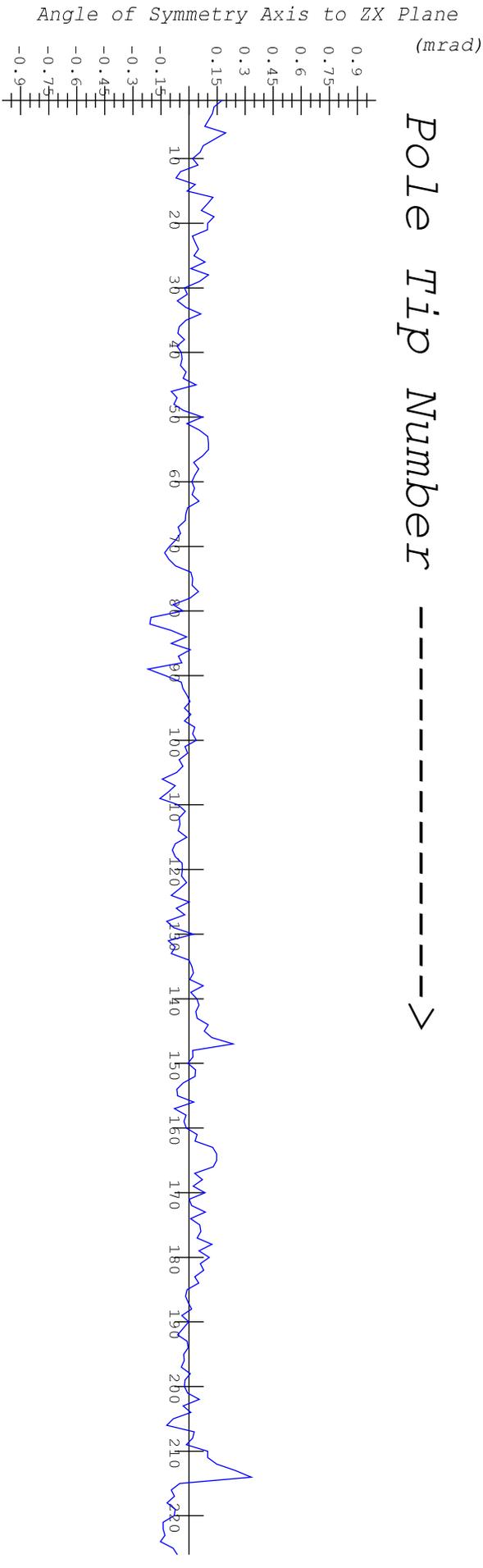


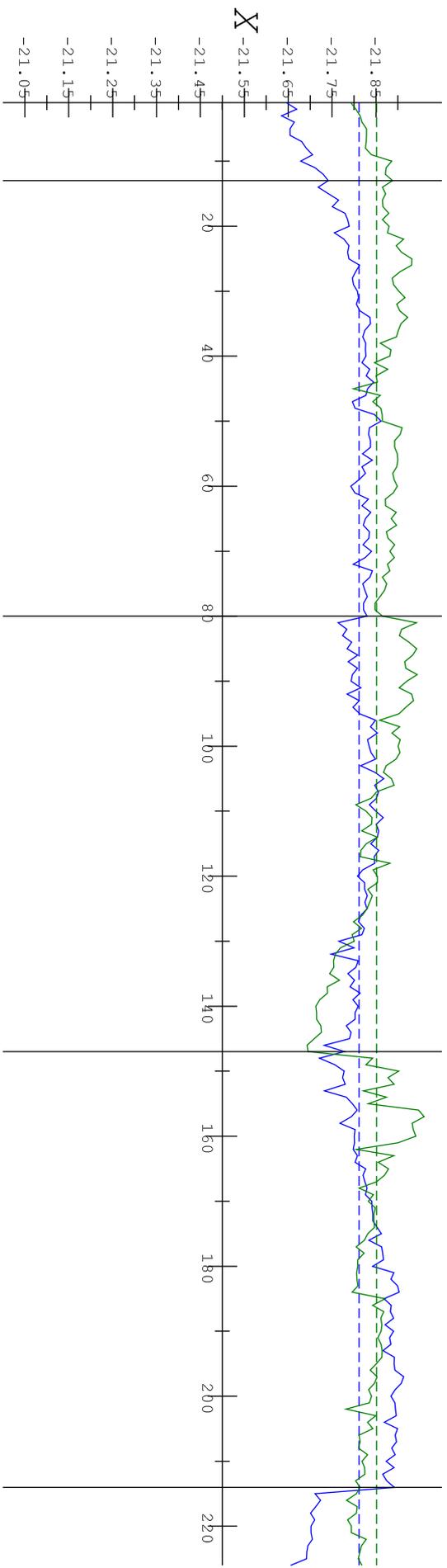
Pole Tip Number ----->



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

 <p>NATIONAL ACCELERATOR LABORATORY MMF GRE 45129</p>	<p>Undulator Pole Tip Angles Post Magnetic Alignment Wide Gap Undulator</p>	<p>DATE: 21-APR-2010 UNDUULATOR # 31 DATASET # 0005 PROGRAM VERSION 4.1</p>
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Pole Tip Number ----->



