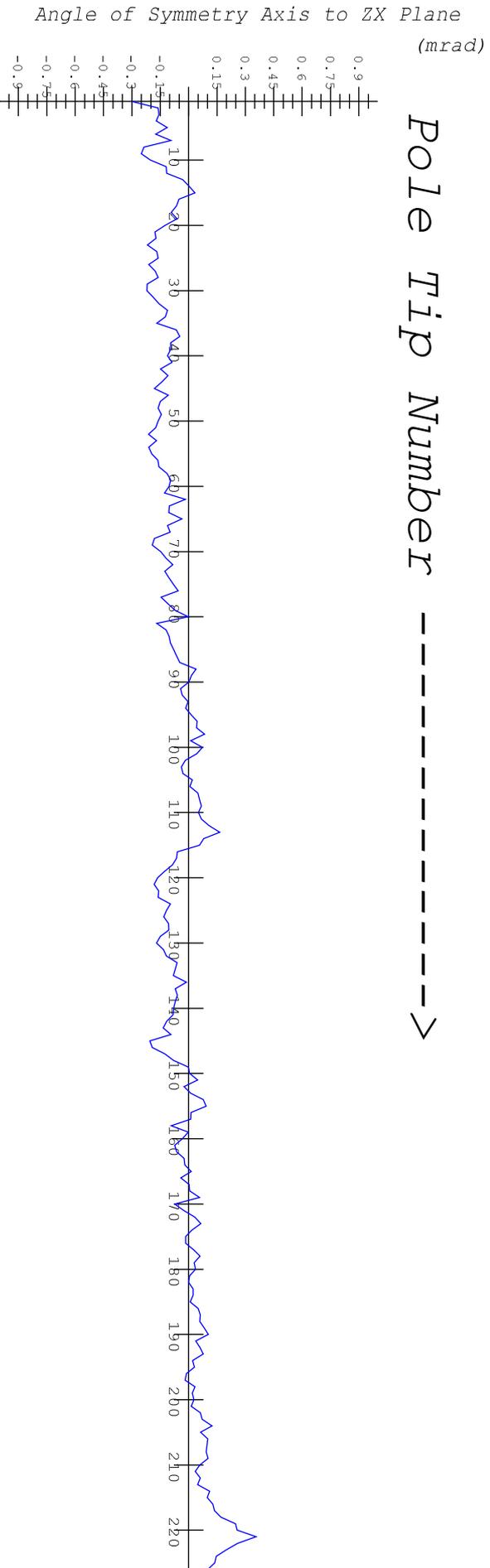


Pole Tip Number ----->



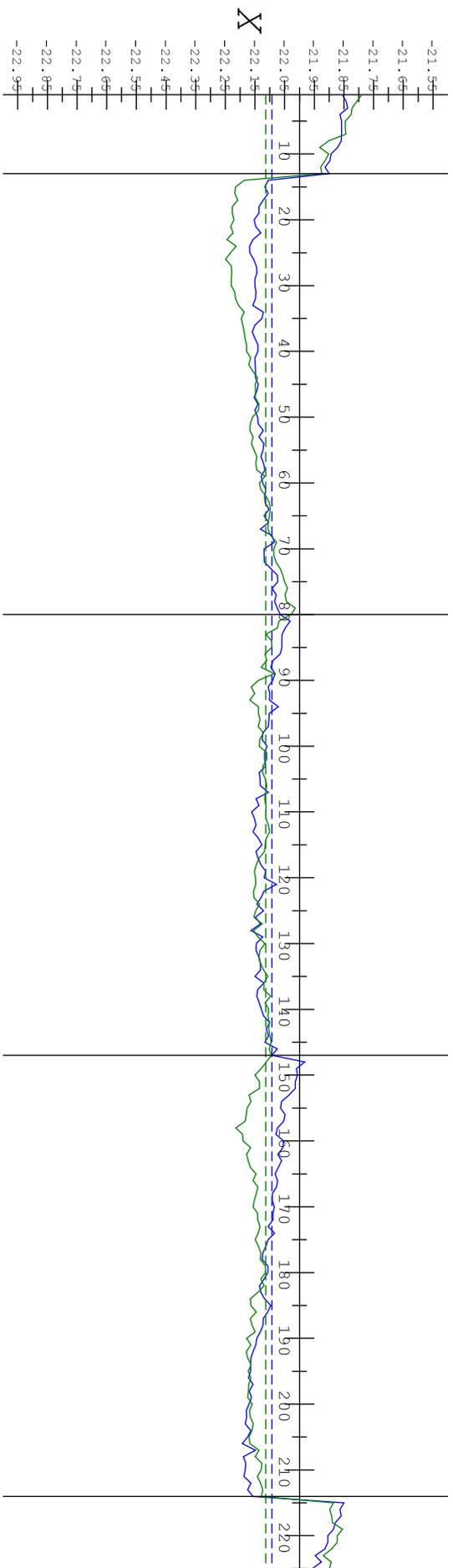
Symmetry Axis is the symmetry axis between the Upper and Lower Pole Tips
 Included Angle is the angle between the Upper and Lower Pole Tips

