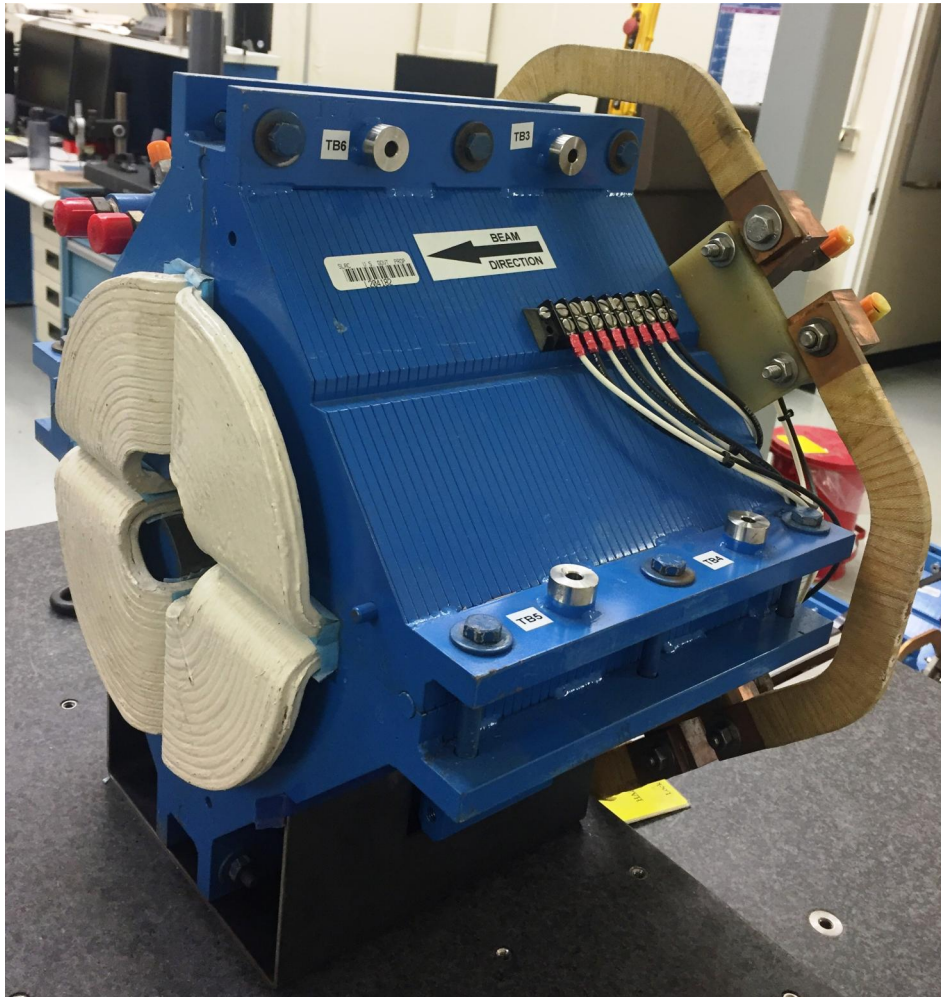


LCLS II 2Q10 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-344-113-21
Barcode # : 4188
Mfg. S/N : #03

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.

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.

