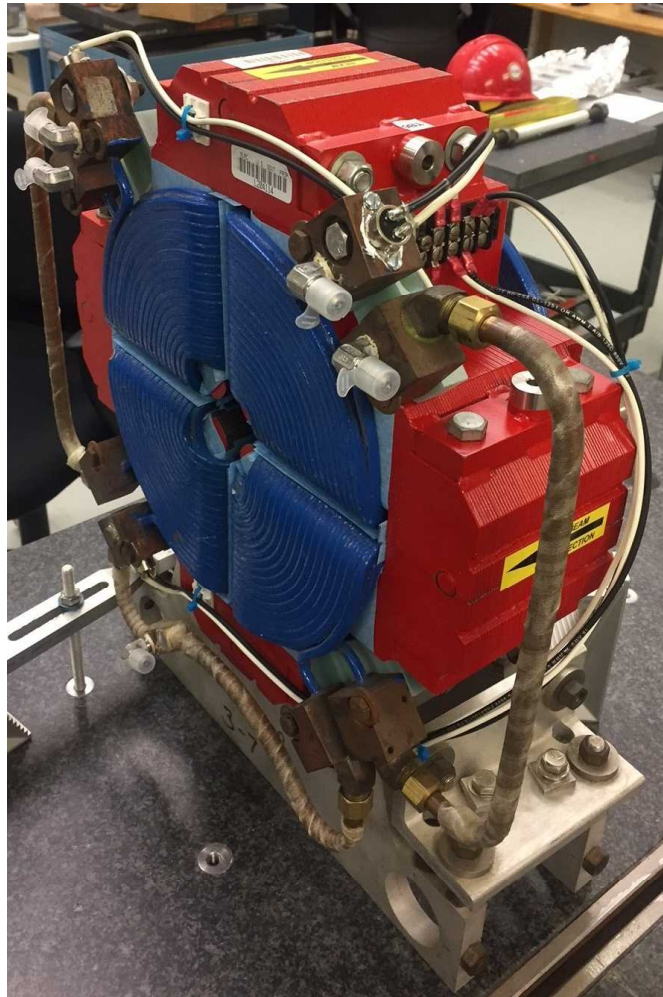


LCLS II 1.085Q4.31 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-902-675-01
Barcode # : 4128
Mfg. S/N : E070

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.

