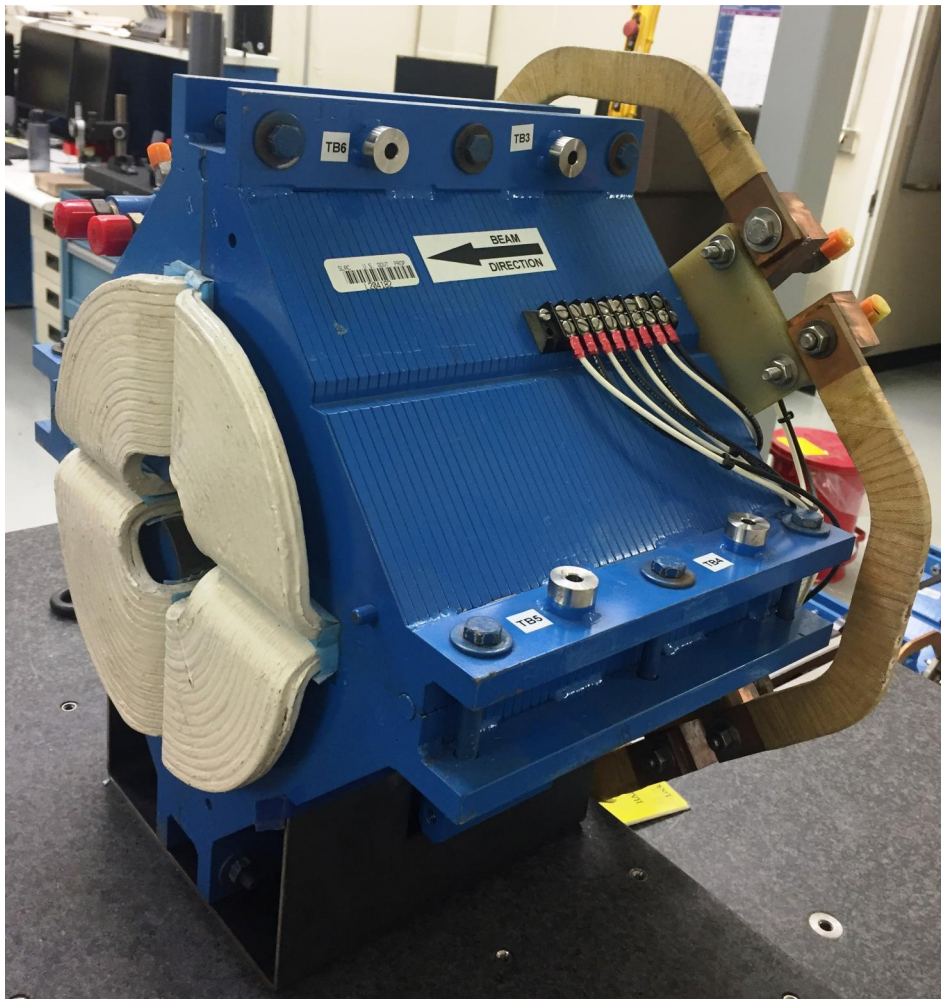


LCLS II 2Q10 Fiducialization Report



Inspector : K. Caban
Engineer : J. Amann
Drawing No. : SA-344-113-21
Barcode # : 4192
Mfg. S/N : #16

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.

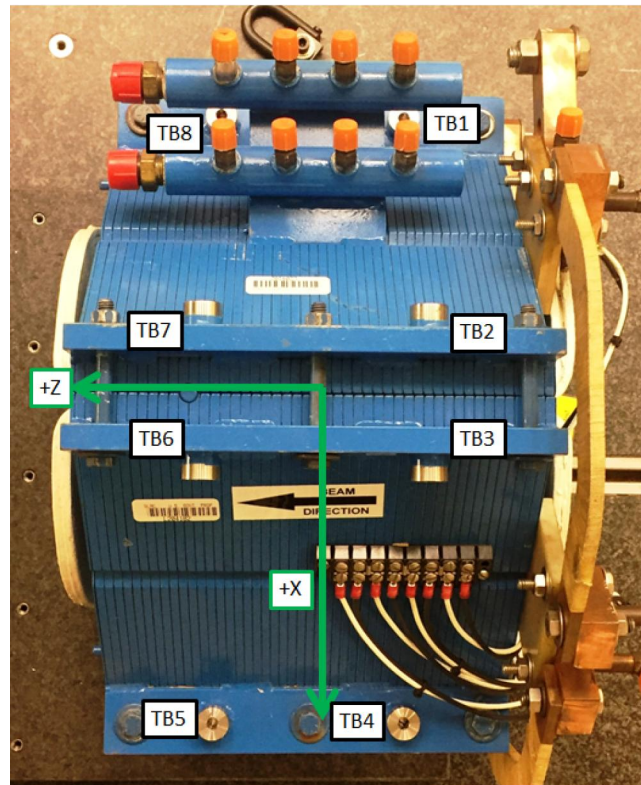
Coordinate Origins

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.

