## Jefferson Lab Alignment Group

 Data Transmittal| TO: Dave Douglas | DATE: 08 Nov 2012 |  |
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| FROM: Kelly Tremblay | Checked: cjc | \# : F1484 |
| DETAILS: | data: step2blfellfel11121107a |  |

Three quads were located in the 1F region of the FEL on November $7^{\text {th }}, 2012$. The results of this survey are shown below as the as-found deltas from the ideals. The magnets were then aligned to their ideal locations.

The ideal coordinates for the quads are shown based on the FEL coordinate system (meters) as X, Y, and Z. The as-found deltas, dx , dy , and dz are shown in the beam following system in millimeters, as distances from the ideals. $A+d x$ is to the beam left, a $+d y$ is up and a $+d z$ is downstream,. A +yaw value is counter clockwise looking from above, a +pitch is ccw looking from the beam right, and a +roll is ccw looking from the upstream.

|  |  |  |  | As-Found Deltas from |  |  | As-Found angular Deltas |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Ideal Coordinates | (meters) | Ideals (millimeters) | from Ideals (degrees) |  |  |  |  |  |
|  | x | y | z | dx | dy | dz | d yaw | d pitch | d roll |
| QX1F4A | 20.00000 | 105.00000 | 59.07400 | 0.06 | 0.05 | 0.29 | 0.0731 | 0.0430 | 0.0370 |
| QX1F4B | 20.00000 | 105.00000 | 58.55000 | -0.15 | -0.16 | 0.32 | -0.0868 | -0.0129 | 0.0183 |
| QX1F4C | 20.00000 | 105.00000 | 58.02600 | -0.58 | -0.16 | 0.23 | 0.0178 | -0.0020 | -0.0576 |