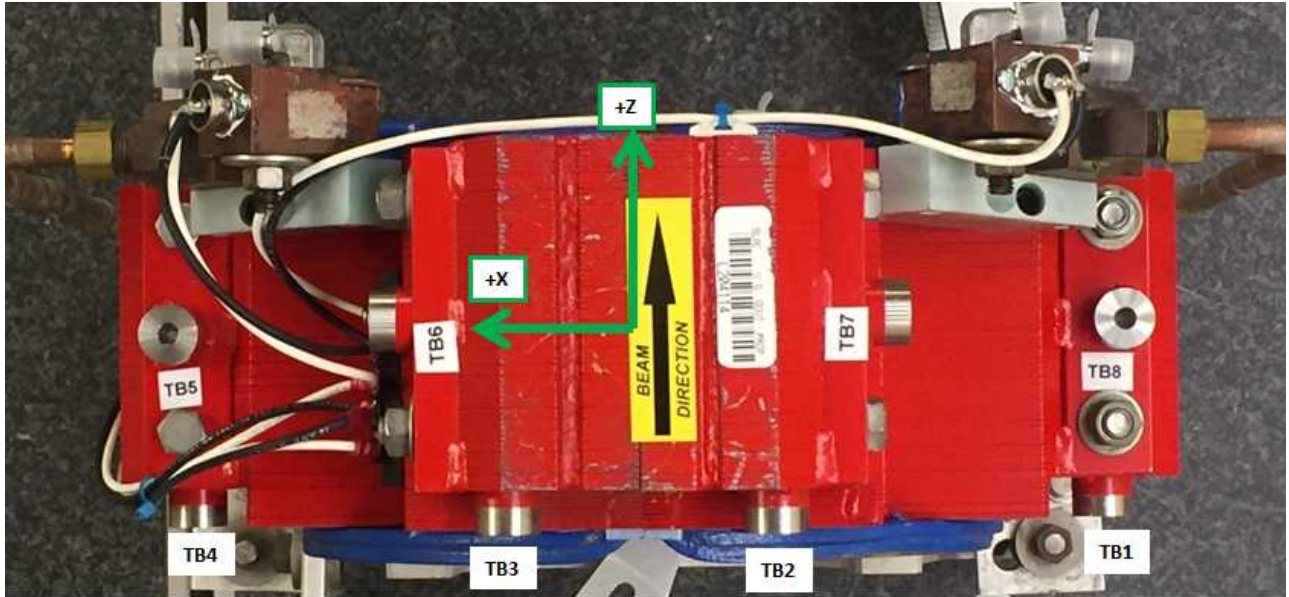
Coordinate Origins

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



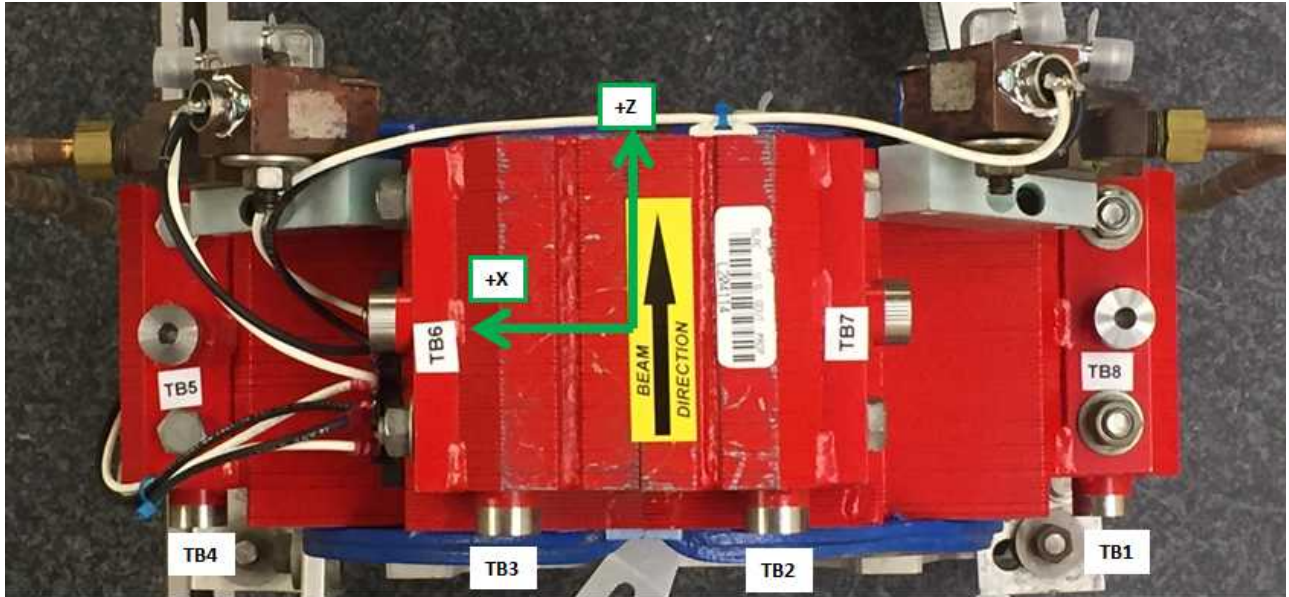
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7709	1.5362	-3.1721
TB 2	-1.5644	5.7698	-3.1664
TB 3	1.5356	5.7251	-3.1701
TB 4	5.7156	1.5120	-3.1768
TB 5	5.7831	3.9961	0.1977
TB 6	4.0061	5.8315	0.2381
TB 7	-3.9971	5.8029	0.2518
TB 8	-5.8623	4.0032	0.2442