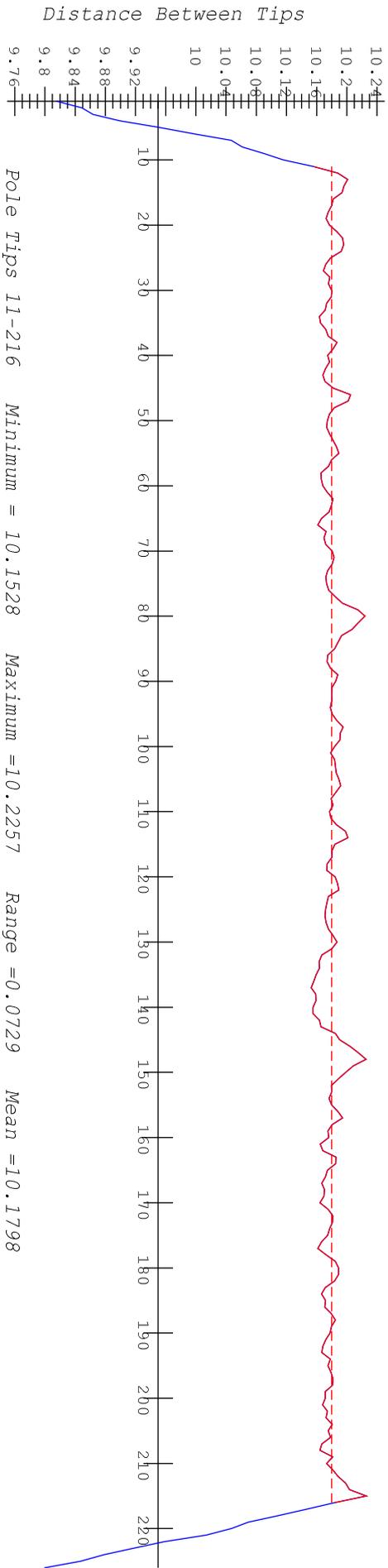
X values in mm

Green Solid = Point on front face of Upper Pole Tip 11.5mm above Magnetic C/L
 Green Dash = Mean value of all Upper Pole Tips 11.5mm above Magnetic C/L Mean value Upper Pole Tips = -21.851
 Blue Solid = Point on front face of Lower Pole Tip 11.5mm below Magnetic C/L
 Blue Dash = Mean value of all Lower Pole Tips 11.5mm below Magnetic C/L Mean value Lower Pole Tips = -21.811

