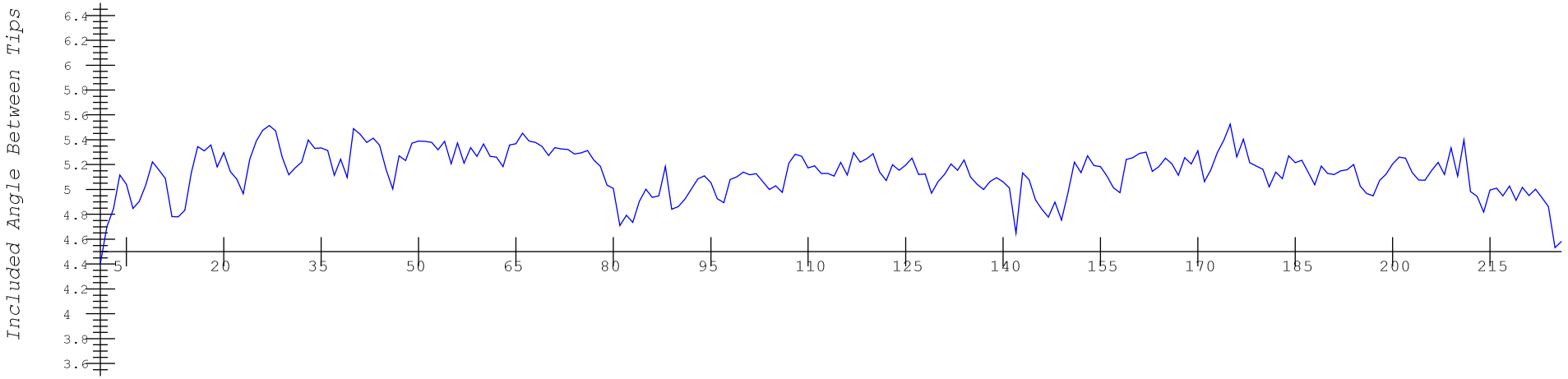
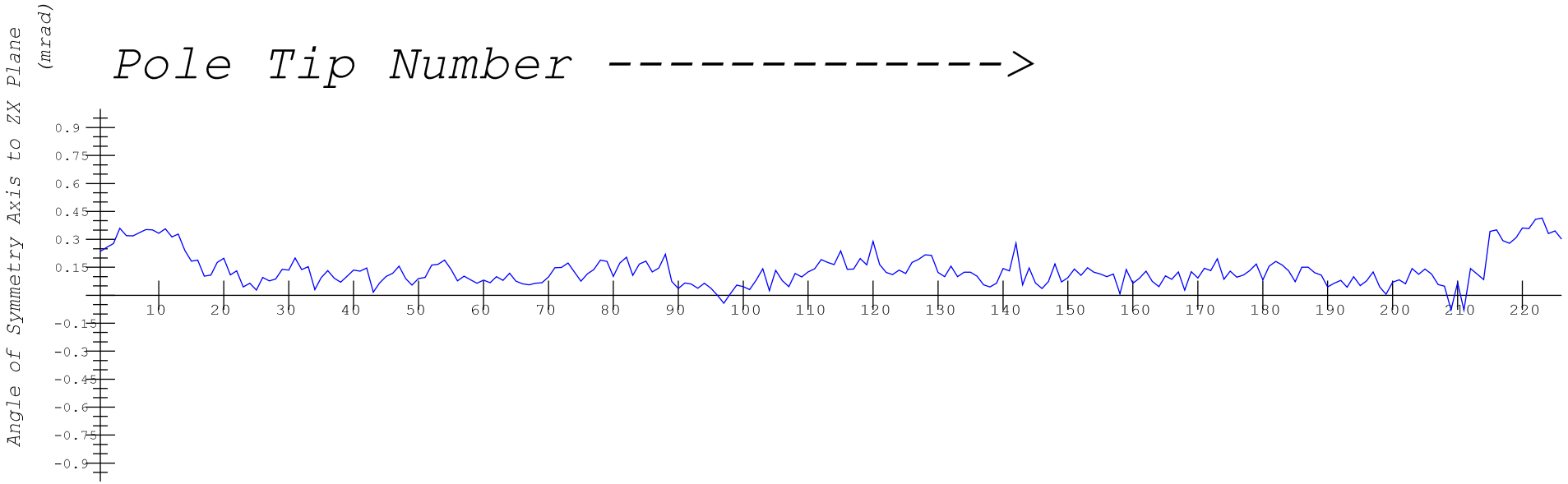



