Included Angle Between Tips

Angle of Symmetry Axis to ZX Plane
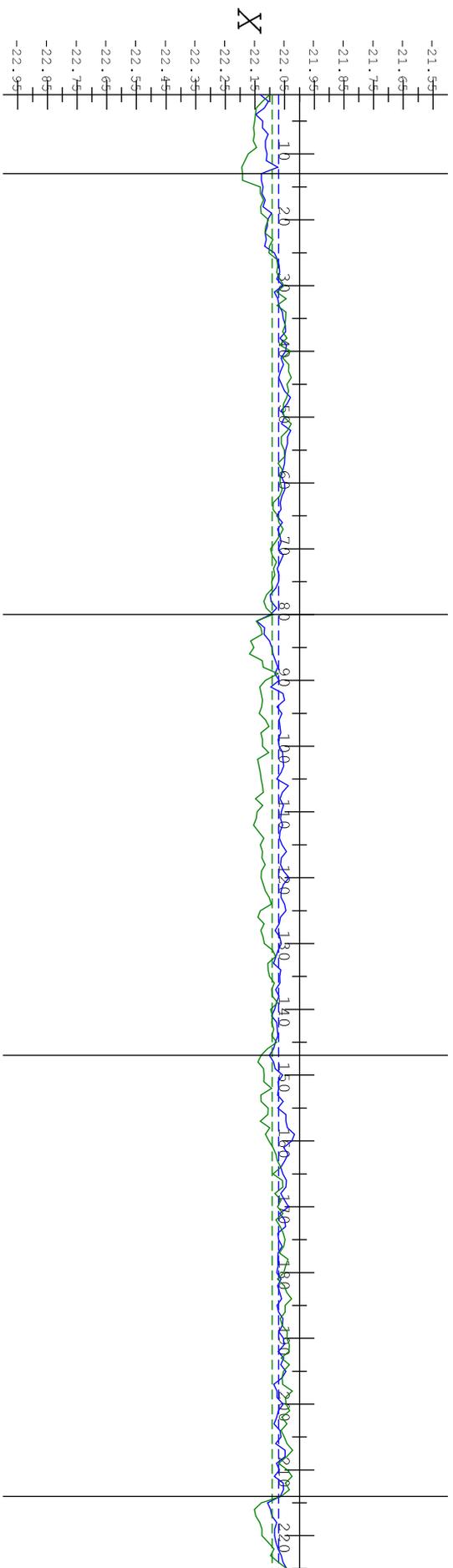(mrad)

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:10-DEC-2007
UNDULATOR # 21
DATASET # 0001
PROGRAM VERSION 2.5
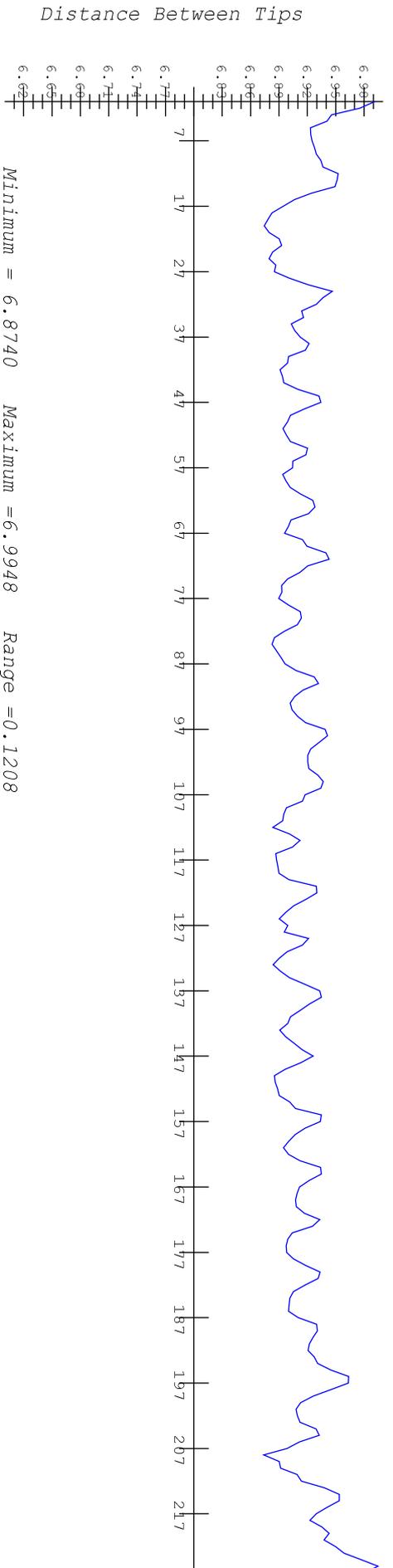
Pole Tip Number ------------->

