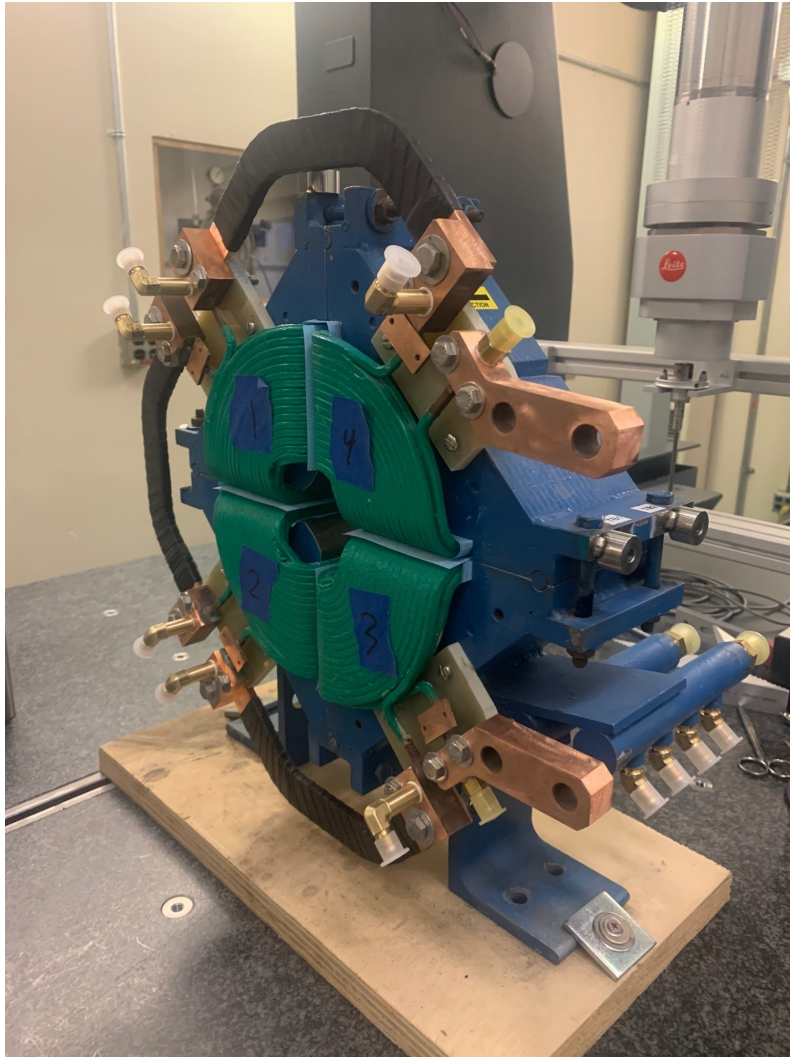


LCLS II 2Q4W Fiducialization Report

S30XL Refurb Quadrupole MFD FILE: 40395-5



Inspector : K. Caban
Engineer : A. Ibrahimov
Drawing No. : SA-344-112-18 R00
Barcode # :
Mfg. S/N : QDAS18B

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 and +Z points towards Terminal Bus End.

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.