Pole Tip Number ---------->




*Symmetry Axis is the symmetry axis between the Upper and Lower Pole Tips*
*Included Angle is the angle between the Upper and Lower Pole Tips*

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# Undulator Pole Tip Angles

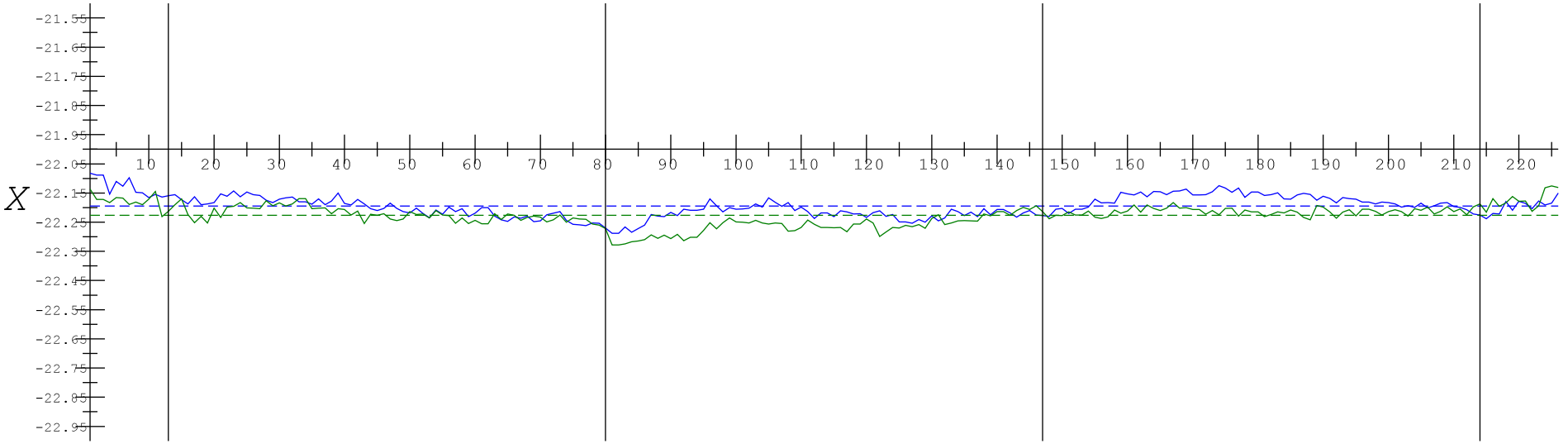
## Post Magnetic Alignment

DATE:09-APR-2010

UNDULATOR # 15
DATASET # 0004

PROGRAM VERSION 2.9

Pole Tip Number ---------->




X values in mm
Green Solid = Point on front face of Upper Pole Tip 10mm above Magnetic C/L
Green Dash = Mean value of all Upper Pole Tips 10mm above Magnetic C/L  Mean value Upper Pole Tips = -22.227
Blue Solid = Point on front face of Lower Pole Tip 10mm below Magnetic C/L
Blue Dash = Mean value of all Lower Pole Tips 10mm below Magnetic C/L  Mean value Lower Pole Tips = -22.195