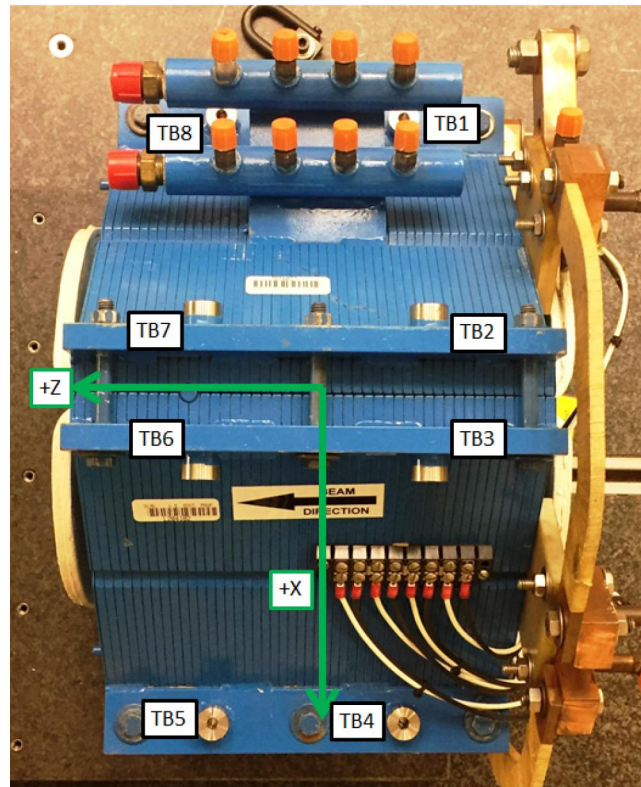
Coordinate Origins

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 # : 4188

Mfg. S/N : #03

Tooling Ball Locations



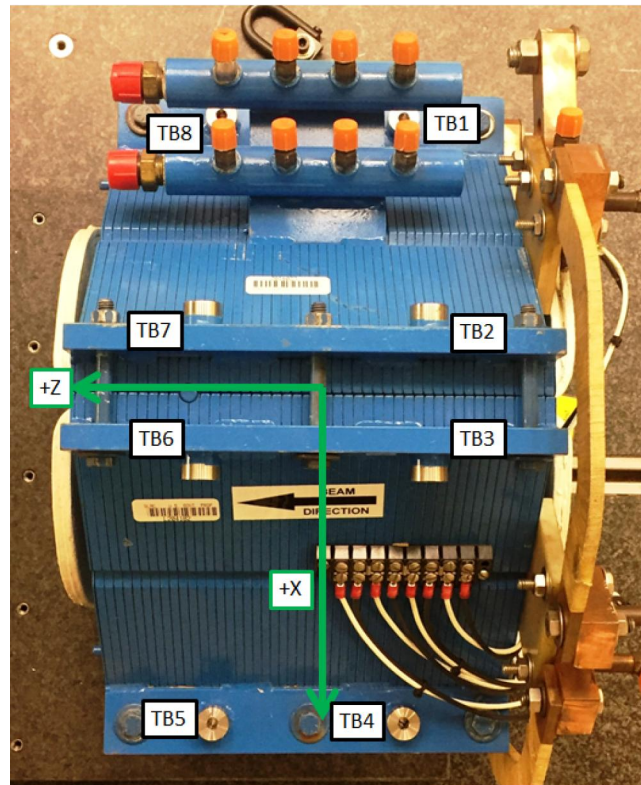
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-7.0793	2.6754	-2.1729
TB 2	-2.6689	7.0648	-2.1691
TB 3	2.6778	7.0835	-2.1697
TB 4	7.0636	2.6731	-2.1662
TB 5	7.0618	2.6784	2.1642
TB 6	2.6892	7.0730	2.1704
TB 7	-2.6755	7.0620	2.1819
TB 8	-7.0764	2.6751	2.1722