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

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Tooling Ball Locations



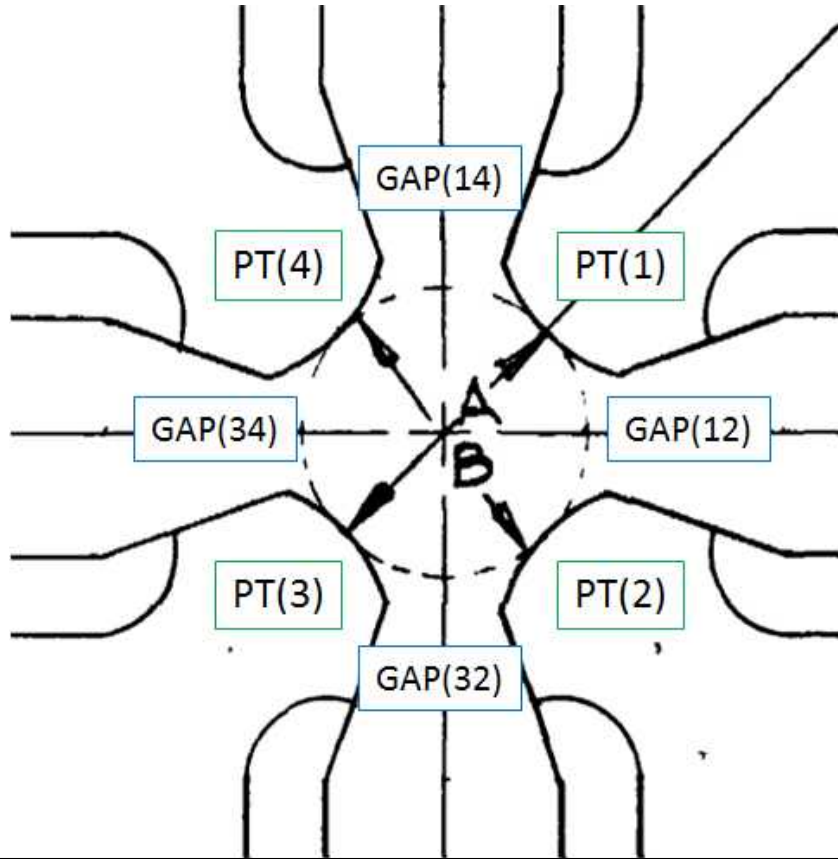
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-5.7708	1.5352	-2.4840
TB 2	-1.5626	5.7757	-2.4780
TB 3	1.5348	5.7268	-2.4813
TB 4	5.7196	1.5128	-2.4894
TB 5	5.7836	3.3084	0.1977
TB 6	3.3153	5.8294	0.2378
TB 7	-3.3088	5.8045	0.2521
TB 8	-5.8628	3.3157	0.2446

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

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Pole Tip Gap Measurements



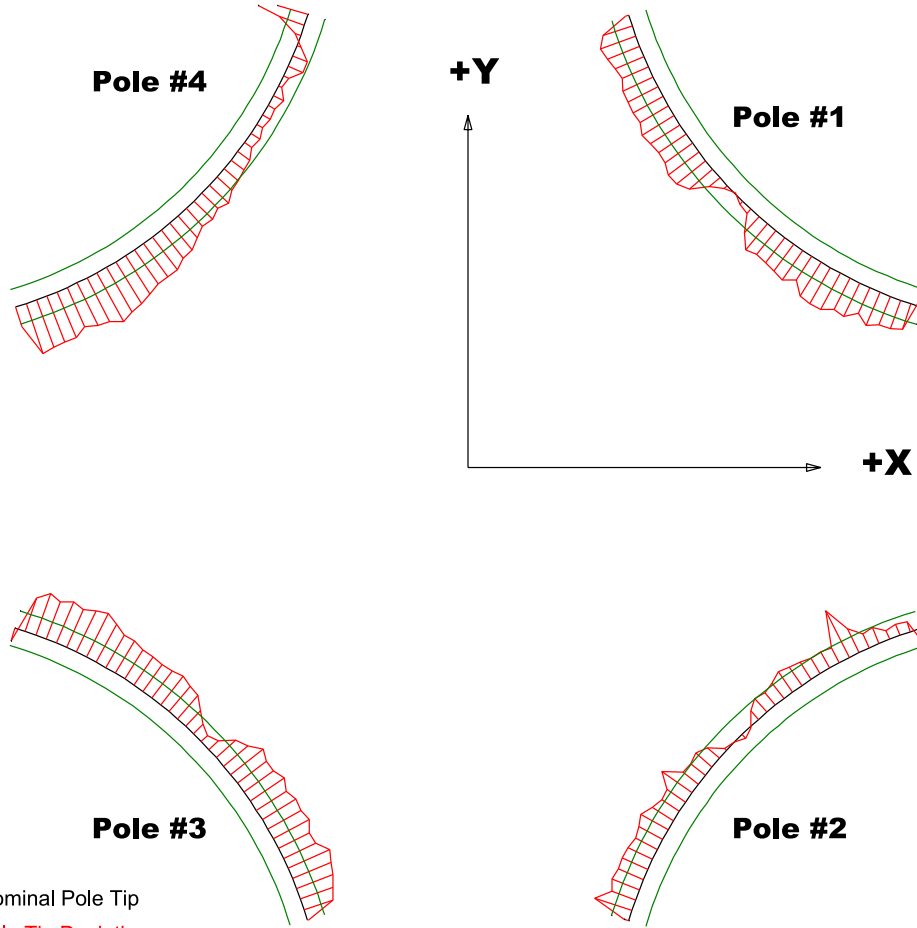
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3(A)	1.085	1.08421	1.08581
PT Distance 2-4(B)	1.085	1.08371	1.08335
Gap 1-2	0.4546	0.45782	0.45317
Gap 2-3	0.4546	0.45535	0.45731
Gap 3-4	0.4546	0.45474	0.45559
Gap 4-1	0.4546	0.45935	0.45907

