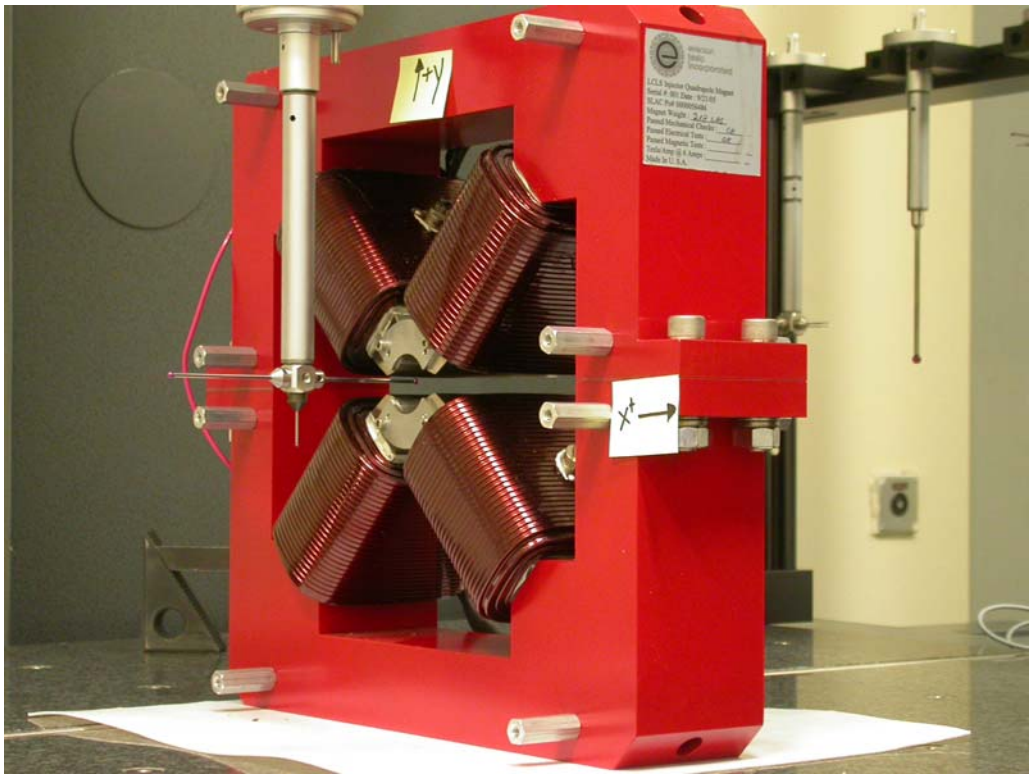
Linac Coherent Light Source

Stanford Linear Accelerator Center

Stanford Synchrotron Radiation Laboratory

# LCLS Injector Quadrupole Magnet FIDUCIALIZATION REPORT




| | |
|---|---|
| Inspector: | Keith Caban |
| Responsible Engineer: | T. Borden |
| Date: | Thursday, January 11, 2007 |
| Work Order/Charge No.: | 92-4215-8 |
| Serial Number: | 002403 |
| URL of Fiducial Report: | \\Web002\www-group\met\Quality\FIDUCIAL REPORTS\LCLS QUADS\LCLS QUAD 002403.pdf |