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

Barcode # : 4188

Mfg. S/N : #03

Tooling Ball Locations



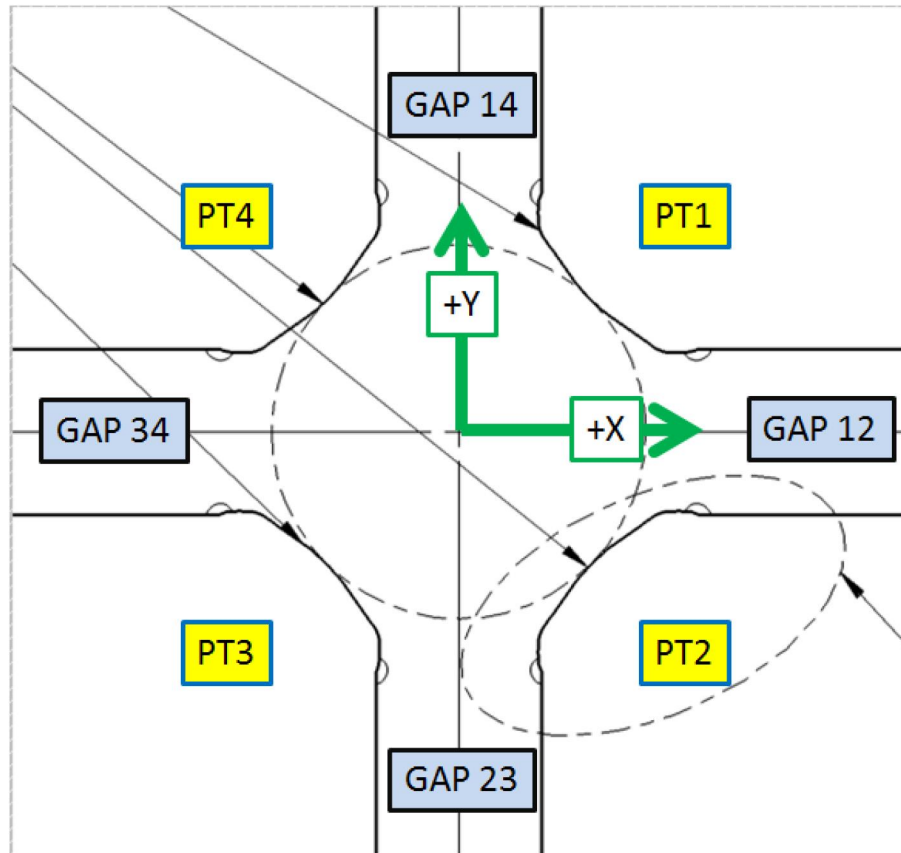
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-7.0730	1.9884	-2.1725
TB 2	-1.9814	7.0639	-2.1715
TB 3	1.9899	7.0760	-2.1684
TB 4	7.0592	1.9861	-2.1649
TB 5	7.0599	1.9906	2.1682
TB 6	2.0014	7.0679	2.1746
TB 7	-1.9885	7.0608	2.1848
TB 8	-7.0728	1.9874	2.1718

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

Barcode # : 4188

Mfg. S/N : #03

Pole Tip Gap Measurements



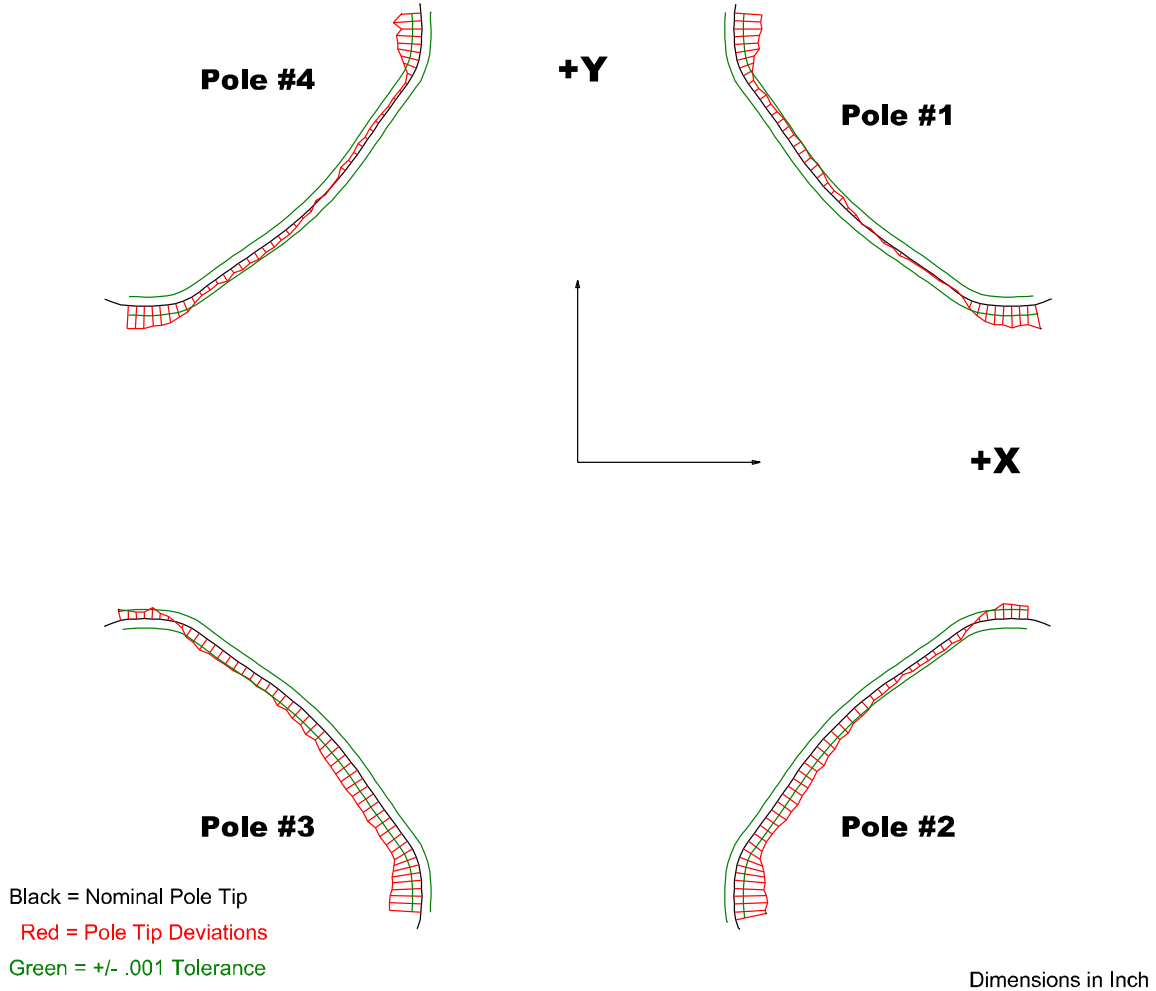
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.02841	2.02601
PT Distance 2-4	2.026	2.02759	2.02646
Gap 1-2	0.8602	0.854	0.8549
Gap 2-3	0.8602	0.86472	0.86063
Gap 3-4	0.8602	0.85496	0.85514
Gap 1-4	0.8602	0.86314	0.86199