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Undulator Pole Tip Angles
 Post Magnetic Alignment

DATE: 01-OCT-2008
 UNDULATOR # 16
 DATASET # 0004
 PROGRAM VERSION 2.7

Pole Tip Number ----->



X values in mm

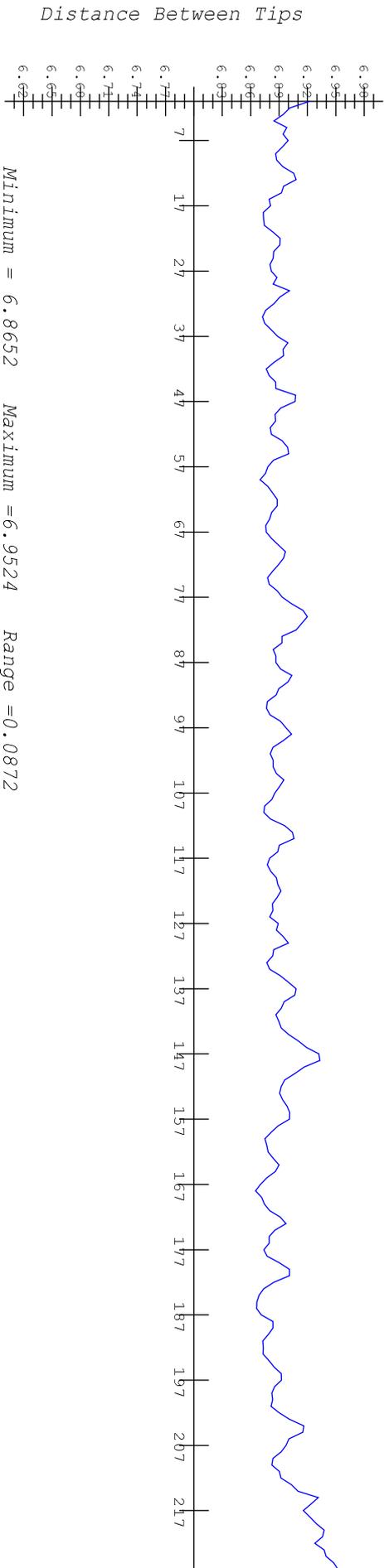
Green Solid = Point on front face of Upper Pole Tip 10mm above Magnetic C/L

Green Dash = Mean value of all Upper Pole Tips 10mm above Magnetic C/L Mean value Upper Pole Tips = -22.114