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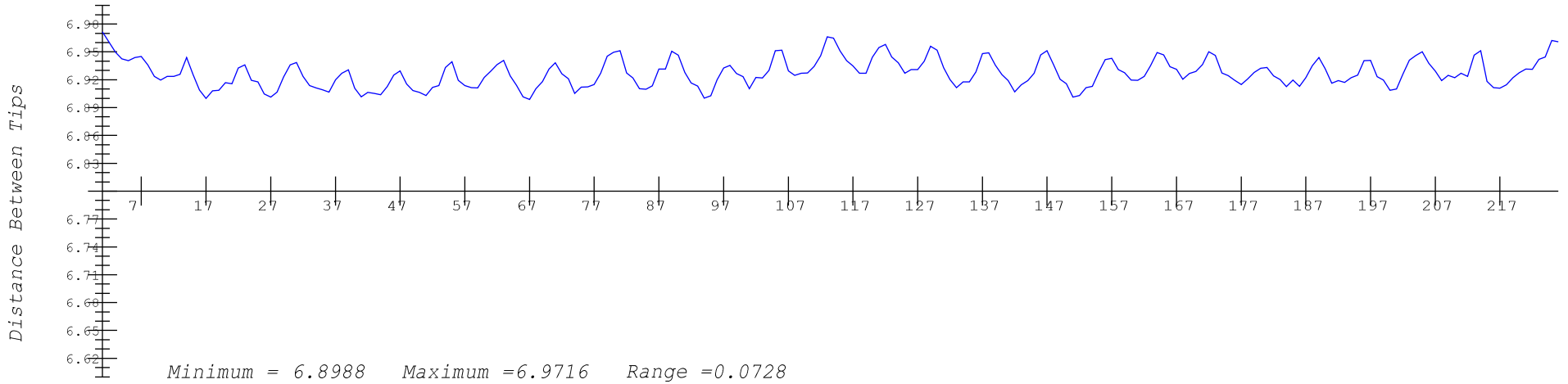
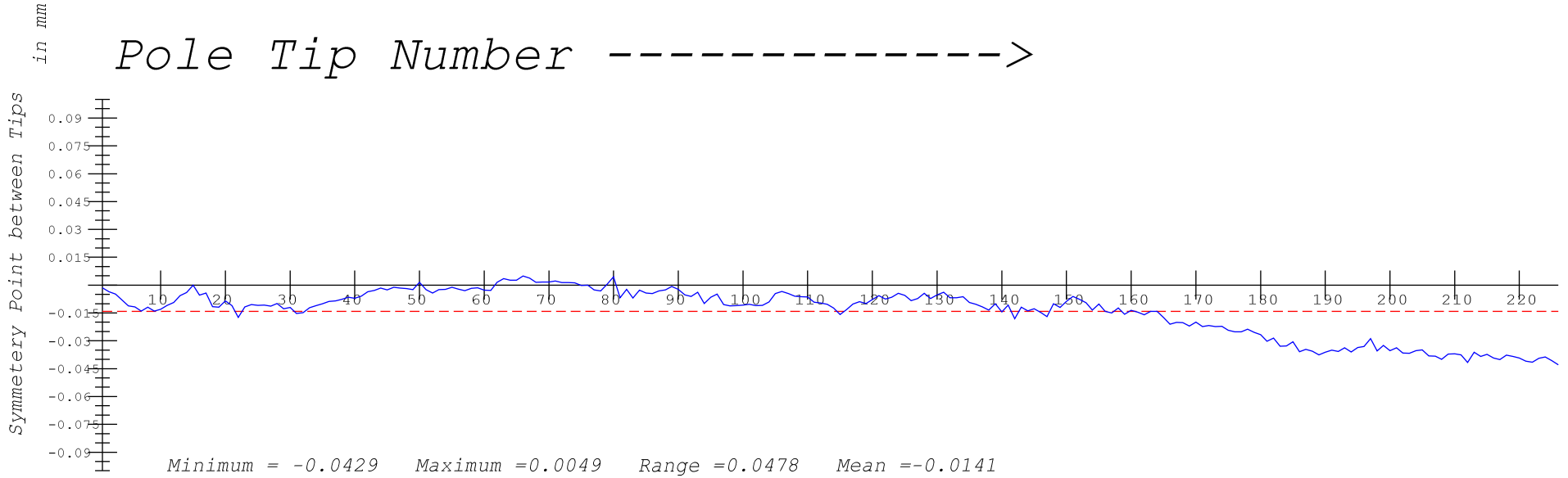
# Undulator Pole Tip Location
## Post Magnetic Alignment