Dimensions in Inch

Barcode # : 4188

Mfg. S/N : #03

Composite Best-fit of Pole Tips, Downstream



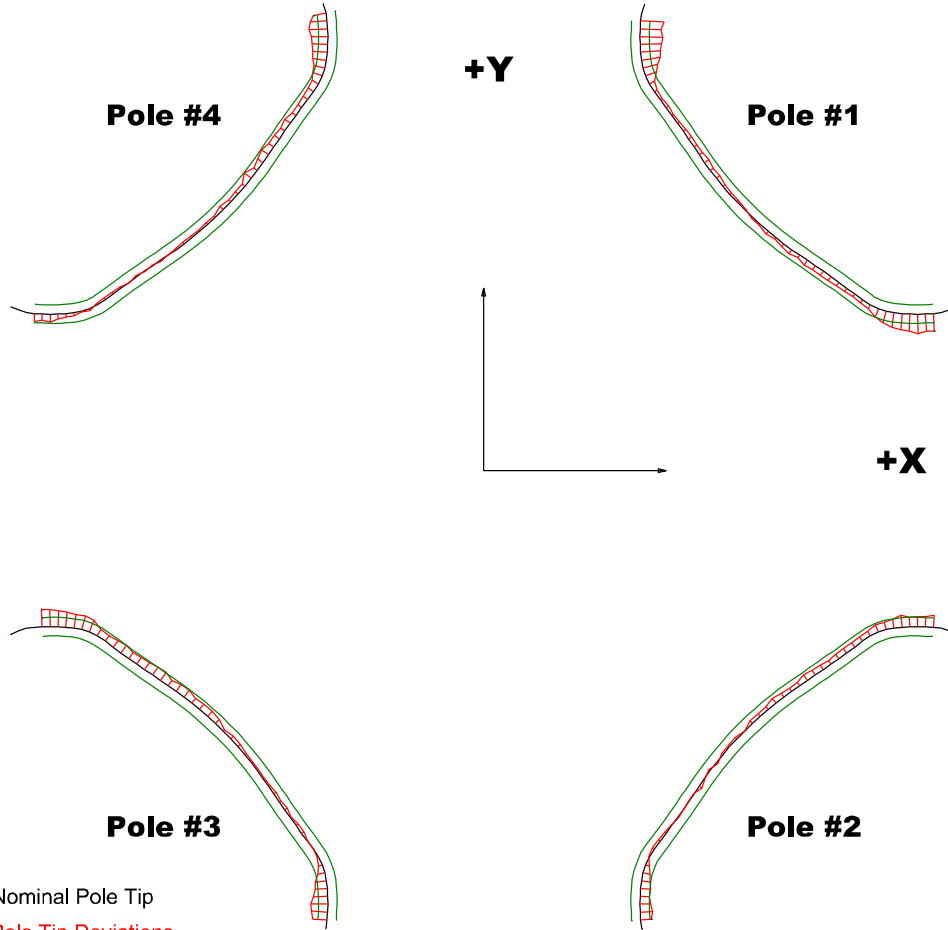
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00301	-0.00359	-0.00347	-0.00302
Max. Dev.	0.00263	0.00162	0.00122	0.00247