Blue Solid = Point on front face of Lower Pole Tip 10mm below Magnetic C/L

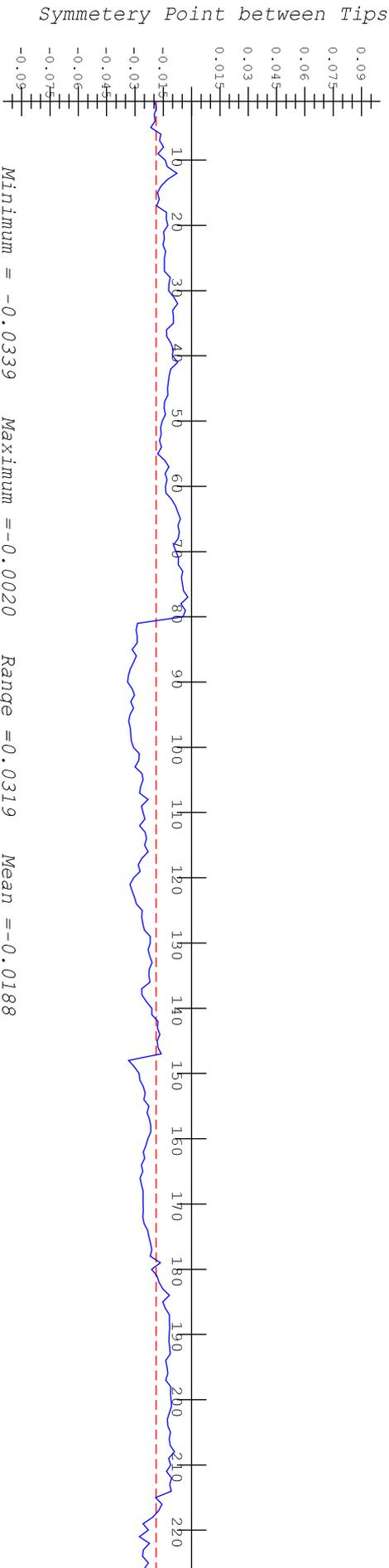
Blue Dash = Mean value of all Lower Pole Tips 10mm below Magnetic C/L Mean value Lower Pole Tips = -22.093

| | | |
|---|---|---|
| <p>SLAC LCLS-MMF LEITZ CMM</p> | <p>Undulator Pole Tip Location Post Magnetic Alignment</p> | <p>DATE: 01-OCT-2008 UNDULATOR # 16 DATASET # 0004 PROGRAM VERSION 2.7</p> |
|---|---|---|