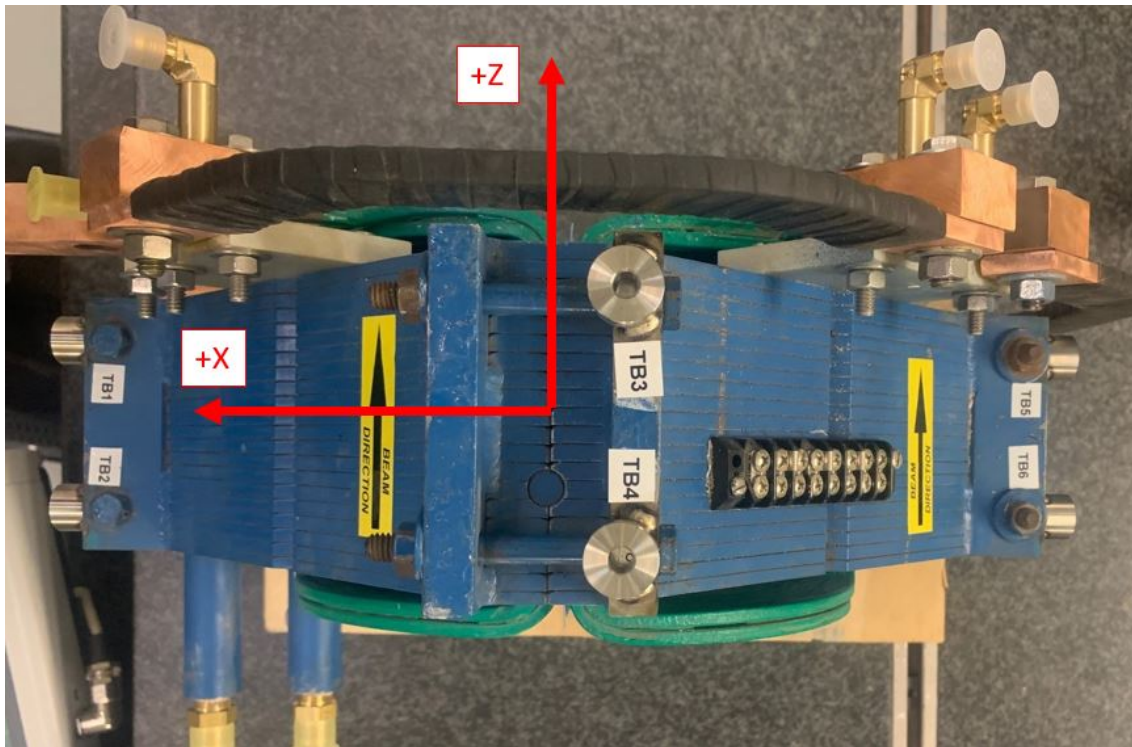
Coordinate Origins

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. +Z points towards Terminal Bus End.

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Tooling Ball Locations



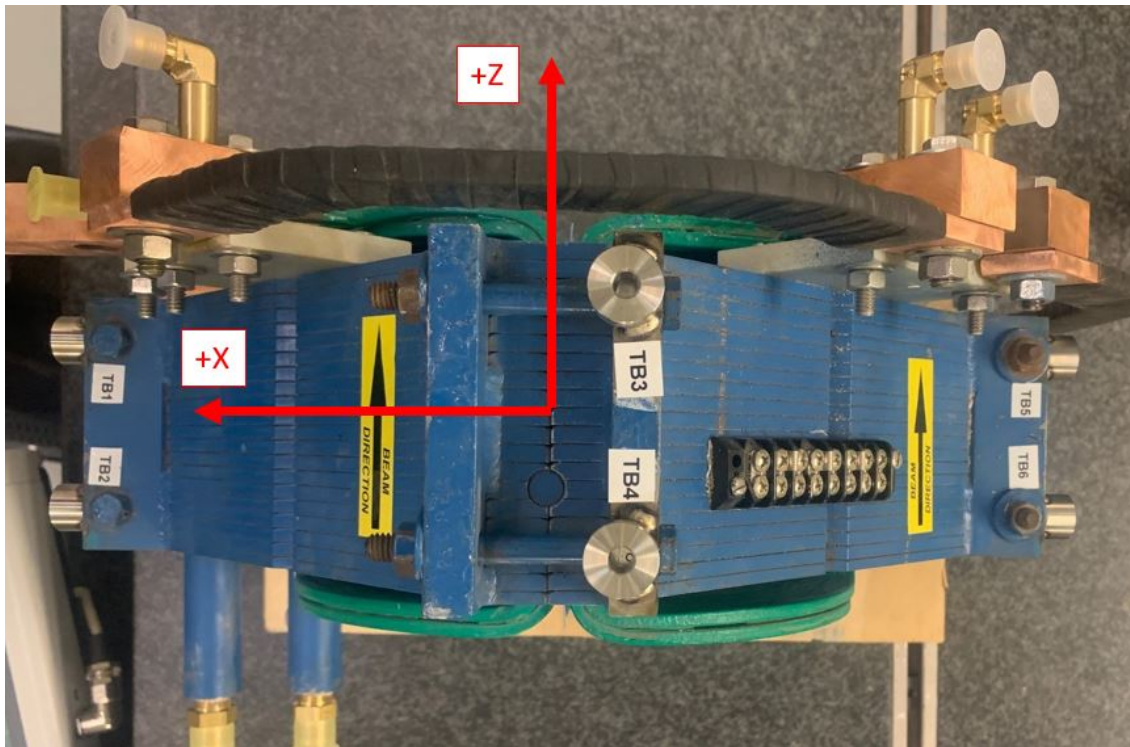
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	9.0543	0.7932	1.3069
TB 2	9.0525	0.7962	-1.3285
TB 3	-0.7773	9.0499	1.3171
TB 4	-0.7702	9.0513	-1.3001
TB 5	-9.0428	0.7813	1.2964
TB 6	-9.0412	0.7840	-1.3218