DATE:09-APR-2010
UNDULATOR # 15
DATASET # 0004
PROGRAM VERSION 2.9




*Minimum = 6.8988  Maximum =6.9716  Range =0.0728*

## Pole Tip Number ---------->




*Minimum = -0.0429  Maximum =0.0049  Range =0.0478  Mean =-0.0141*

*Symmetry Point is the symmetry point between the Upper and Lower Pole Tips were they intersect a YZ plane at the Magnetic C\L*
*Broken Red line is Mean Value of Symmetery Points*
*Distance Between Tips is the distance between the Upper and Lower Pole Tips were they intersect a YZ plane at the Magnetic C\L*

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# Undulator Pole Tip Location
## Post Magnetic Alignment

*DATE:09-APR-2010*

*UNDULATOR # 15*
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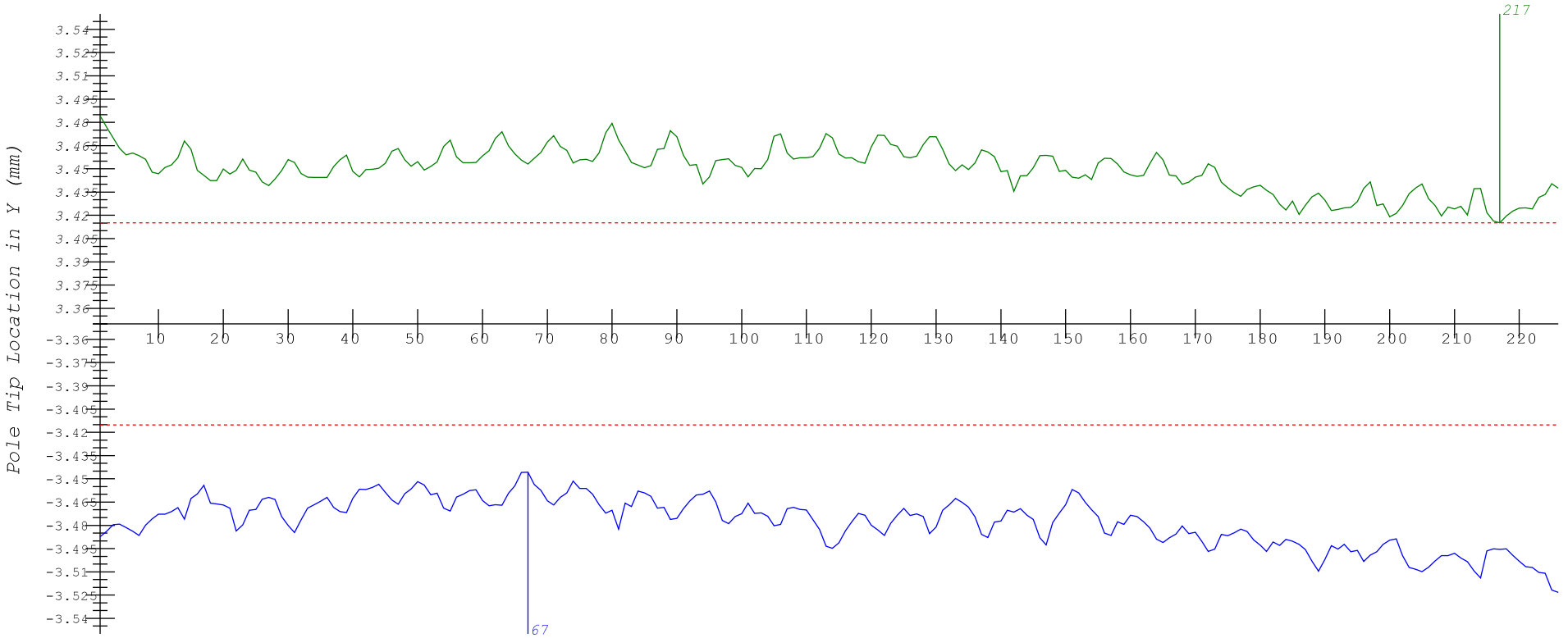
*PROGRAM VERSION 2.9*