Barcode # : 4188

Mfg. S/N : #03

Composite Best-fit of Pole Tips, Upstream



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

Dimensions in Inch

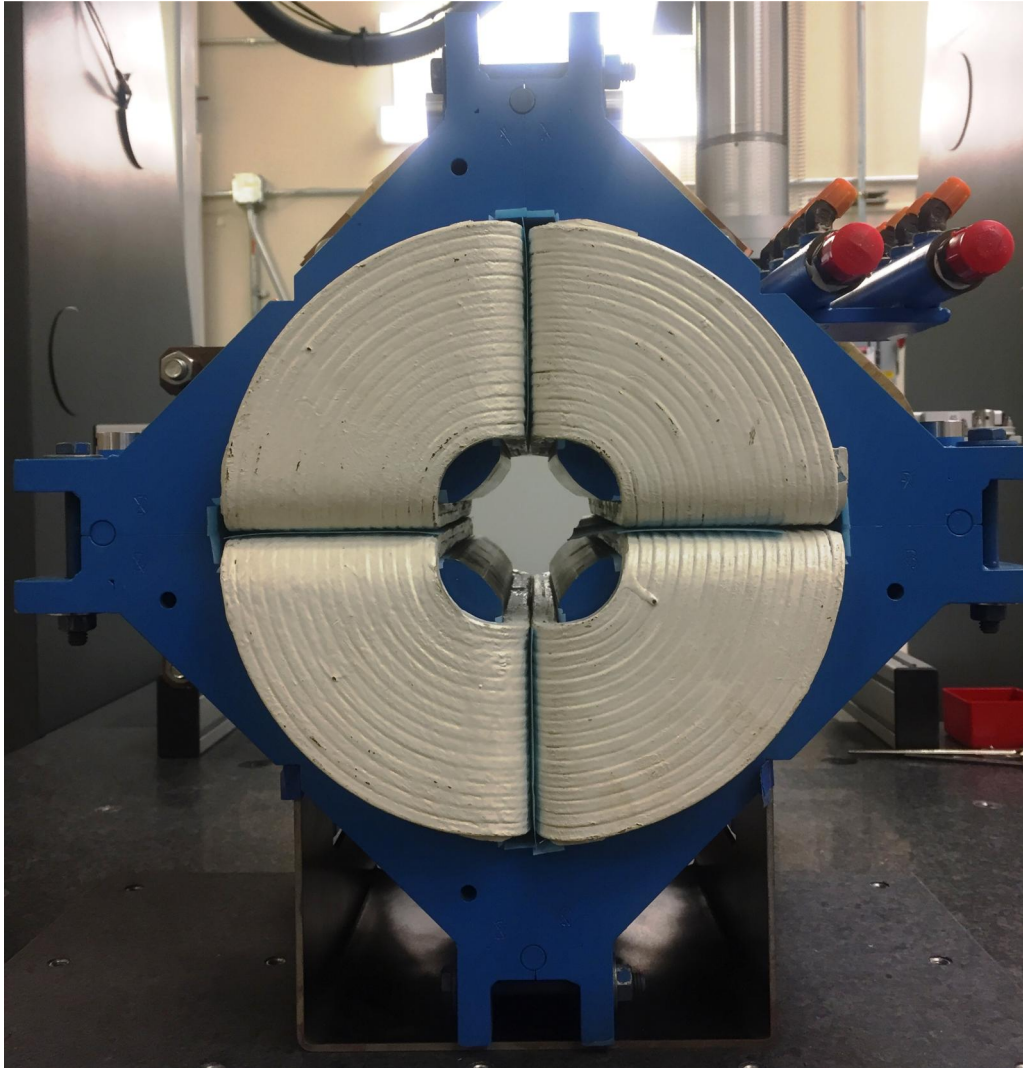
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00254	-0.0013	-0.00184	-0.00204
Max. Dev.	0.00212	0.00132	0.00188	0.00084

Barcode # : 4188

Mfg. S/N : #03

Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° : 0.00530
Angle in Milliradians : 0.09253

Barcode # : 4188

Mfg. S/N : #03