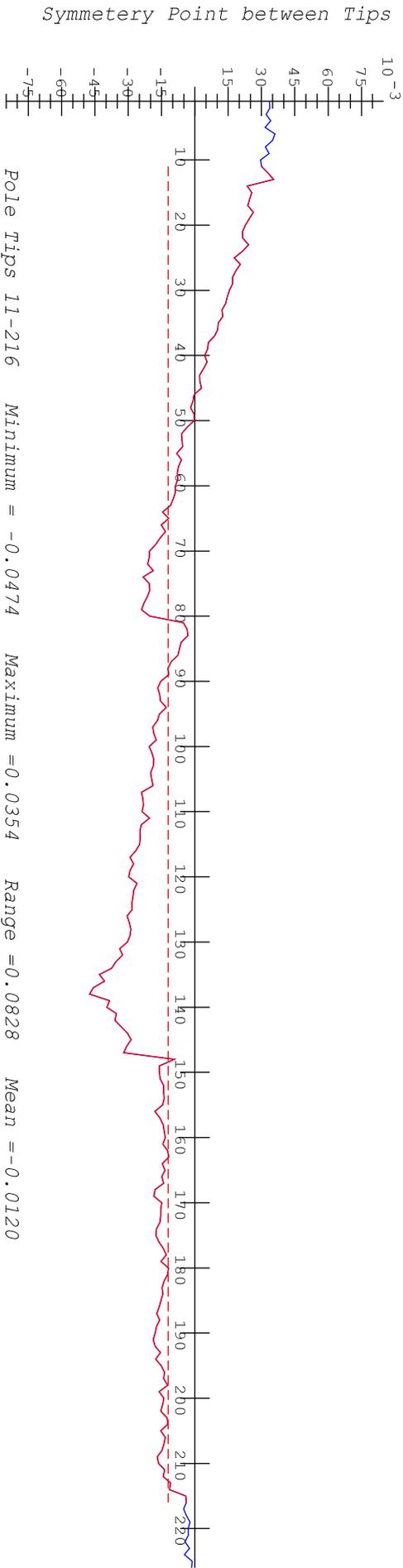


Undulator Pole Tip Location
 Post Magnetic Alignment
 Wide Gap Undulator

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in mm
Pole Tip Number ----->