in mm

Pole Tip Number ----->

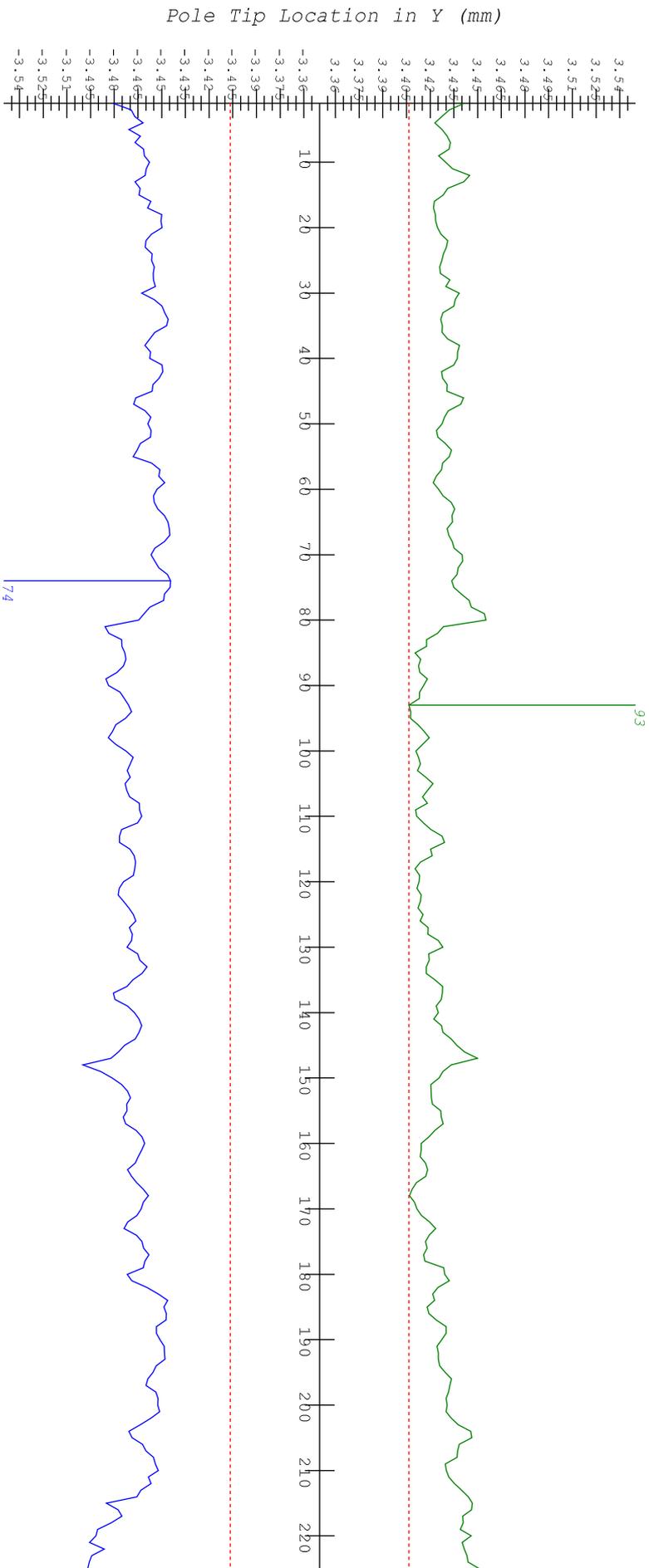


Symmetry Point is the symmetry point between the Upper and Lower Pole Tips were they intersect a YZ plane at the Magnetic C/L
 Broken Red line is Mean Value of Symmetry Points
 Distance Between Tips is the distance between the Upper and Lower Pole Tips were they intersect a YZ plane at the Magnetic C/L

| | | |
|------|---|---|
| | <p>Undulator Pole Tip Location</p> <p>Post Magnetic Alignment</p> | <p>DATE: 01-OCT-2008</p> <p>UNDULATOR # 16</p> <p>DATASET # 0004</p> <p>PROGRAM VERSION 2.7</p> |
