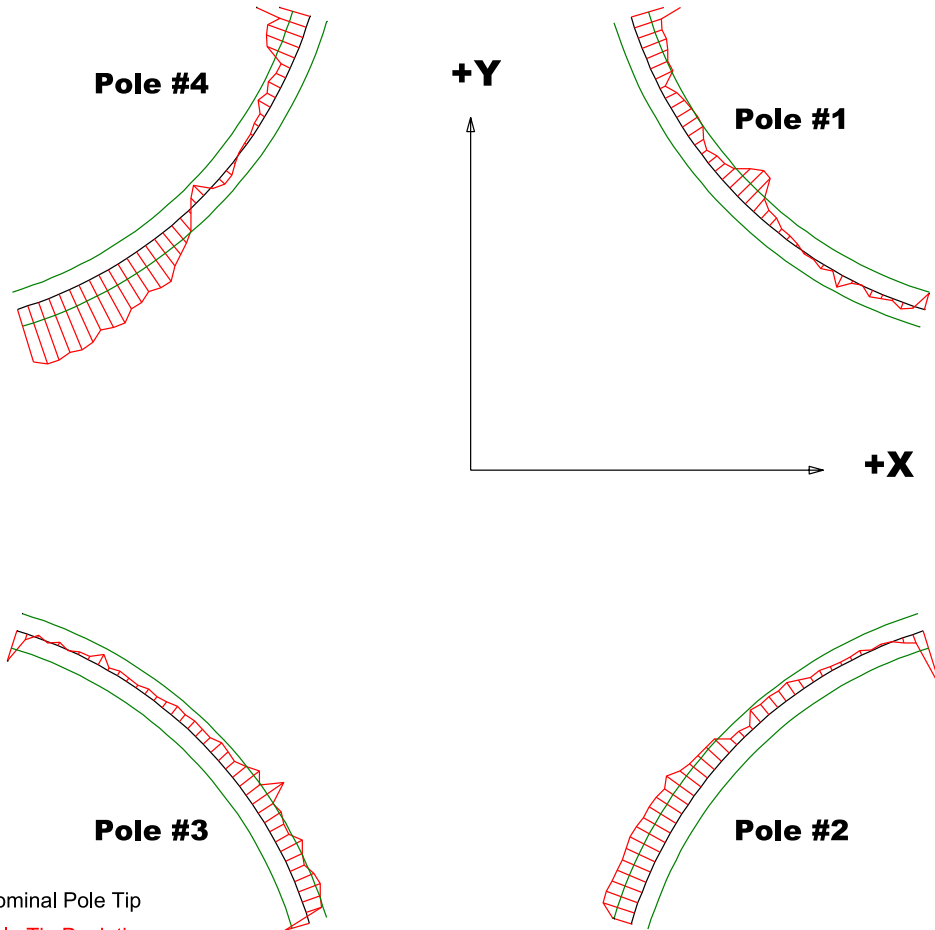
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3(A)	1.085	1.08616	1.08686
PT Distance 2-4(B)	1.085	1.08467	1.08839
Gap 1-2	0.4546	0.45922	0.45756
Gap 2-3	0.4546	0.45569	0.45916
Gap 3-4	0.4546	0.45412	0.45653
Gap 4-1	0.4546	0.46468	0.46658

Dimensions in Inch

Barcode # : 4115

Mfg. S/N : E053

Composite Best-fit of Pole Tips, Downstream



Black = Nominal Pole Tip
 Red = Pole Tip Deviations
 Green = +/- .001 Tolerance

Dimensions in Inch

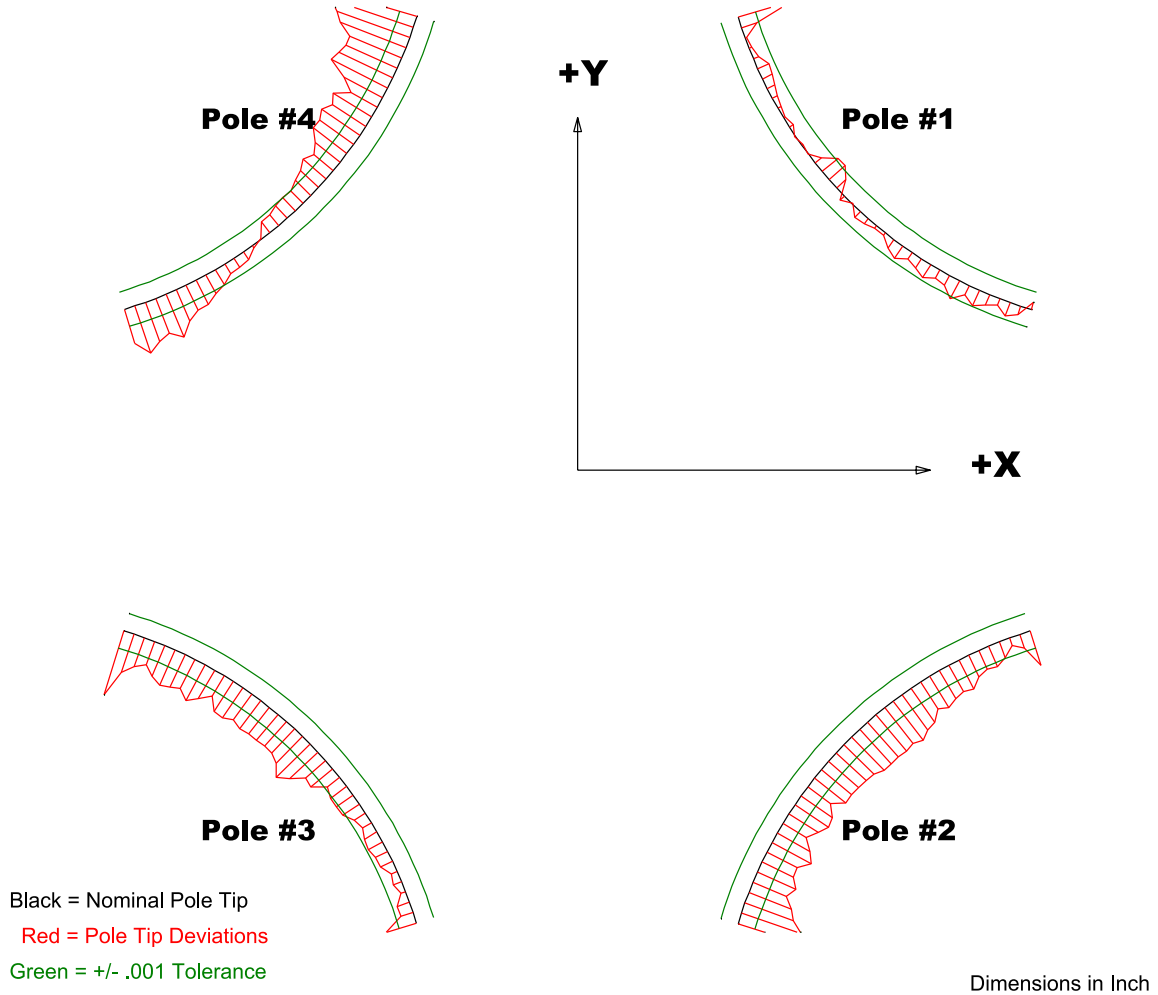
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00385	-0.00336	-0.00178	-0.00572
Max. Dev.	0.00073	0.0019	0.00212	0.00344

