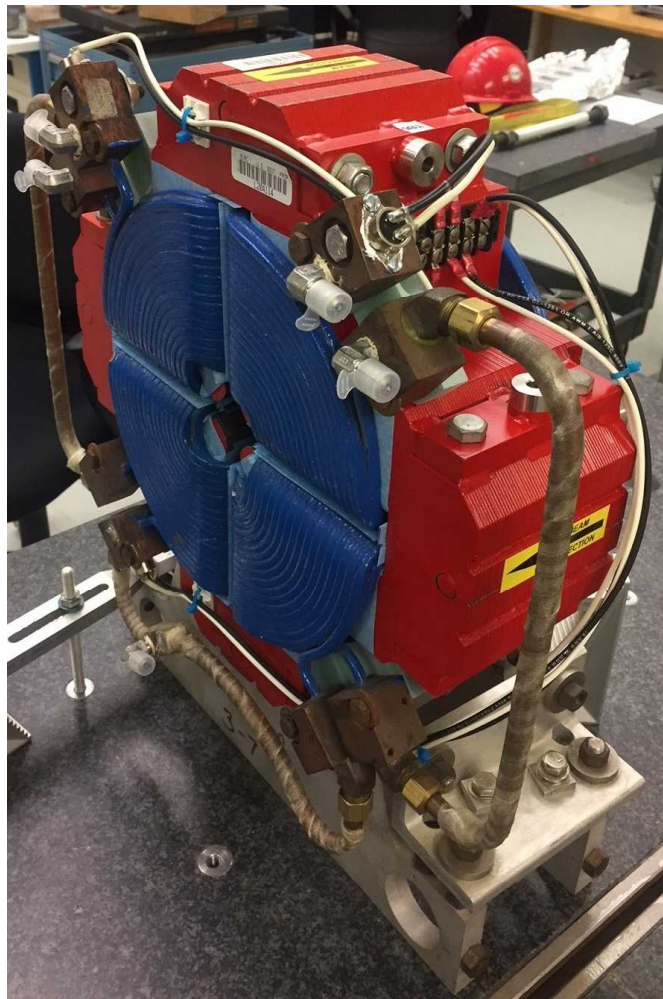


LCLS II 1.085Q4.31 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-902-675-01
Barcode # : 4112
Mfg. S/N : E015

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.