|------|---|---|

Maximum Chamber Gap = 6.8132

Minimum = 3.4066 Maximum = 3.4554 Range = 0.0488



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 Magnetic C\L (2*Min. Dev. from C\L)

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Undulator Pole Tip Location
Post Magnetic Alignment

DATE: 01-OCT-2008
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PROGRAM VERSION 2.7



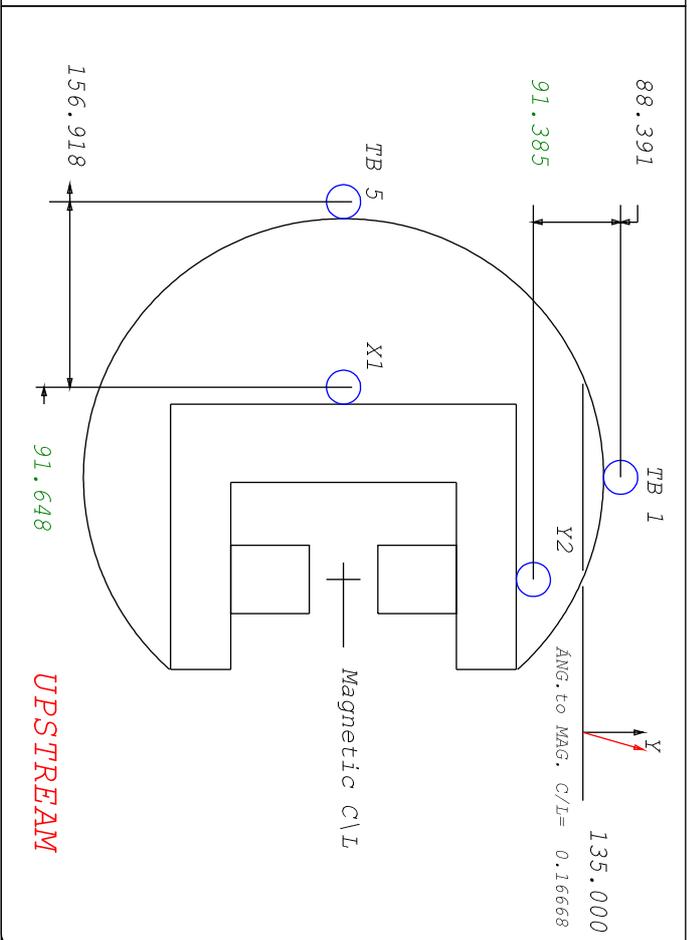
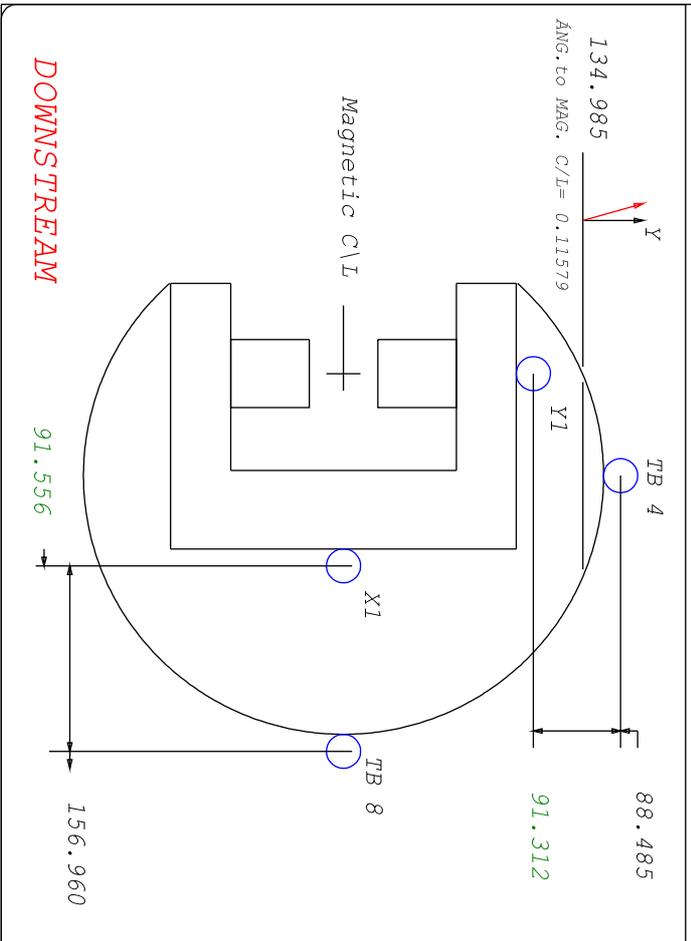
TOOLING BALL LOCATIONS