*Maximum Chamber Gap = 6.8305*

*Minimum = 3.4152  Maximum =3.4843  Range =0.0691*




*Minimum = -3.5233  Maximum =-3.4457  Range =0.0776*

*Pole Tip Number ---------->*

*Green = The position of the Upper Pole Tips at Magnetic C\L*
*Blue = The position of the Lower Pole Tips at Magnetic C\L*
*Max. Chamber Gap = The maximum width vacuum chamber that will fit centered on the Magentic C\L (2*Min. Dev. from C\L)*

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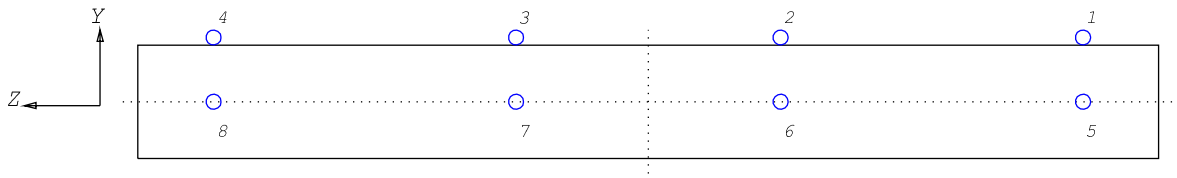
# *Undulator Pole Tip Location*
## *Post Magnetic Alignment*