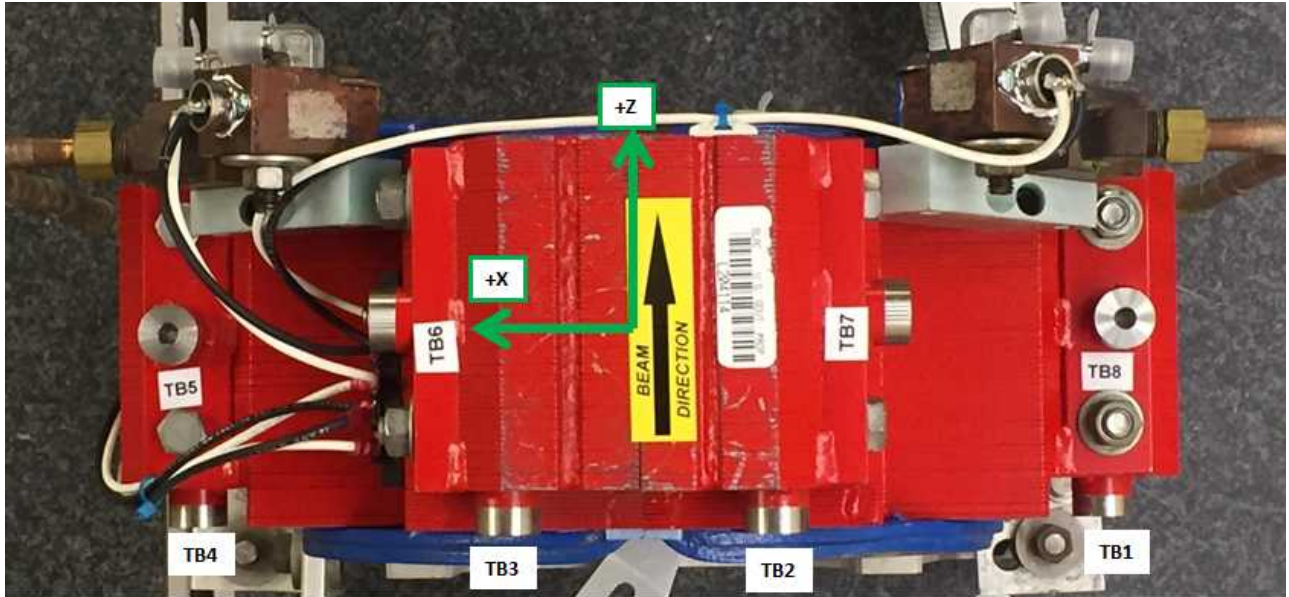
Coordinate Origins

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 # : 4112

Mfg. S/N : E015

Tooling Ball Locations



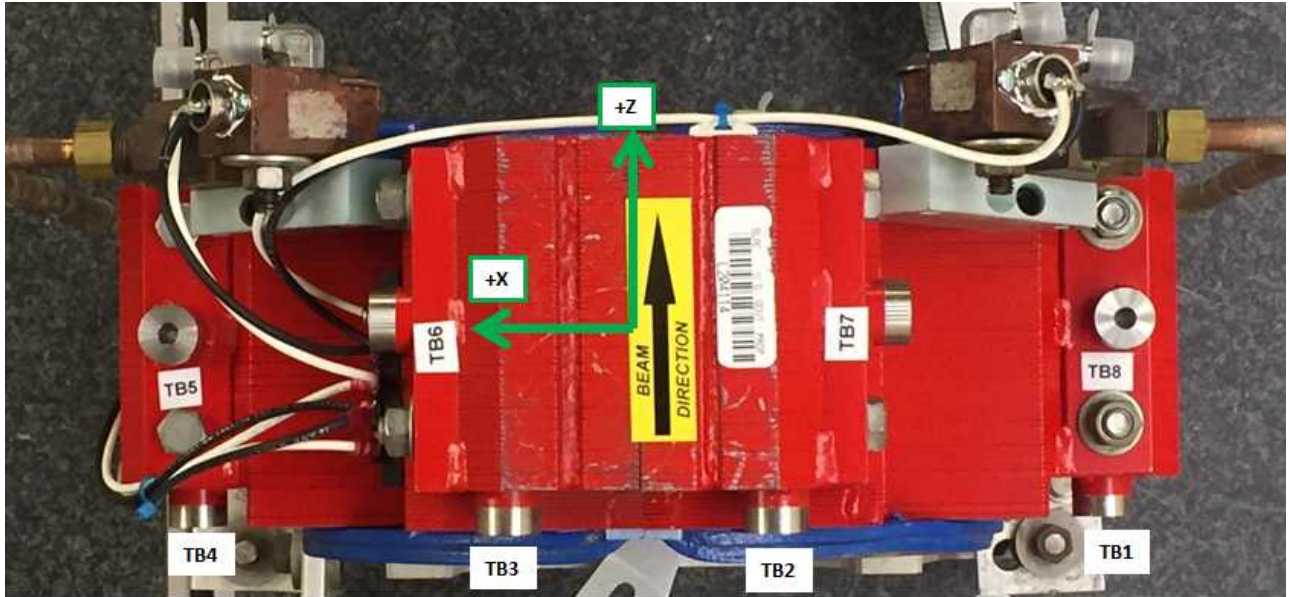
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7829	1.5099	-3.1852
TB 2	-1.5172	5.7525	-3.1870
TB 3	1.4969	5.7558	-3.2023
TB 4	5.7365	1.4974	-3.2097
TB 5	5.8287	4.0122	0.1896
TB 6	3.9867	5.8394	0.2007
TB 7	-4.0139	5.7008	0.1858
TB 8	-5.8453	3.9915	0.2183