| NUM. | X | Y | Z |
|------|----------|----------|-----------|
| 1 | 0.2401 | 179.7760 | -1558.438 |
| 2 | 0.3551 | 179.6669 | -584.7364 |
| 3 | 0.3365 | 179.7353 | 591.2282 |
| 4 | 0.3182 | 179.7965 | 1562.0182 |
| 5 | 248.5658 | 0.0666 | -1558.351 |
| 6 | 248.5470 | 0.0689 | -584.6826 |
| 7 | 248.5486 | 0.0481 | 591.3089 |
| 8 | 248.5165 | 0.0111 | 1562.1974 |

| | C/L Offset | Length |
|---------------------------|------------|----------|
| Top Magnetic Structure | 0.097 | 3381.405 |
| Bottom Magnetic Structure | -0.097 | 3381.104 |
| Strongback | 0.239 | 3399.963 |

Dimensions in mm

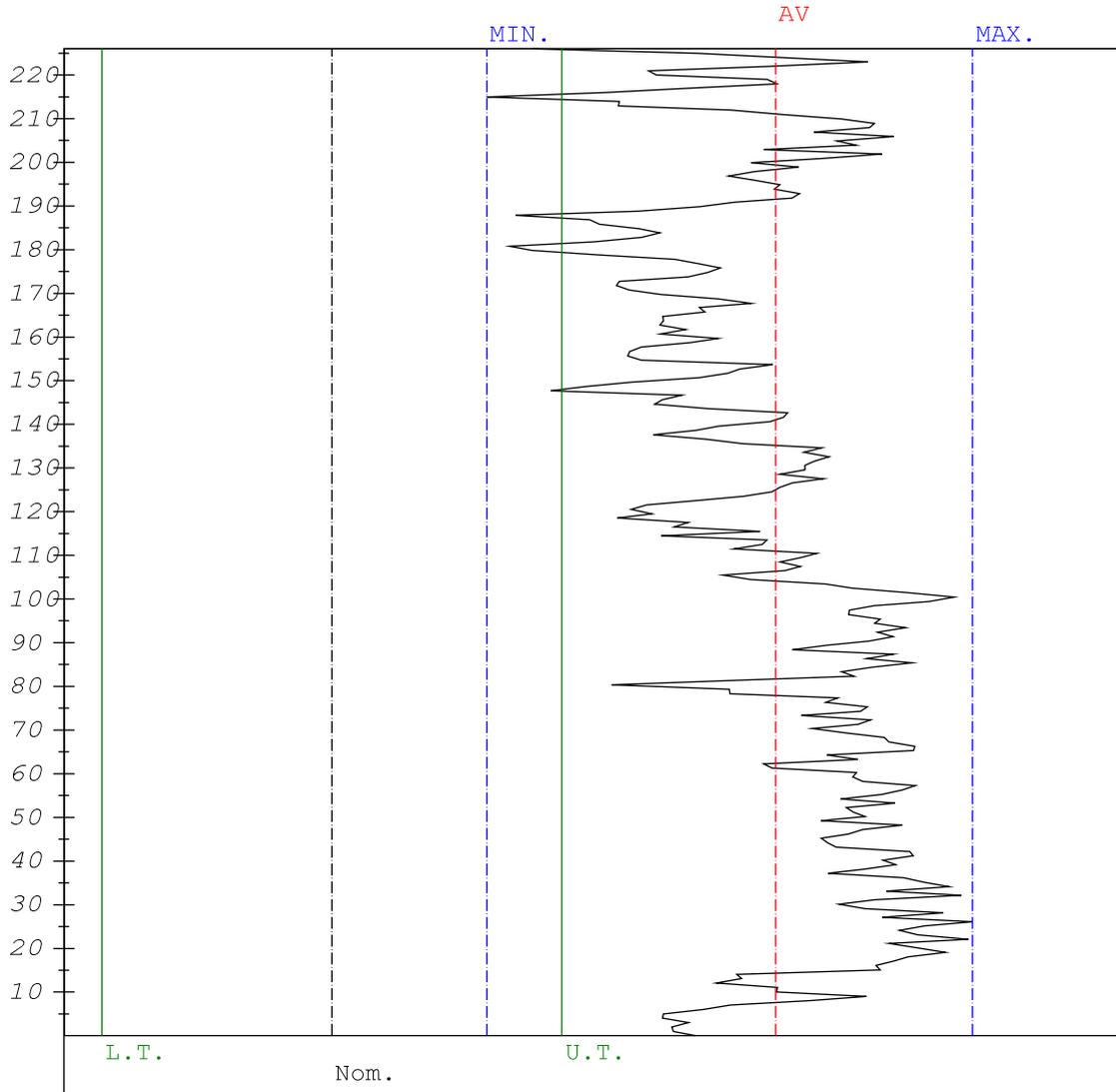
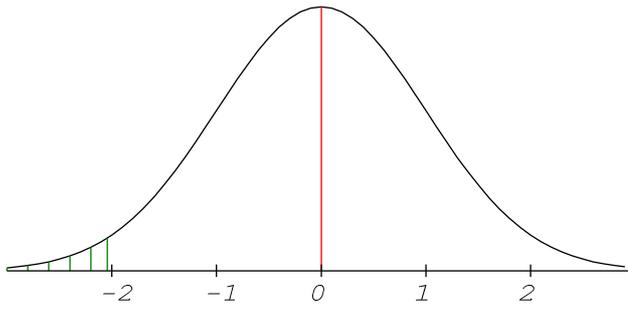
Angles in mrad



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Undulator Dimensional Fiducialization
Post Magnetic Alignment

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| | | |
|------------------|---------------------|----------------------|
| Nominal : 4.5000 | Averag : 5.4642 | Cent.-Dev. : 0.9642 |
| Up. Tol. : 0.5 | Maximum : 5.8921 | U.Tol.Ex. > : 98.0 % |
| Low.Tol. : -0.5 | Minimum : 4.8368 | L.Tol.Ex. < : 0.0 % |
| Spl.Size : 226 | Stand.-Dev.: 0.2274 | In Tolerance: 2.0 % |
| Outlier : 0 | Distribution : NOR | Dimension : mrad |

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Statistical Evaluation
Pole Tip Gap Angle
Post Magnetic Alignment

DATE: 01-OCT-2008
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DATASET # 0004
PROGRAM VERSION 2.7