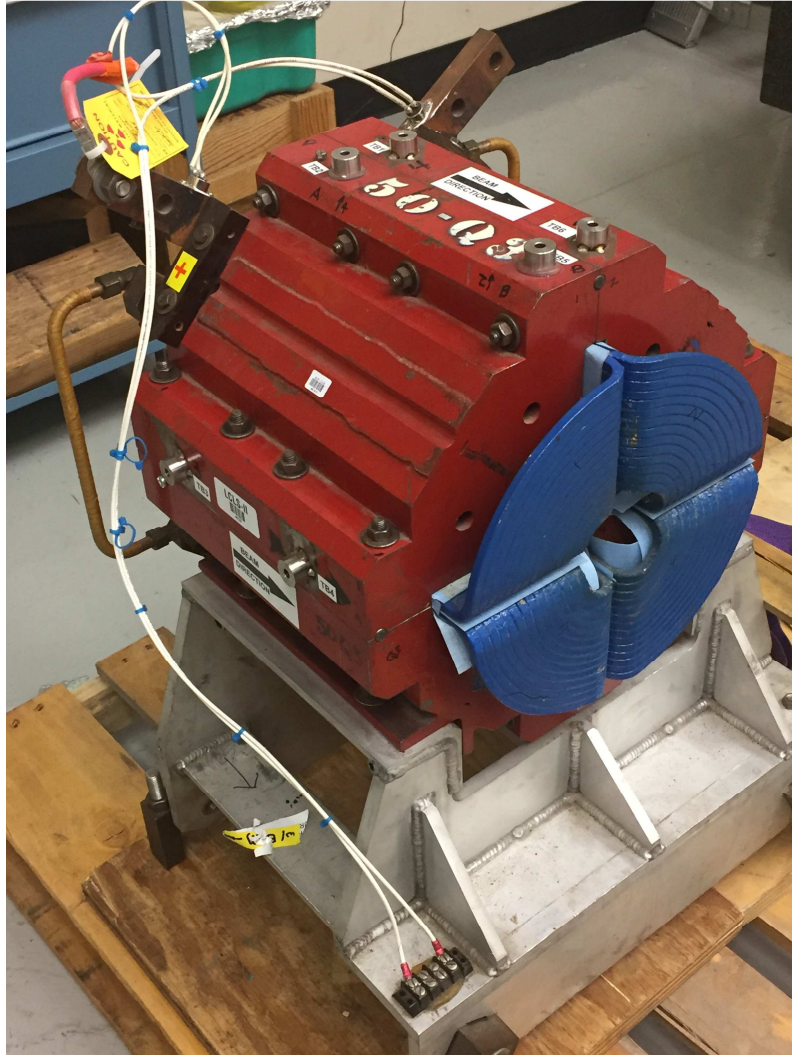


LCLS II 50Q3 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann/K. Grouev
Drawing No. : AD-902-673-00 R1
Barcode # : 4110
Mfg. S/N : 50Q3

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 .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 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.