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

Barcode # :

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Tooling Ball Locations



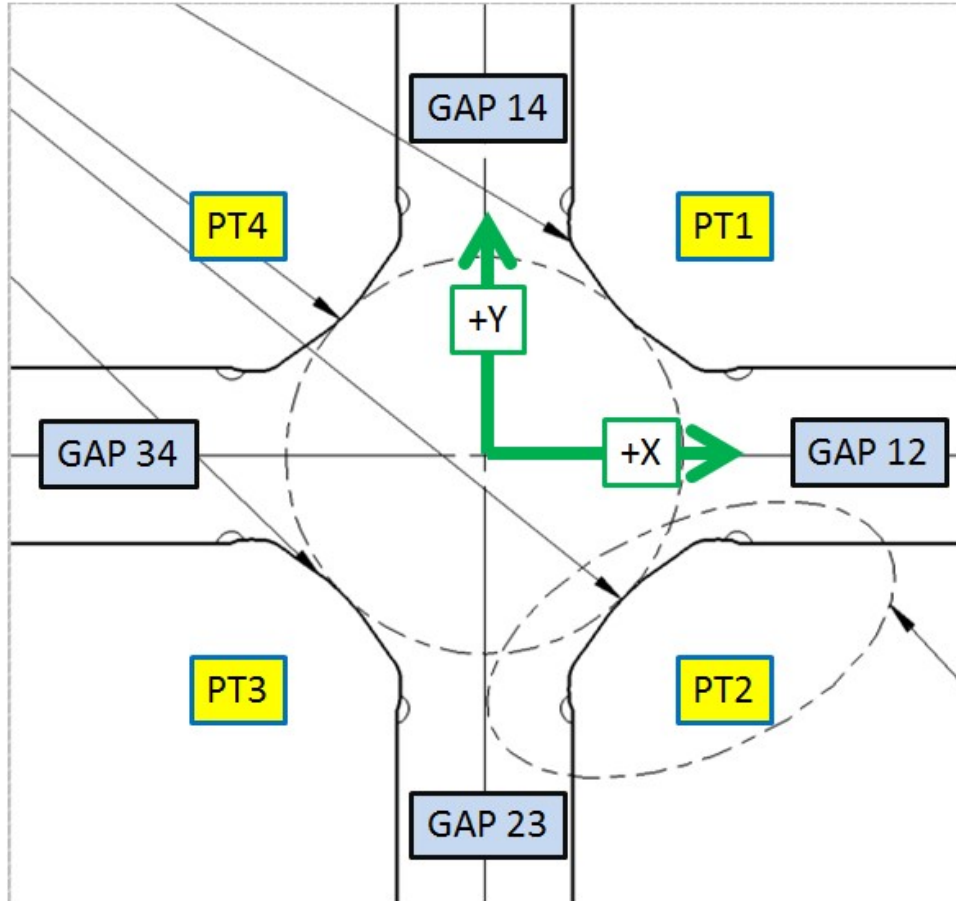
Tooling Ball	X Coord.	Y Coord.	Z Coord.
TB 1	8.3671	0.7952	1.3073
TB 2	8.3651	0.7959	-1.3292
TB 3	-0.7774	8.3630	1.3181
TB 4	-0.7696	8.3643	-1.3025
TB 5	-8.3556	0.7849	1.2954
TB 6	-8.3539	0.7908	-1.3207