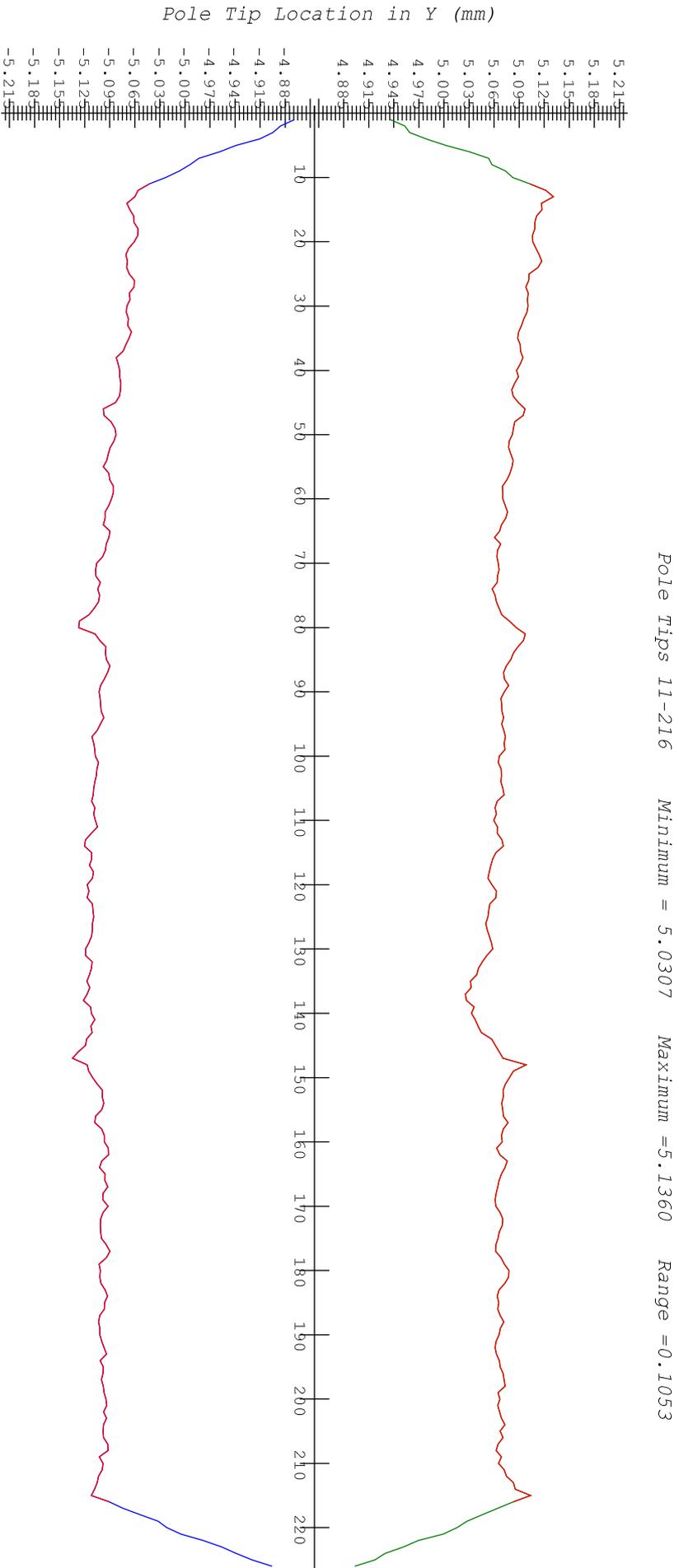


Symmetry Point is the symmetry point between the Upper and Lower Pole Tips were they intersect a YZ plane at the Magnetic C\L
Broken Red line is Mean Value of Symmetry Points and Mean Value of Gap Distance
Distance Between Tips is the distance between the Upper and Lower Pole Tips were they intersect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



Undulator Pole Tip Location
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Green + Red = The position of the Upper Pole Tips at Magnetic C/L (Pole Tips 11-216 in Red)
 Blue + Red = The position of the Lower Pole Tips at Magnetic C/L (Pole Tips 11-216 in Red)