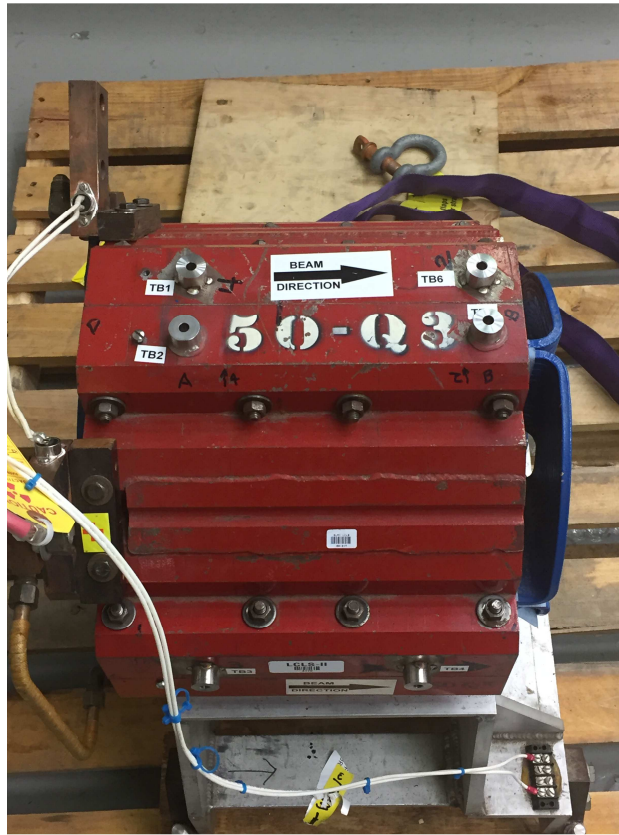
Coordinate Origins

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



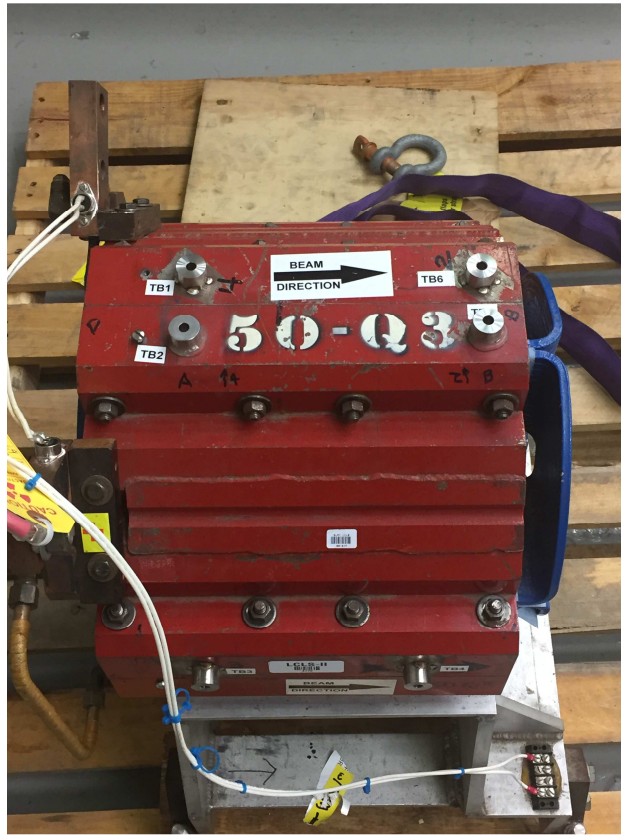
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	0.8112	8.7269	-2.7734
TB 2	-1.1247	8.7640	-2.8316
TB 3	-8.7318	0.8102	-2.7035
TB 4	-8.7290	0.7758	2.8963
TB 5	-0.9794	8.7789	4.4502
TB 6	0.7419	8.7248	4.4182