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Tooling Ball Locations



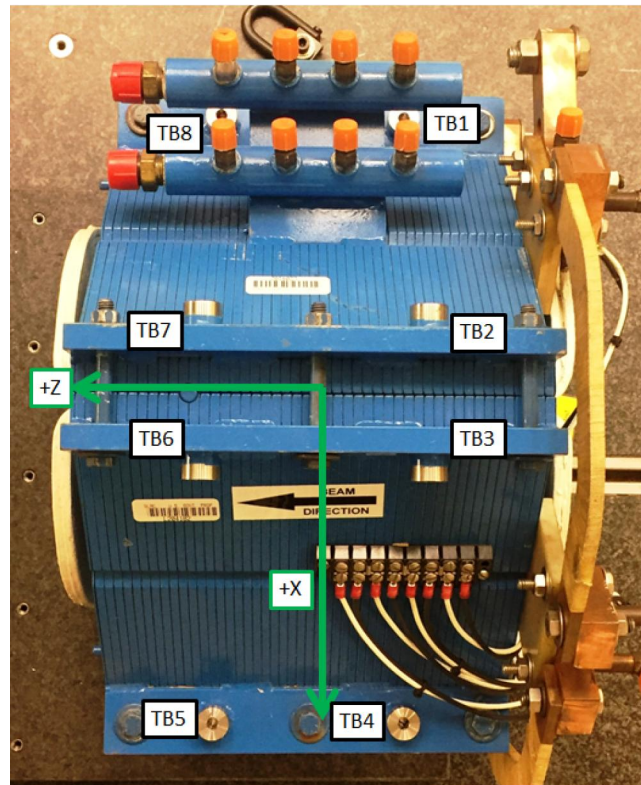
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-7.0699	2.6870	-2.1532
TB 2	-2.6751	7.0560	-2.1624
TB 3	2.6731	7.0569	-2.1863
TB 4	7.0647	2.6712	-2.2002
TB 5	7.0762	2.6801	2.1442
TB 6	2.6829	7.0316	2.1484
TB 7	-2.6758	7.0556	2.1685
TB 8	-7.0638	2.6781	2.1626

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

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Tooling Ball Locations



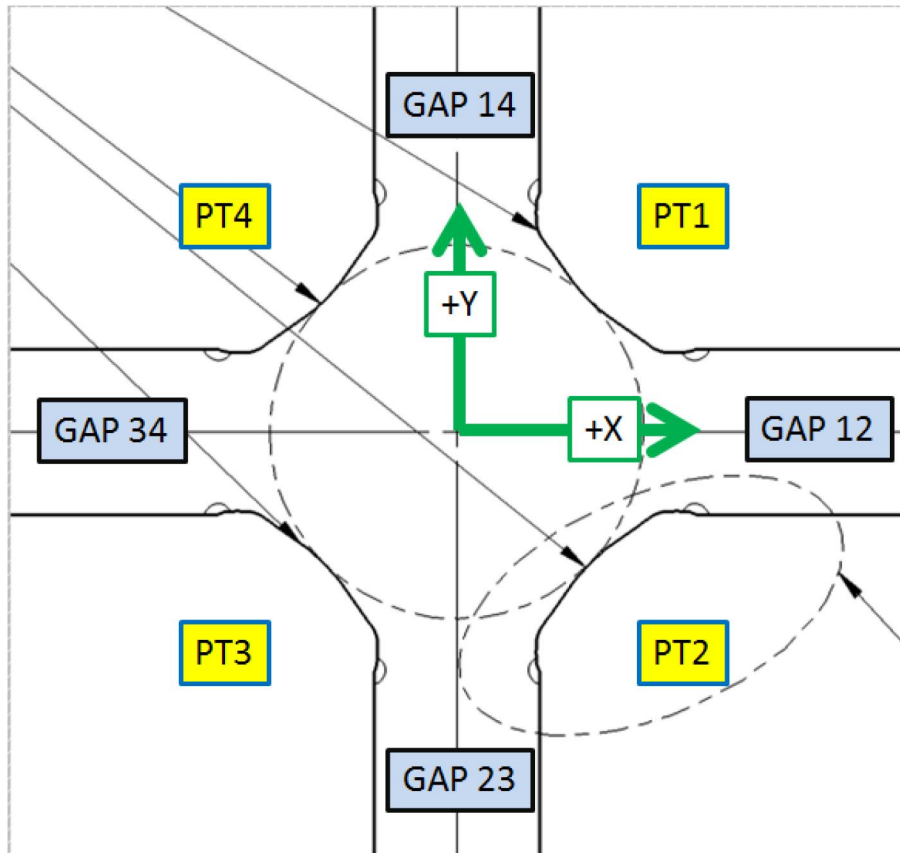
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	-7.0654	1.9997	-2.1547
TB 2	-1.9875	7.0541	-2.1619
TB 3	1.9850	7.0552	-2.1861
TB 4	7.0554	1.9838	-2.2003
TB 5	7.0700	1.9921	2.1463
TB 6	1.9954	7.0339	2.1513
TB 7	-1.9882	7.0570	2.1698
TB 8	-7.0600	1.9912	2.1604