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

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Tooling Ball Locations



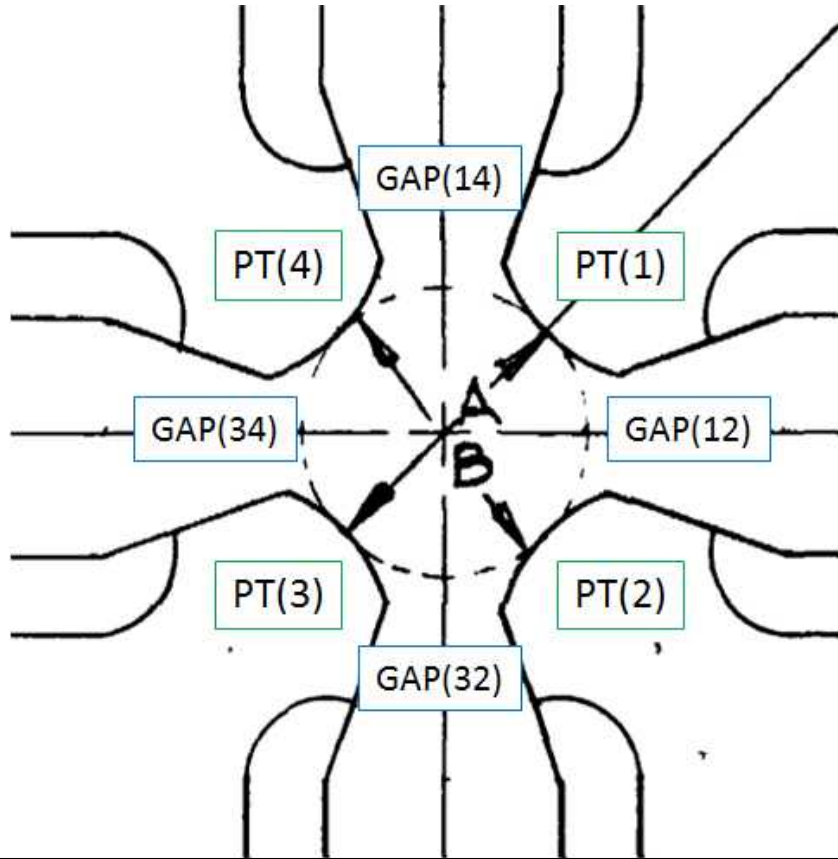
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7812	1.5092	-2.4965
TB 2	-1.5158	5.7530	-2.4995
TB 3	1.4949	5.7577	-2.5137
TB 4	5.7401	1.5000	-2.5212
TB 5	5.8302	3.3245	0.1899
TB 6	3.2988	5.8383	0.2000
TB 7	-3.3278	5.7034	0.1848
TB 8	-5.8445	3.3037	0.2135

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

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Pole Tip Gap Measurements



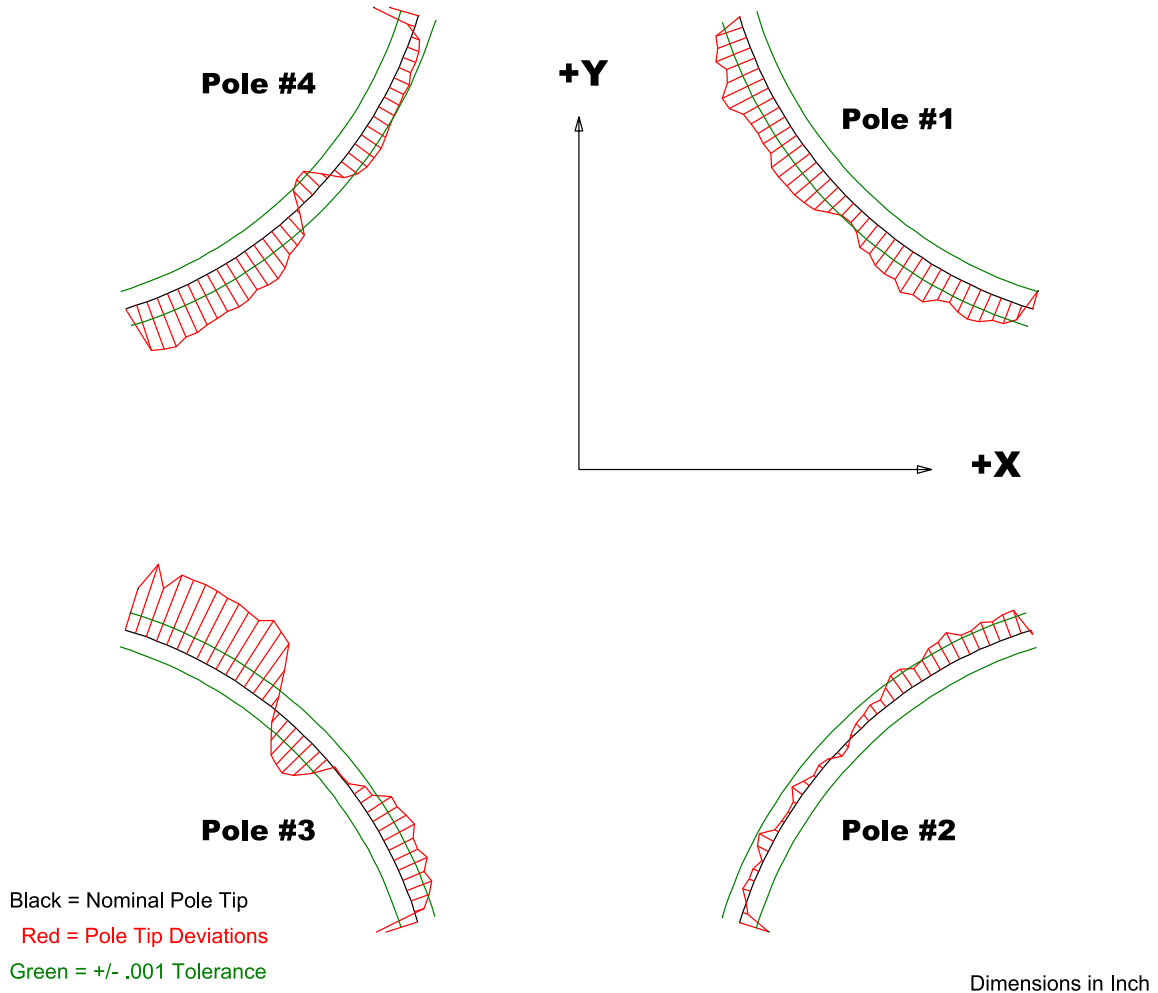
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3(A)	1.085	1.08597	1.08494
PT Distance 2-4(B)	1.085	1.08549	1.08796
Gap 1-2	0.4546	0.45699	0.46052
Gap 2-3	0.4546	0.46001	0.45996
Gap 3-4	0.4546	0.45264	0.46063
Gap 4-1	0.4546	0.45952	0.45959