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

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Tooling Ball Locations



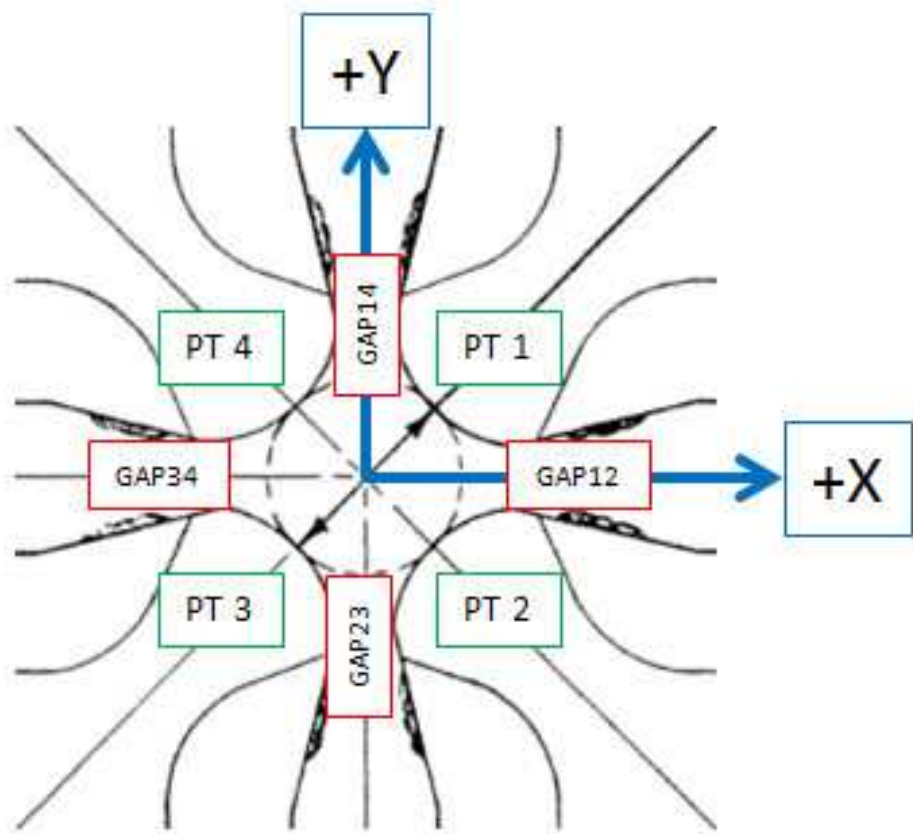
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB A	0.8115	8.0390	-2.7745
TB B	-1.0910	8.0774	-2.8335
TB C	-8.0432	0.8142	-2.7049
TB D	-8.0406	0.7774	2.8946
TB E	-0.9637	8.0912	4.4437
TB F	0.7423	8.0373	4.4169