Undulator Pole Tip Location
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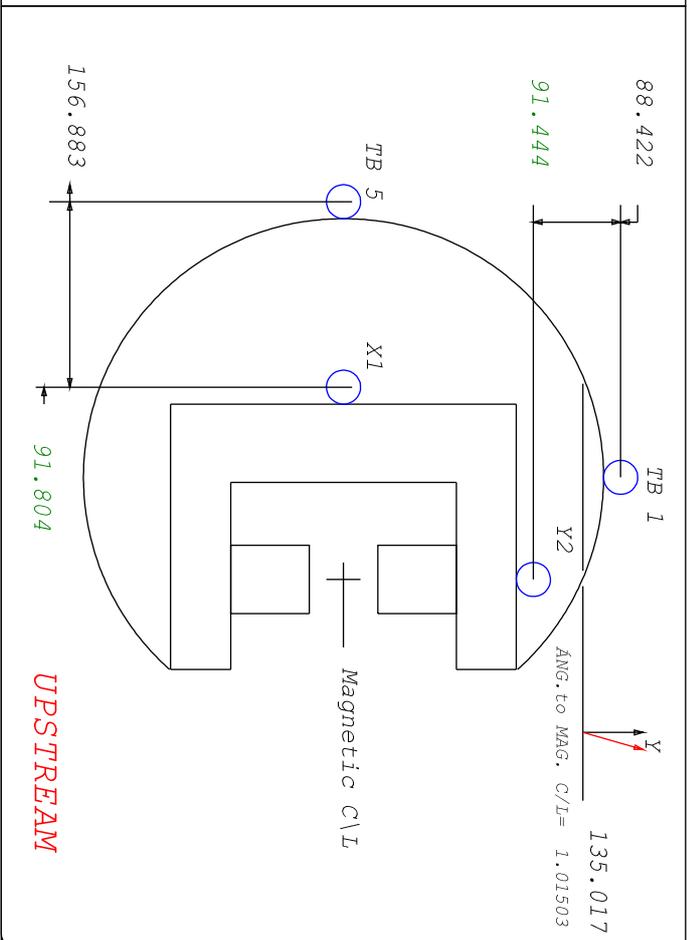
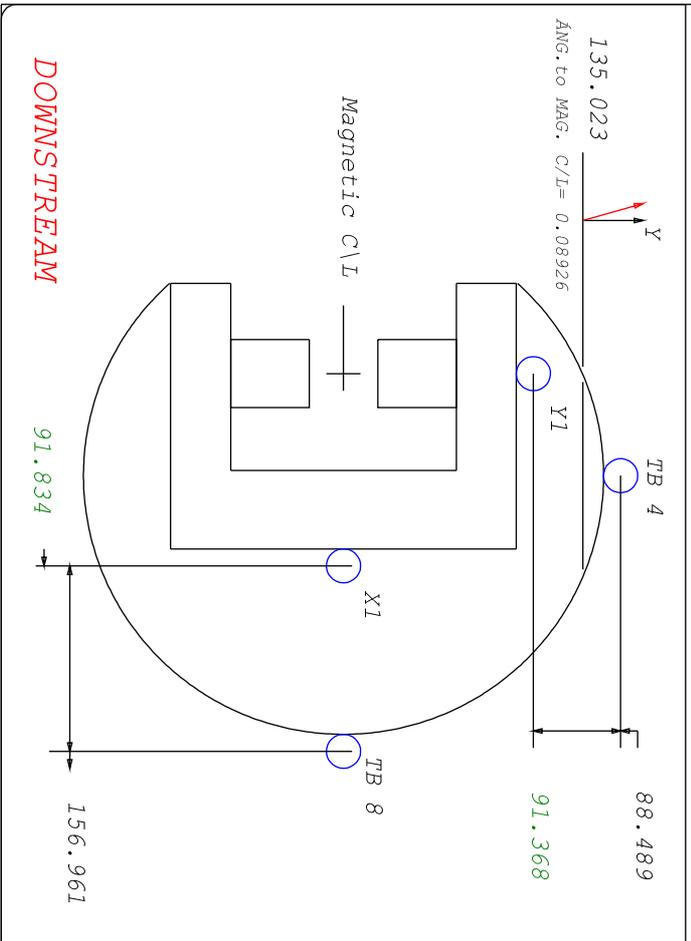
TOOLING BALL LOCATIONS

NUM.	X	Y	Z
1	0.3741	179.8660	-1558.259
2	0.5582	179.7852	-584.7335
3	0.6171	179.7344	591.3474
4	0.6422	179.8572	1562.2065
5	248.6870	0.0774	-1558.345
6	248.7592	0.0854	-584.7336
7	248.8170	0.0305	591.3835
8	248.7947	0.0557	1562.2125

	C/L Offset	Length
Top Magnetic Structure	0.008	3380.793
Bottom Magnetic Structure	-0.008	3380.713
Strongback	0.316	3399.984