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

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Pole Tip Gap Measurements



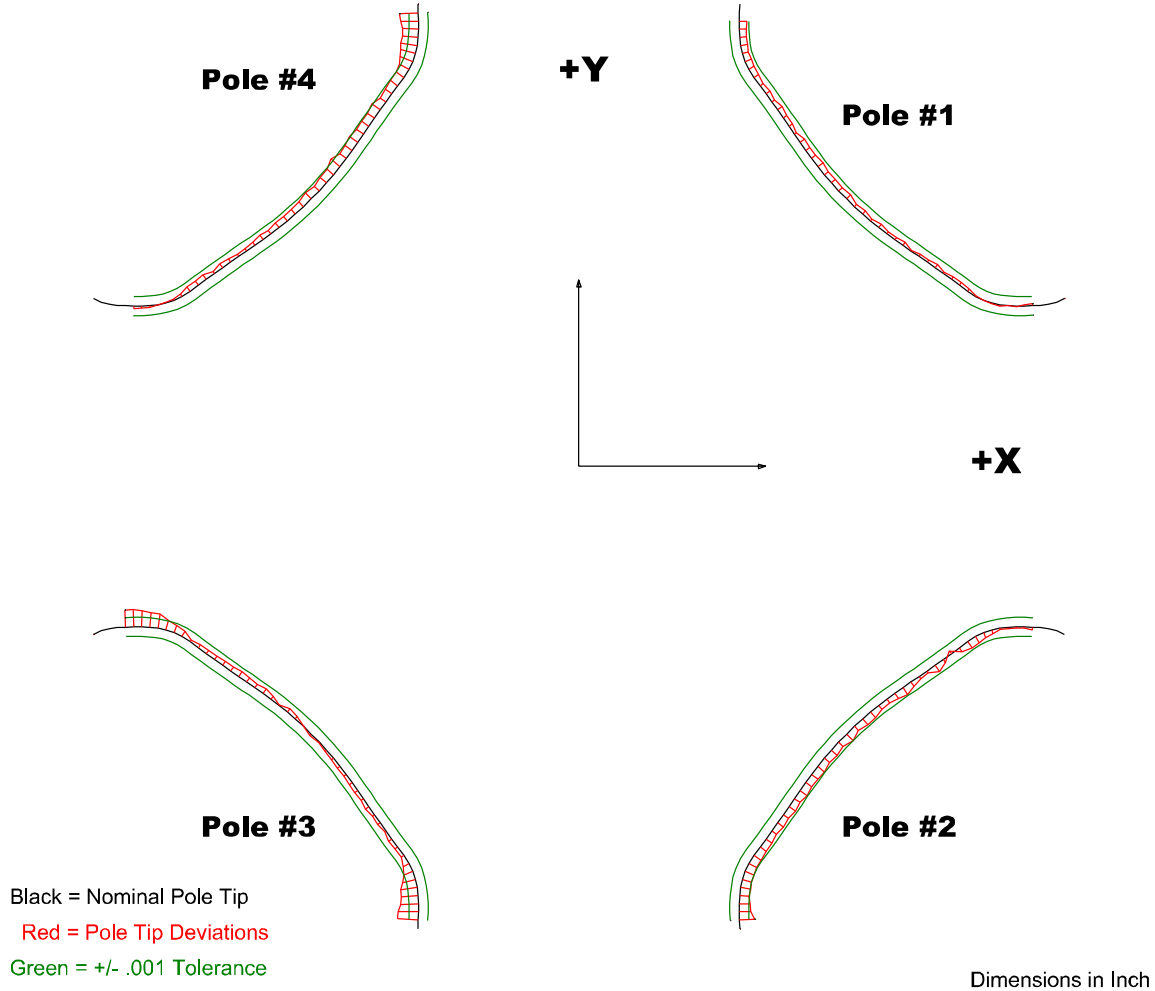
	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.02687	2.02647
PT Distance 2-4	2.026	2.02779	2.02721
Gap 1-2	0.8602	0.85745	0.85727
Gap 2-3	0.8602	0.86078	0.86069
Gap 3-4	0.8602	0.85585	0.85647
Gap 1-4	0.8602	0.86037	0.86101