Barcode # : 4115

Mfg. S/N : E053

Composite Best-fit of Pole Tips, Upstream



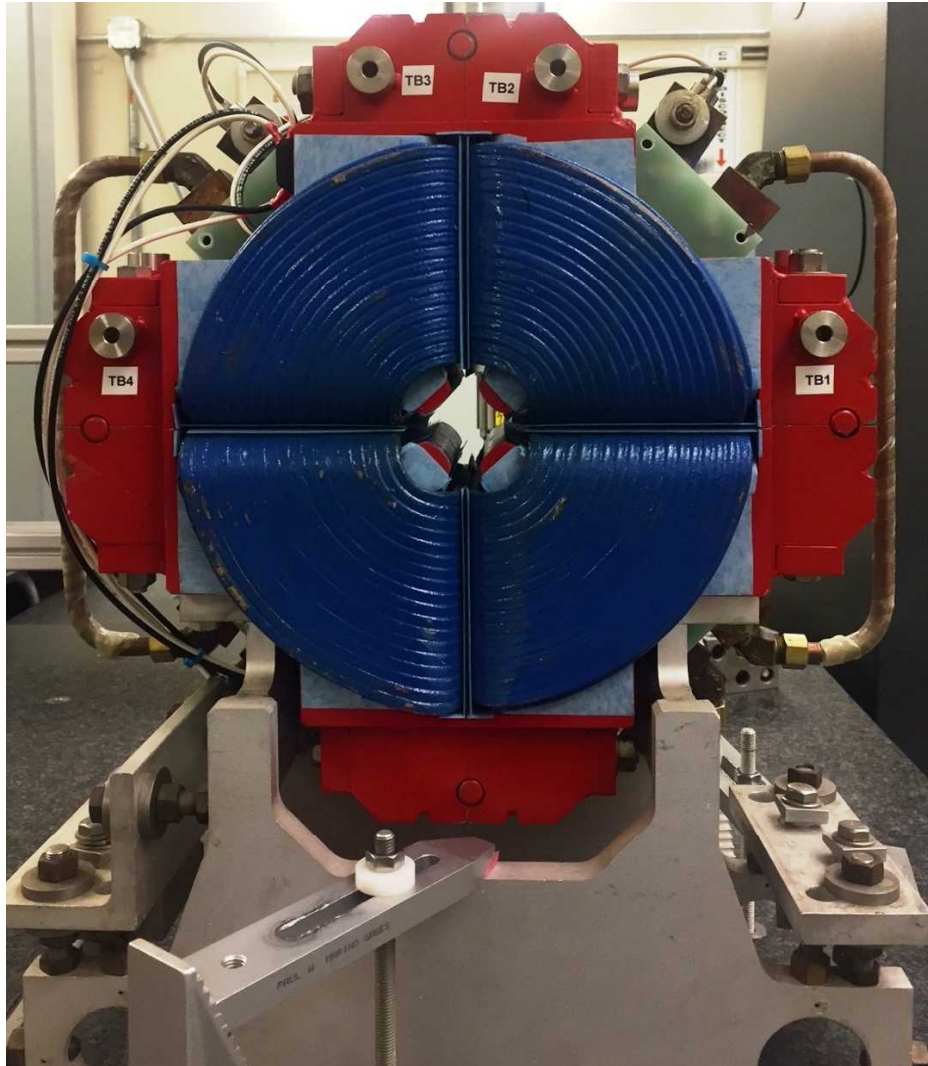
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00319	-0.00601	-0.00372	-0.00846
Max. Dev.	0.00113	-0.00045	-0.00027	0.00278

Barcode # : 4115

Mfg. S/N : E053

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



Angle in Decimal Degrees ° :-0.15165

Angle in Milliradians :-2.64682

Barcode # : 4115

Mfg. S/N : E053