X

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 =   -22.092
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 =   -22.071
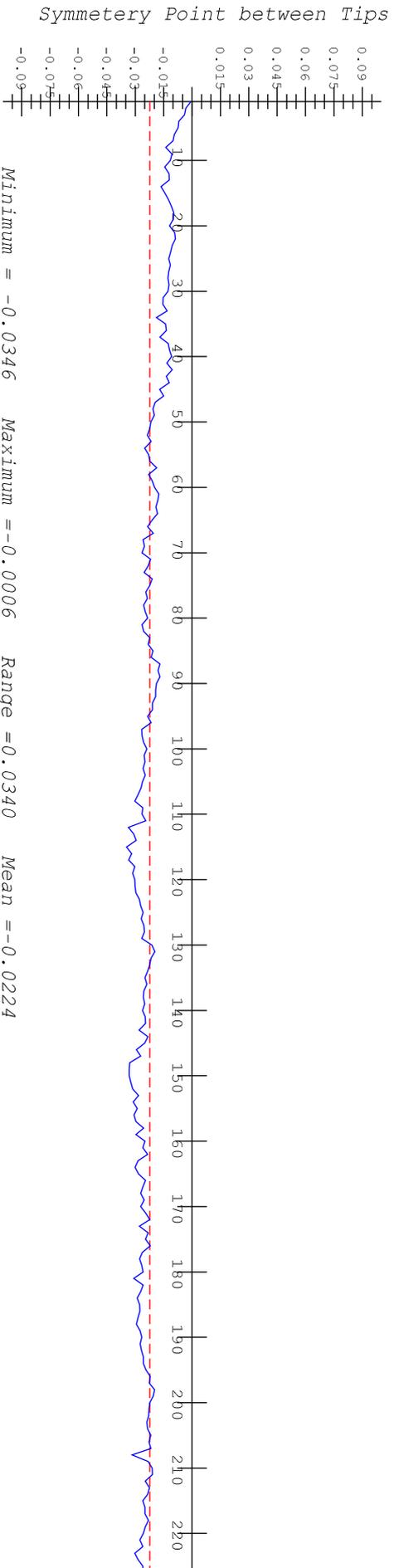
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Undulator Pole Tip Location
Post Magnetic Alignment

DATE:10-DEC-2007
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DATASET   # 0001
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Distance Between Tips

Minimum = 6.8740   Maximum =6.9948   Range =0.1208

in mm

Symmetery Point between Tips

Minimum = -0.0346   Maximum =-0.0006   Range =0.0340   Mean =-0.0224

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
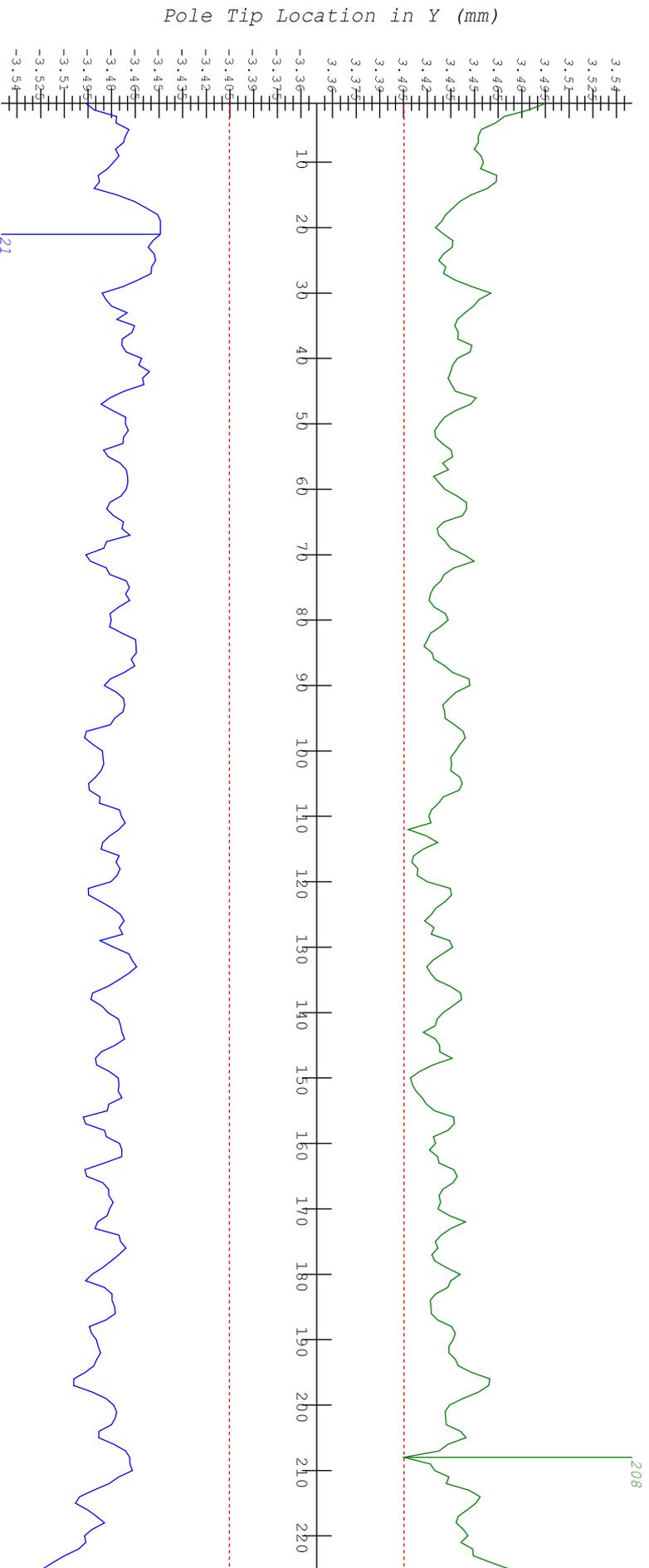
Maximum Chamber Gap = 6.8107