**Part Set-up – Coordinate System Set-up**

Planar Alignment

- Mid-Plane of the magnet

Spatial Alignment

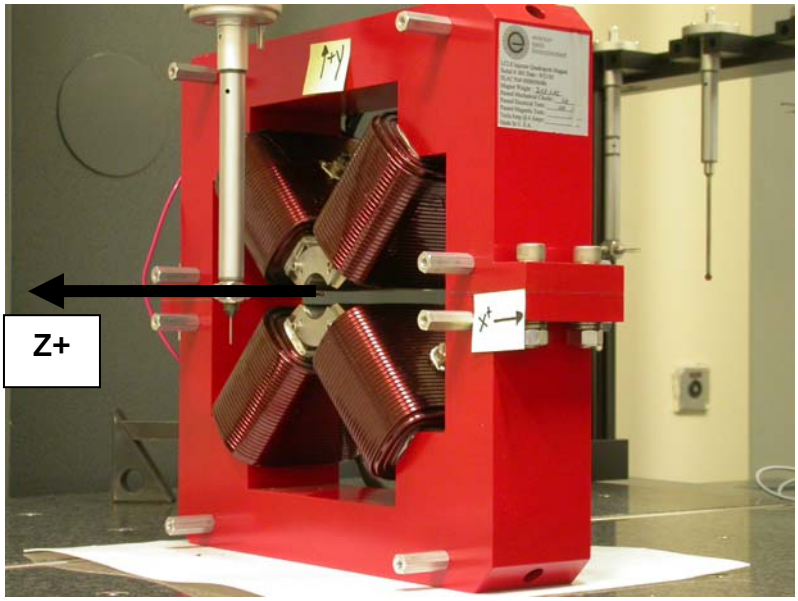
- A line on the top part of the magnet
    - +X goes towards (Magnet Info Label)

“Z” Zero

- Mid-Plane of the magnet

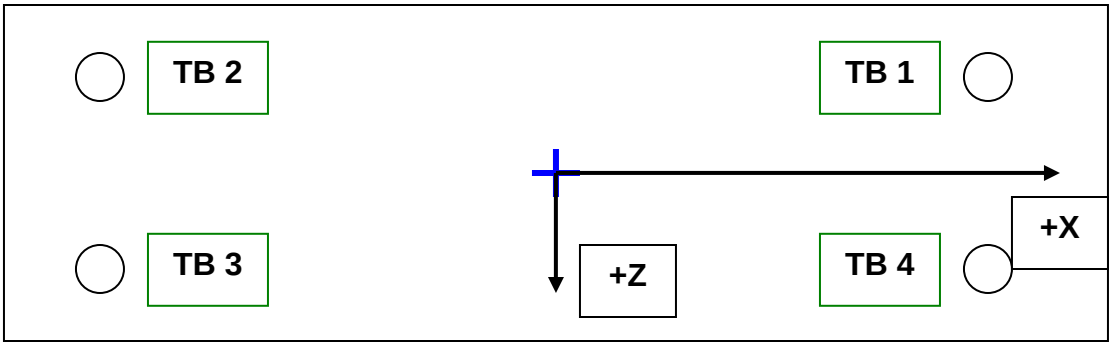
“X” & “Y” Zero

- On both ends
    - Tangent point of each radii (4 on each end, 8 total).
        - Create a line between diagonal tangent points creates 2 lines.
            - Intersect the lines.
                - Creates a point on each end.
- Create a line of these 2 end points
    - This is the “X” & “Y” Zero, and Beamline or” Z” Axis.



## Tooling Ball Measurements/Locations

**Top of magnet; view from "+Y"**




| Tooling Ball | FORM | DIAMETER | X | Y | Z |
|---|---|---|---|---|---|
| **TB 1** | 0.00298 | 0.48523 | 6.50082 | 8.87918 | -1.25460 |
| **TB 2** | 0.00282 | 0.48863 | -6.49314 | 8.87829 | -1.25444 |
| **TB 3** | 0.00047 | 0.49796 | -6.49393 | 8.87506 | 1.24765 |
| **TB 4** | 0.00006 | 0.50005 | 6.50033 | 8.87364 | 1.24902 |

## Additional Requested Measurements

| Pole | Straightness | Parallelism |
|---|---|---|
| **A** | 0.00032 | 0.00031 |
| **B** | 0.00031 | 0.00045 |
| **C** | 0.00032 | 0.00031 |
| **D** | 0.00019 | 0.00012 |

| Pole Dist | Z+ Side | Z- Side |
|---|---|---|
| **A-C** | 1.26106 | 1.26070 |
| **B-D** | 1.25968 | 1.25918 |