Dimensions in Inch

Barcode # : 4128

Mfg. S/N : E070

Composite Best-fit of Pole Tips, Downstream



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

Dimensions in Inch

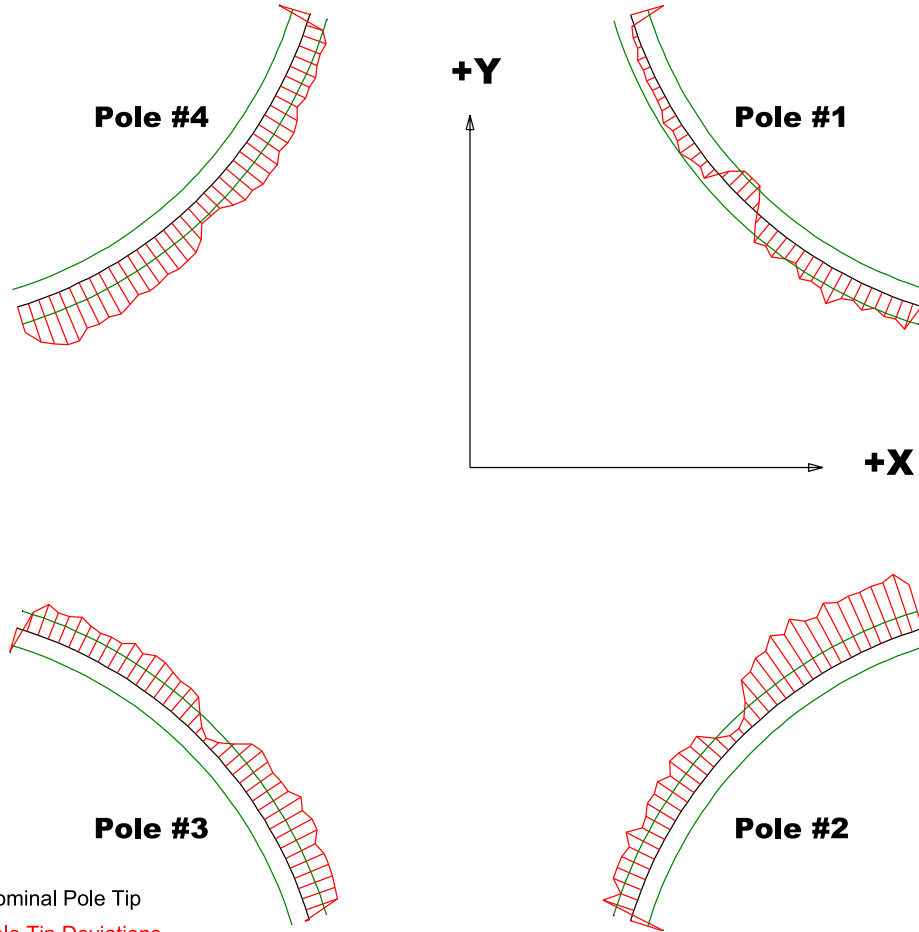
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00119	-0.00109	-0.00077	-0.00432
Max. Dev.	0.0023	0.0029	0.00271	0.0031