Dimensions in Inch

Barcode # : 4112

Mfg. S/N : E015

Composite Best-fit of Pole Tips, Downstream



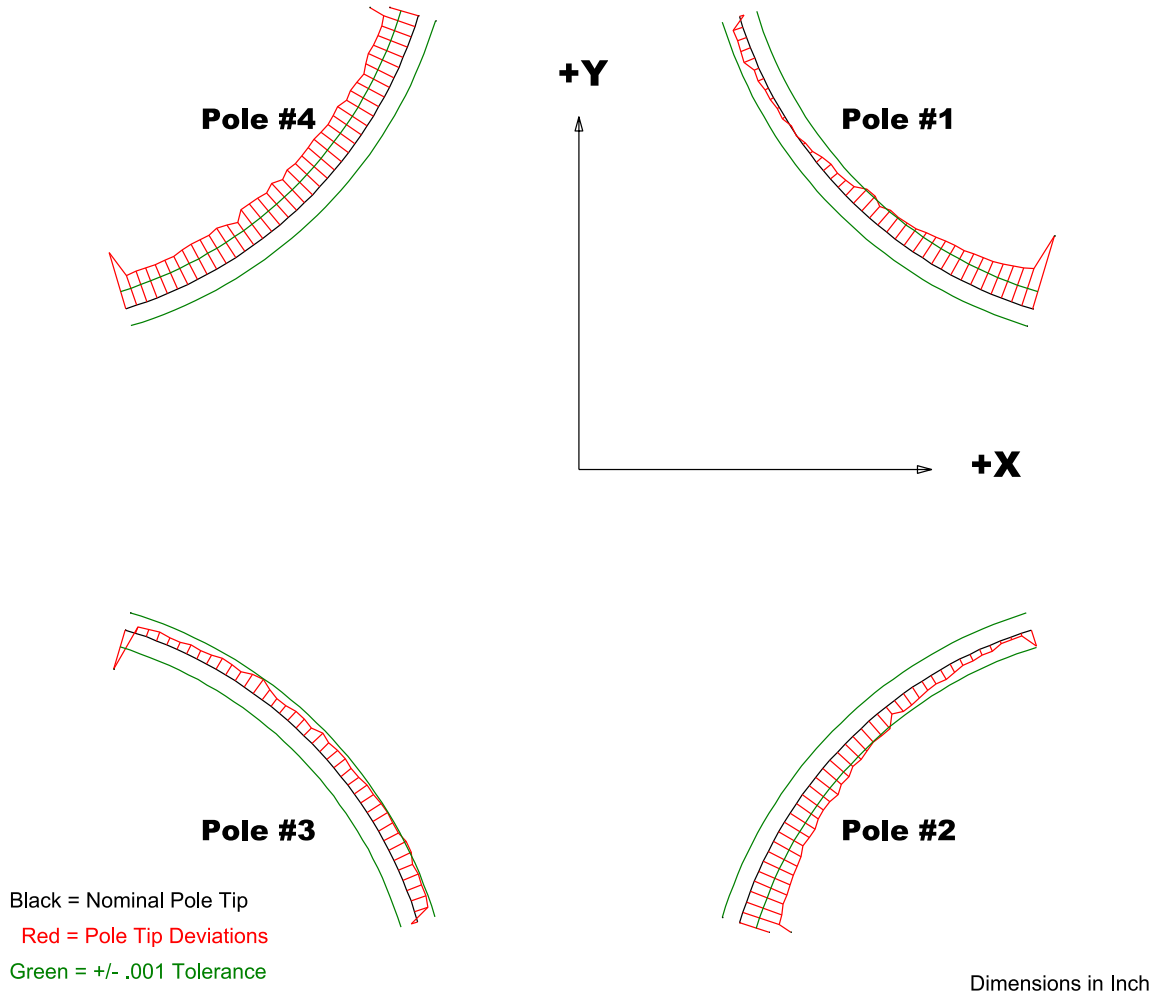
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00104	-0.00168	-0.00332	-0.00413
Max. Dev.	0.00256	0.00166	0.00405	0.00294