*DATE:09-APR-2010*
*UNDULATOR # 15*
*DATASET # 0004*
*PROGRAM VERSION 2.9*

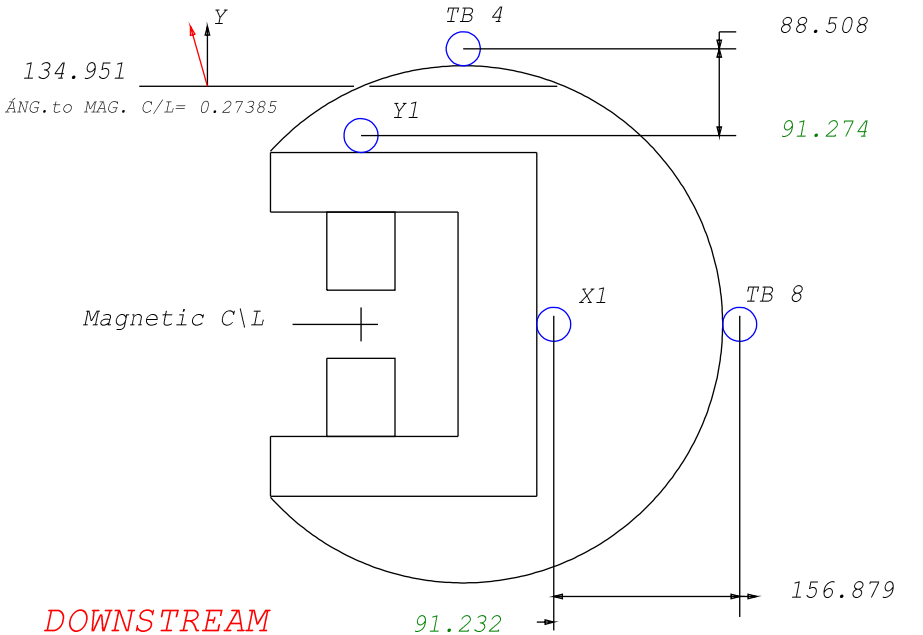


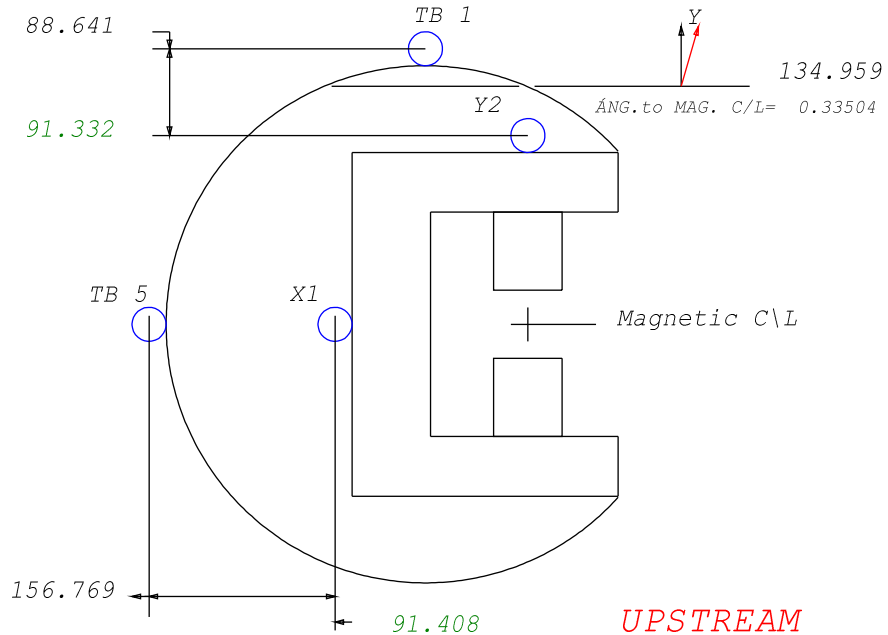

TOOLING BALL LOCATIONS

| NUM. | X | Y | Z |
|---|---|---|---|
| 1 | -0.2666 | 179.9727 | -1558.236 |
| 2 | -0.3853 | 179.9443 | -584.5809 |
| 3 | -0.4083 | 179.8392 | 591.4169 |
| 4 | -0.0982 | 179.7823 | 1562.2016 |
| 5 | 248.1773 | 0.1061 | -1558.101 |
| 6 | 248.0670 | 0.0331 | -584.5484 |
| 7 | 248.1724 | 0.0068 | 591.4640 |
| 8 | 248.1108 | -0.1326 | 1562.2868 |

| | C\L Offset | Length |
|---|---|---|
| Top Magnetic Structure | -0.022 | 3380.951 |
| Bottom Magnetic Structure | 0.022 | 3381.051 |
| Strongback | 0.475 | 3400.014 |

Dimensions in mm  Angles in mrad

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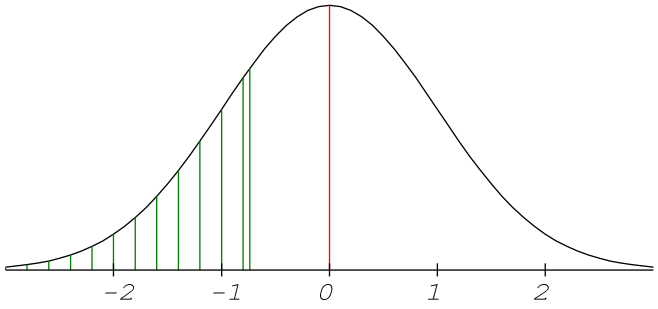
# Undulator Dimensional Fiducialization