Dimensions in Inch

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Composite Best-fit of Pole Tips, Downstream



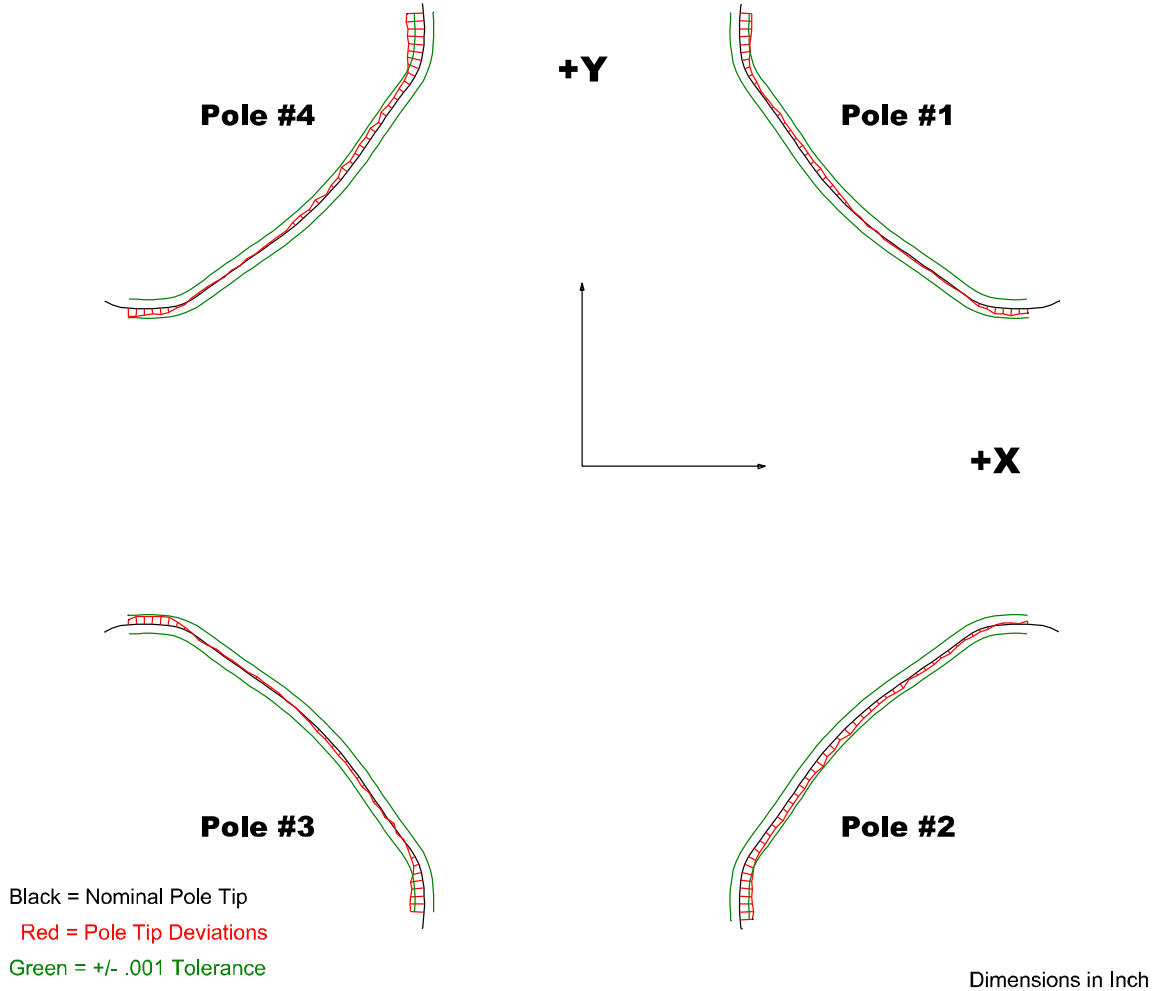
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00081	-0.0016	-0.00222	-0.00196
Max. Dev.	0.00016	0.00035	0.00182	0.00028