Barcode # : 4112

Mfg. S/N : E015

Composite Best-fit of Pole Tips, Upstream



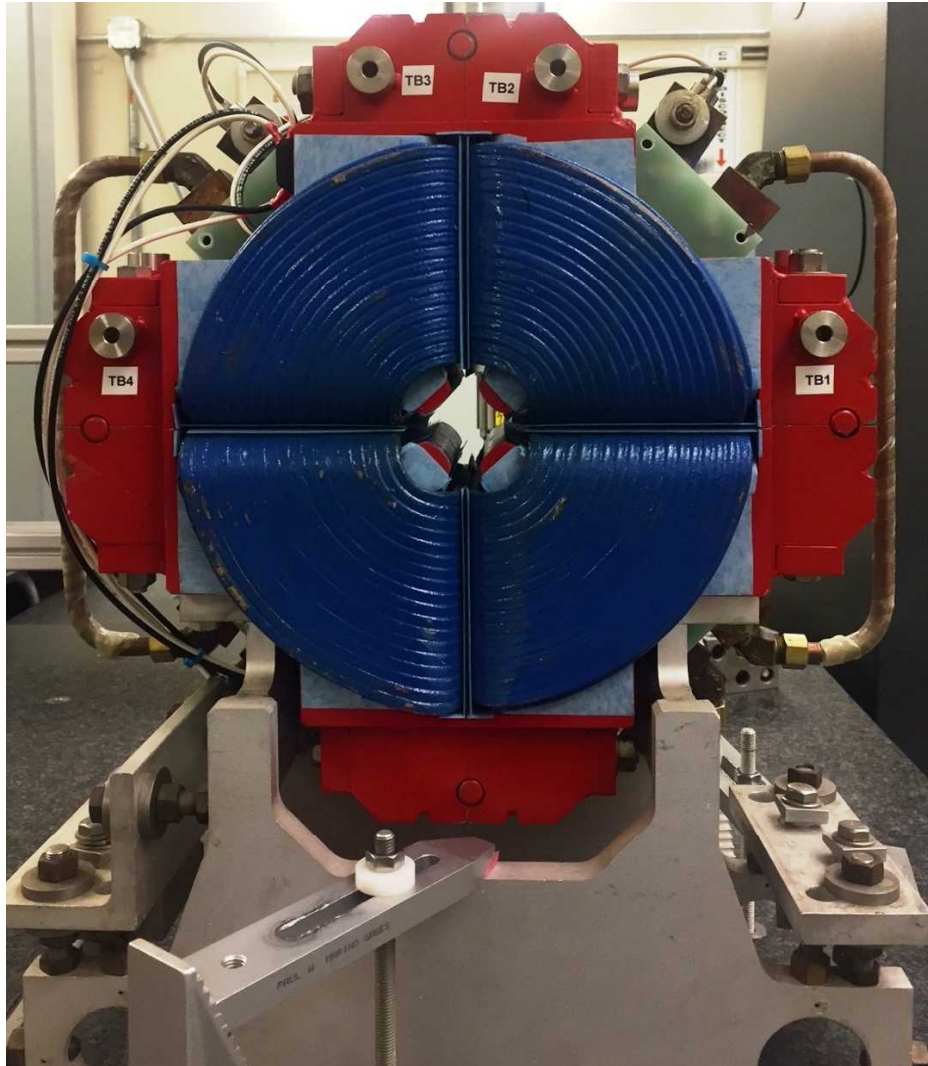
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00425	-0.00405	-0.00228	-0.00384
Max. Dev.	0.00063	-0.00014	0.0011	-0.00156

Barcode # : 4112

Mfg. S/N : E015

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



Angle in Decimal Degrees ° :-0.07938

Angle in Milliradians :-1.38537

Barcode # : 4112

Mfg. S/N : E015