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

Barcode # :

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Pole Tip Gap Measurements

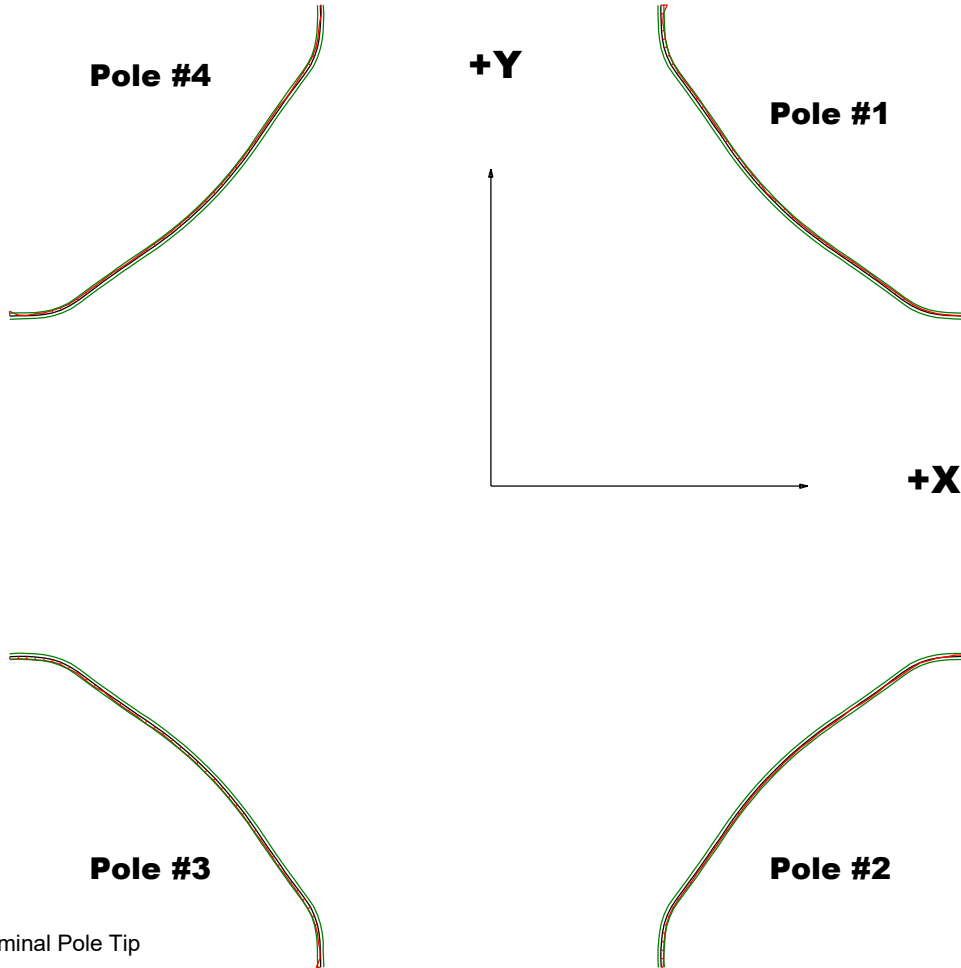


	Nominal Distance	Downstream Pole End	Upstream Pole End
PT Distance 1-3	2.026	2.0274	2.0281
PT Distance 2-4	2.026	2.0274	2.0294
Gap 1-2	0.8602	0.8593	0.8613
Gap 2-3	0.8602	0.8595	0.8578