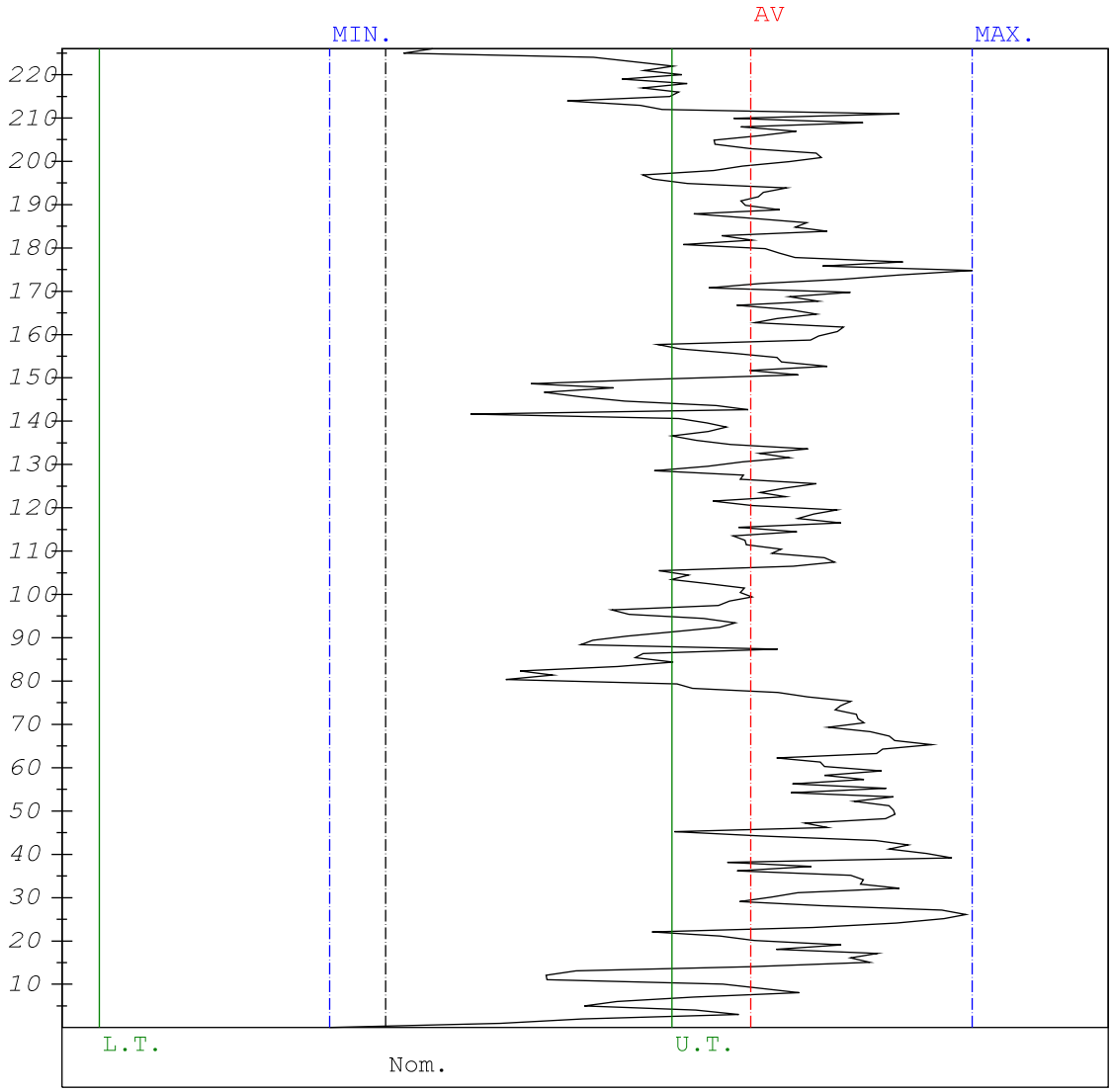
## Post Magnetic Alignment

DATE:09-APR-2010

UNDULATOR # 15
DATASET # 0004

PROGRAM VERSION 2.9




| | | |
|---|---|---|
| Nominal : 4.5000 | Averag :5.1377 | Cent.-Dev. :0.6377 |
| Up. Tol. :0.5 | Maximum : 5.5244 | U.Tol.Ex. > : 77.0 % |
| Low.Tol. :-0.5 | Minimum : 4.4023 | L.Tol.Ex. < : 0.0 % |
| Spl.Size : 226 | Stand.-Dev.: 0.1863 | In Tolerance: 23.0 % |
| Outlier : 0 | Distribution : NOR | Dimension : mrad |

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# Statistical Evaluation
## Pole Tip Gap Angle
## *Post Magnetic Alignment*

*DATE:09-APR-2010*

*UNDULATOR # 15*
*DATASET # 0004*

*PROGRAM VERSION 2.9*