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

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Pole Tip Gap Measurements

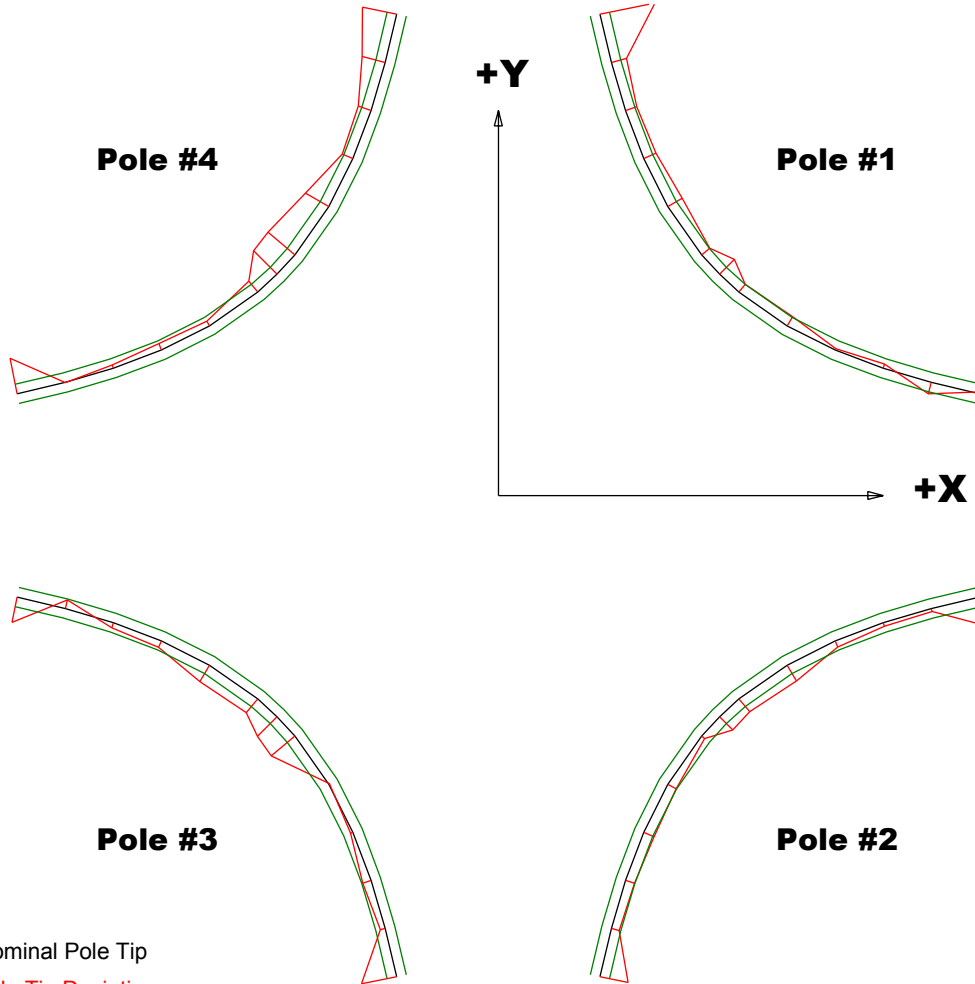


	Nominal Distance	Downstream Pole End	Upstream Pole End
Pole Tip Distance 1-3	0.813	0.81757	0.81537
Pole Tip Distance 2-4	0.813	0.81783	0.81526
Gap 1-2	0.2644	0.26694	0.26451
Gap 2-3	0.2644	0.26616	0.26409
Gap 3-4	0.2644	0.27041	0.26387
Gap 4-1	0.2644	0.27353	0.27558

Dimensions in Inch

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Mfg. S/N : 50Q3

Composite Best-fit of Pole Tips, Downstream



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

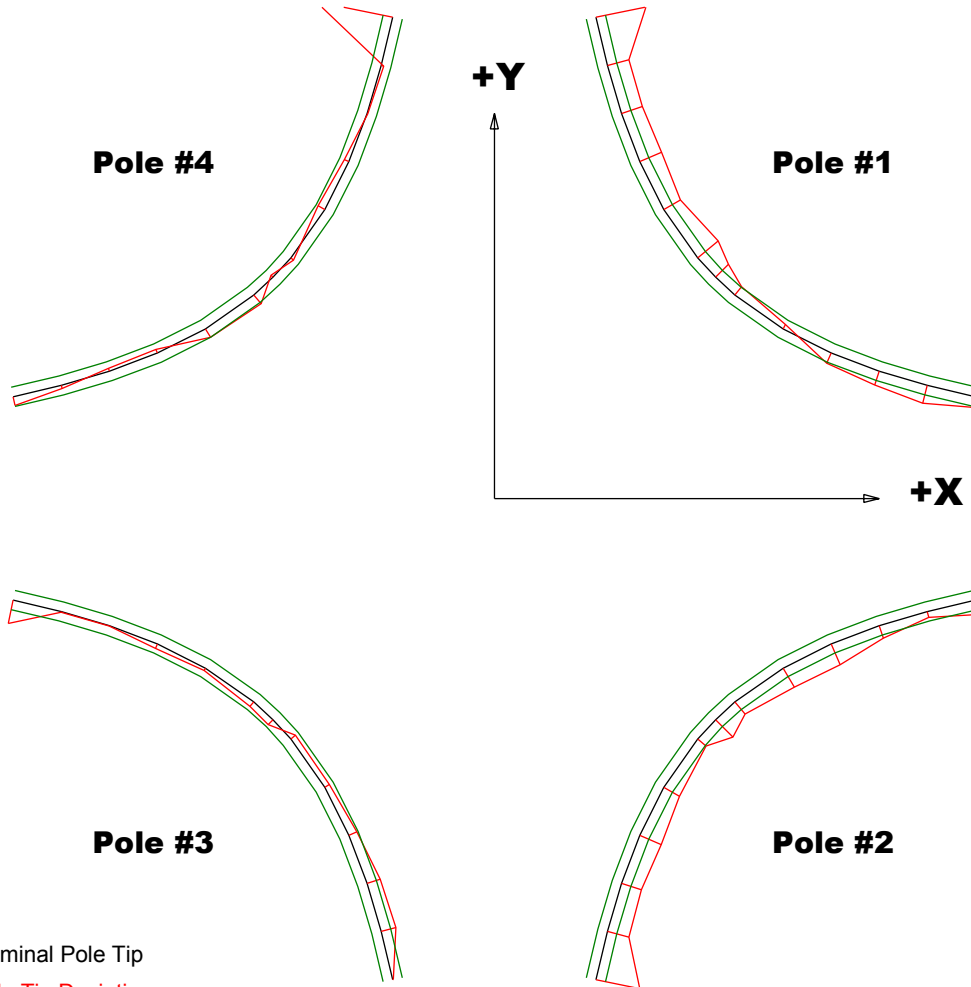
Dimensions in Inch

Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00572	-0.00296	-0.00366	-0.00369
Max. Dev.	0.0012	-0.00031	0.0009	0.00002