Barcode # : 4192

Mfg. S/N : #16

Composite Best-fit of Pole Tips, Upstream



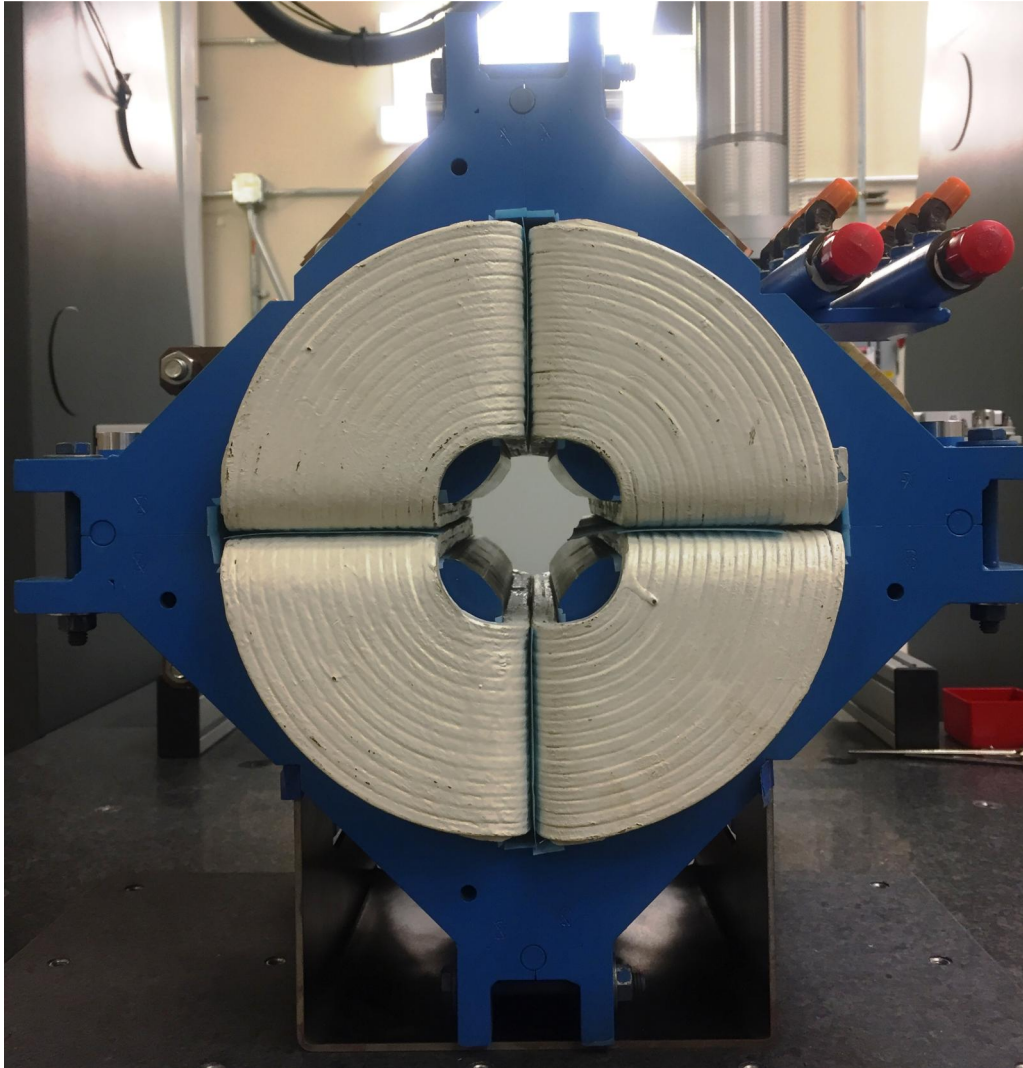
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.00134	-0.00151	-0.00155	-0.00195
Max. Dev.	0.00077	0.00034	0.00088	0.00086

Barcode # : 4192

Mfg. S/N : #16

Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° : 0.06337
Angle in Milliradians : 1.10599

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