Gap 3-4	0.8602	0.8596	0.8636
Gap 1-4	0.8602	0.8589	0.858

Dimensions in Inch

Barcode # :
Mfg. S/N : QDAS18B

Composite Best-fit of Pole Tips, Downstream



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

Dimensions in Inch

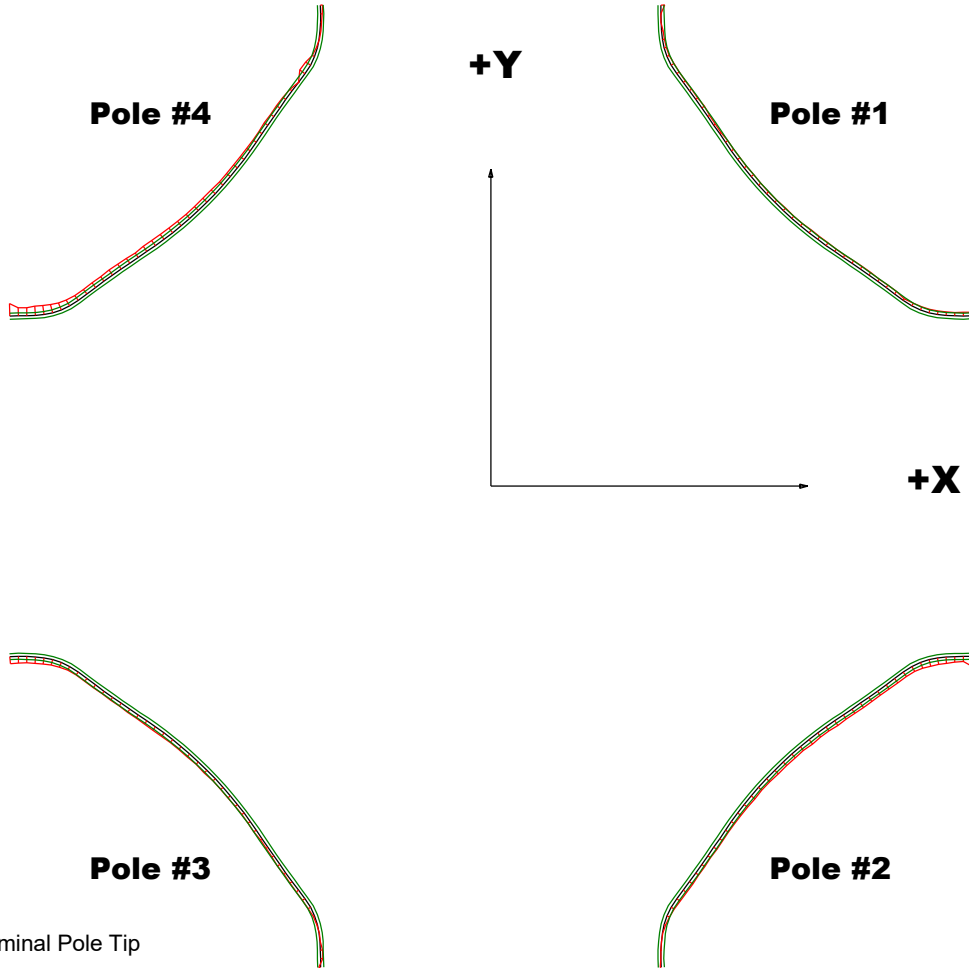
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.0021	-0.001	-0.0015	-0.0016
Max. Dev.	0	0.0005	-0.0001	0.0003