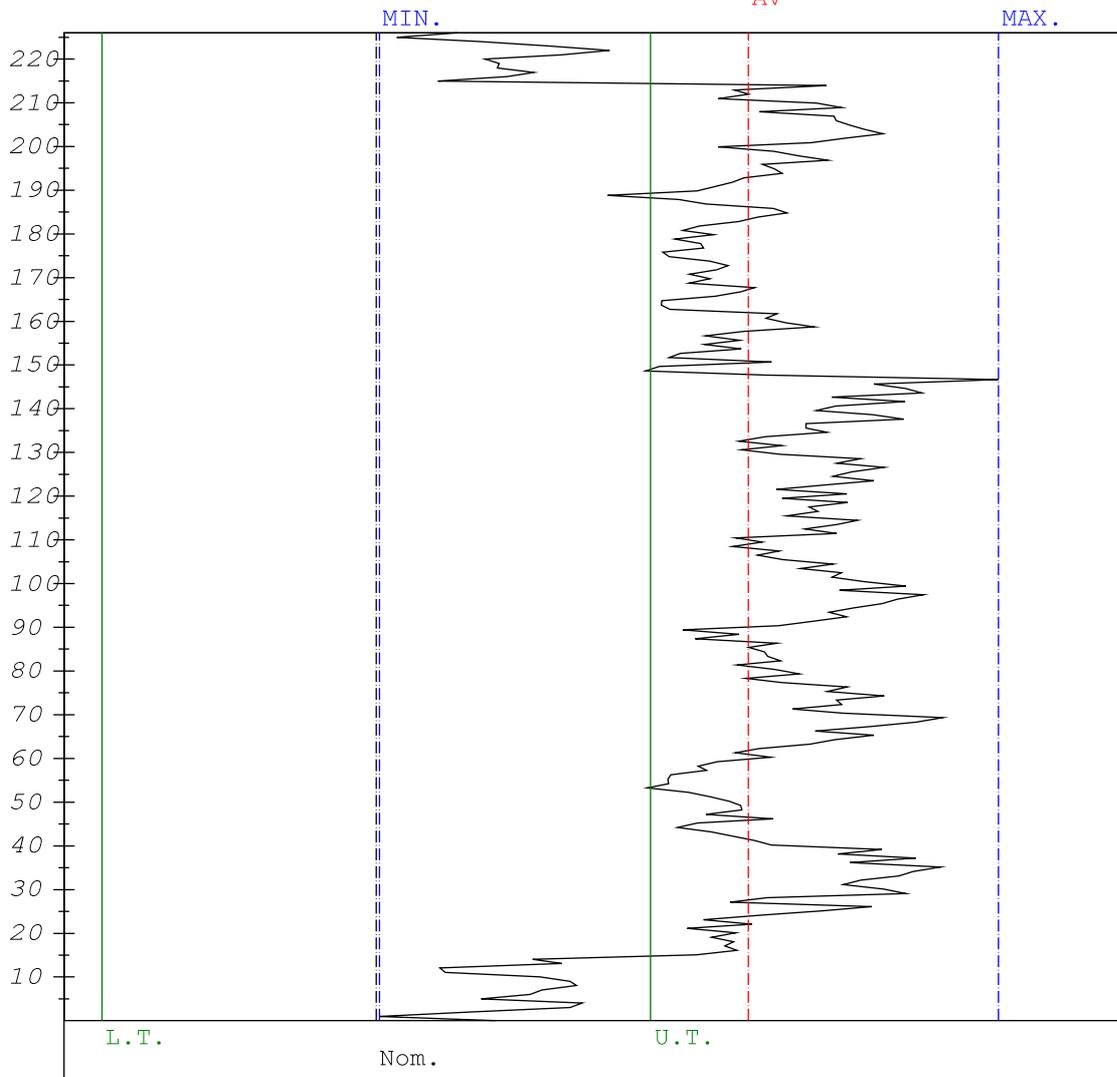
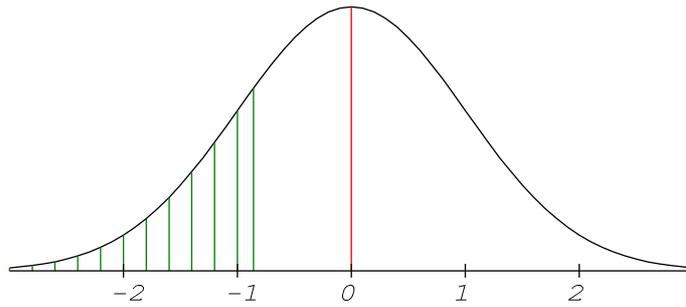
Dimensions in mm

Angles in mrad



Undulator Dimensional Fiducialization
Post Magnetic Alignment
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Nominal : 4.5000	Averag : 5.1783	Cent.-Dev. : 0.6783
Up. Tol. : 0.5	Maximum : 5.6339	U.Tol.Ex. > : 80.5 %
Low.Tol. : -0.5	Minimum : 4.5057	L.Tol.Ex. < : 0.0 %
Spl.Size : 226	Stand.-Dev.: 0.2078	In Tolerance: 19.5 %
Outlier : 0	Distribution : NOR	Dimension : mrad



Statistical Evaluation
 Pole Tip Gap Angle
 Post Magnetic Alignment

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