Barcode # : 4128

Mfg. S/N : E070

Composite Best-fit of Pole Tips, Upstream



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

Dimensions in Inch

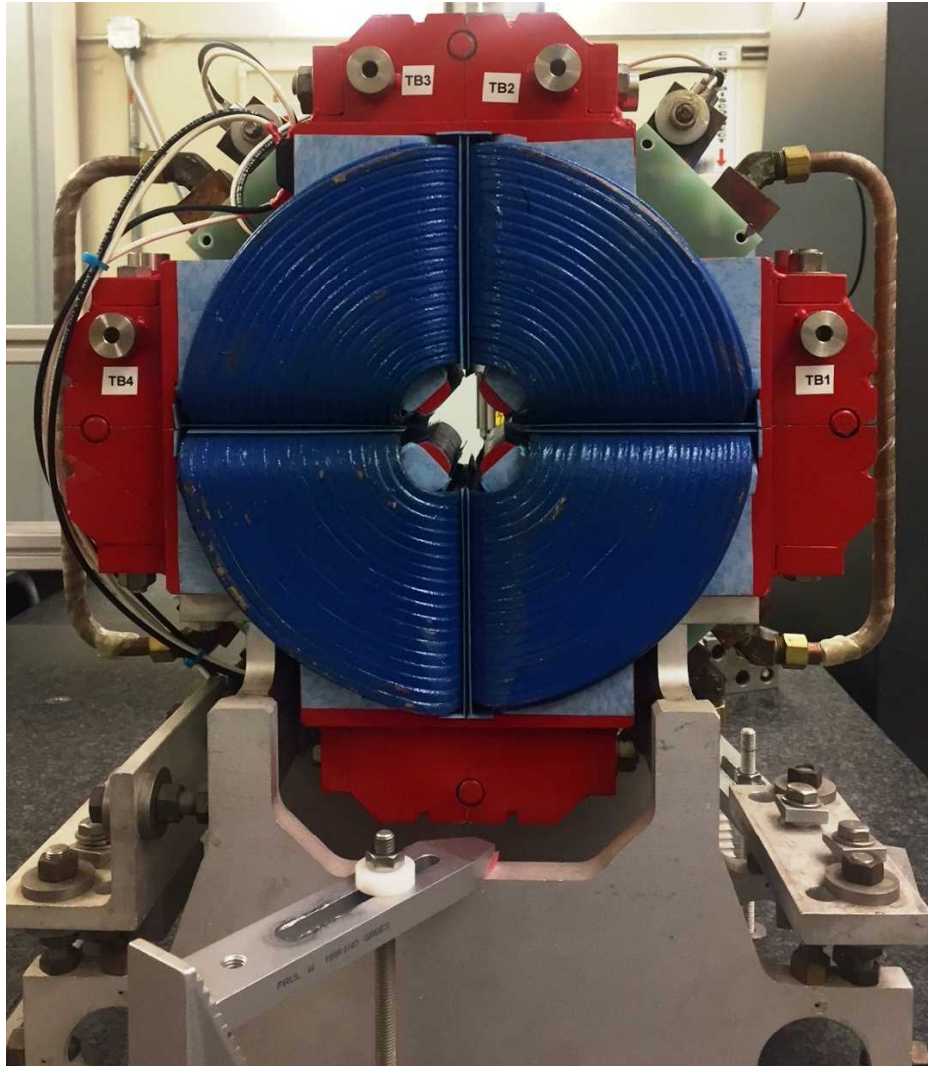
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00195	-0.00211	-0.00137	-0.00179
Max. Dev.	0.00193	0.00356	0.0024	0.00294

Barcode # : 4128

Mfg. S/N : E070

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



Angle in Decimal Degrees ° :0.02323

Angle in Milliradians :0.40543

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