Barcode # :

Mfg. S/N : QDAS18B

Composite Best-fit of Pole Tips, Upstream



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

Dimensions in Inch

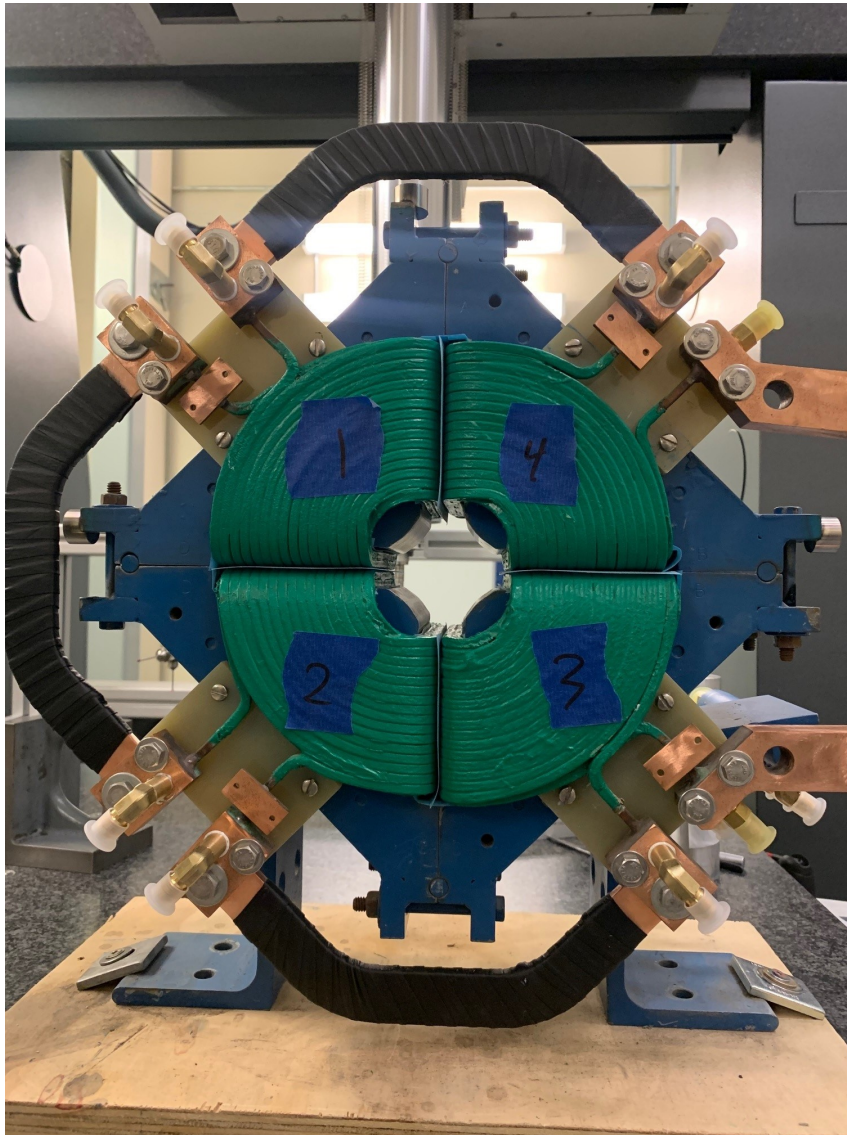
Pole Tip Deviations

Pole Tip	#1	#2	#3	#4
Min. Dev.	-0.0013	-0.0033	-0.0024	-0.0042
Max. Dev.	0.0001	0.0003	0.0008	0.0007

Barcode # :

Mfg. S/N : QDAS18B

Angle of the Composite Pole Tip Best-Fit



in Decimal Degrees ° : -0.06049
Angle in Milliradians : -1.05571

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