Barcode # : 4110
Mfg. S/N : 50Q3

Composite Best-fit of Pole Tips, Upstream



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

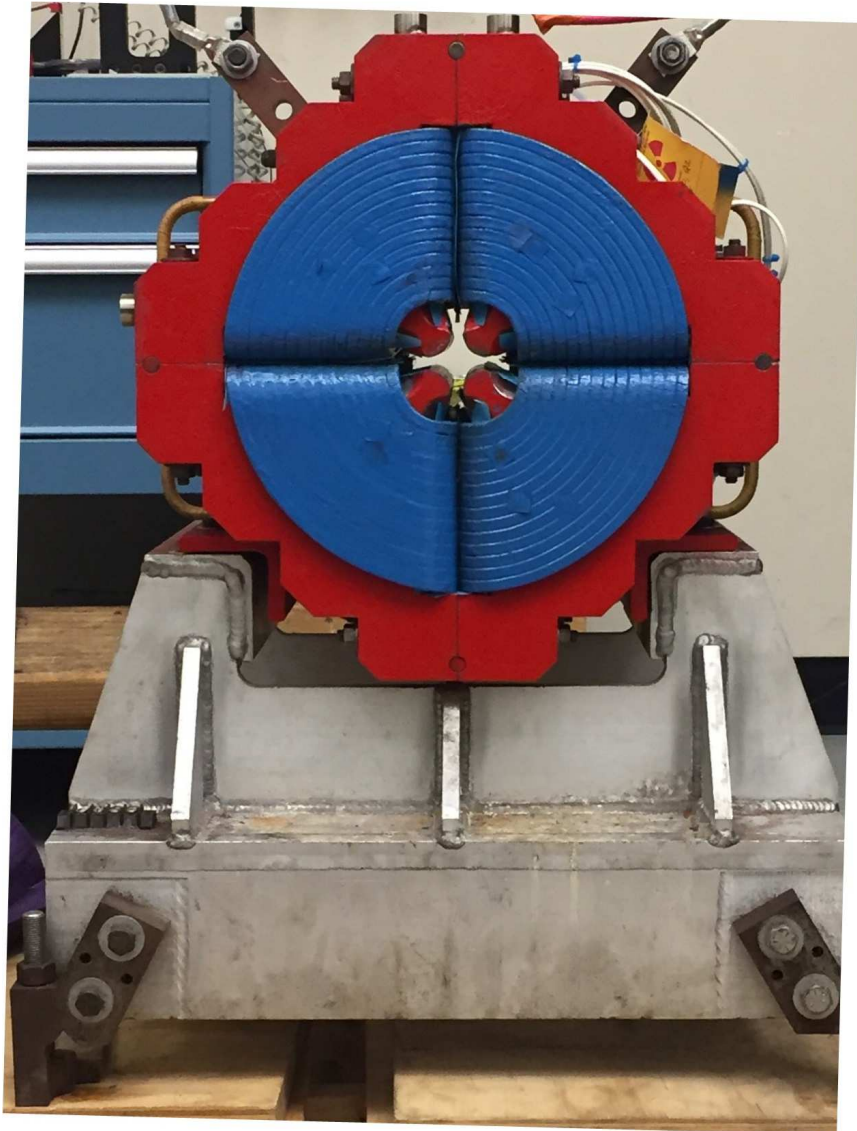
Dimensions in Inch

Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.0052	-0.00455	-0.00242	-0.00799
Max. Dev.	0.00189	-0.00061	0.00157	0.00117

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Angle of the Composite Pole Tip Best-Fit In Relation to Base



Angle in Decimal Degrees ° :-0.02272

Angle in Milliradians :-0.39654

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