Minimum = 3.4053   Maximum =3.4951   Range =0.0898

Pole Tip Location in Y (mm)

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

Minimum = -3.5234   Maximum =-3.4491   Range =0.0743

Undulator Pole Tip Location
Post Magnetic Alignment

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 Dimensional Fiducialization
Post Magnetic Alignment

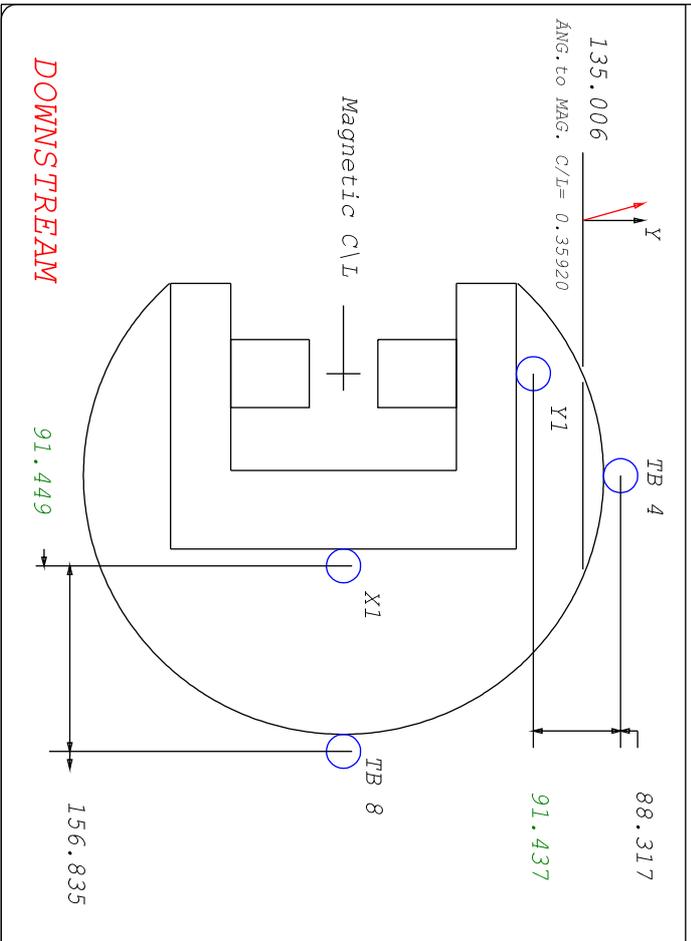DATE:10-DEC-2007
UNDULATOR # 21
DATASET # 0001
PROGRAM VERSION 2.5

DOWNSTREAM

UPSTREAM

Z

Y

Top Magnetic Structure
Bottom Magnetic Structure
Strongback

	C\L Offset	Length
	0.002	3380.893
	-0.002	3380.910
	0.413	3399.843

Dimensions in mm

Angles in mrad

TOOLING BALL LOCATIONS

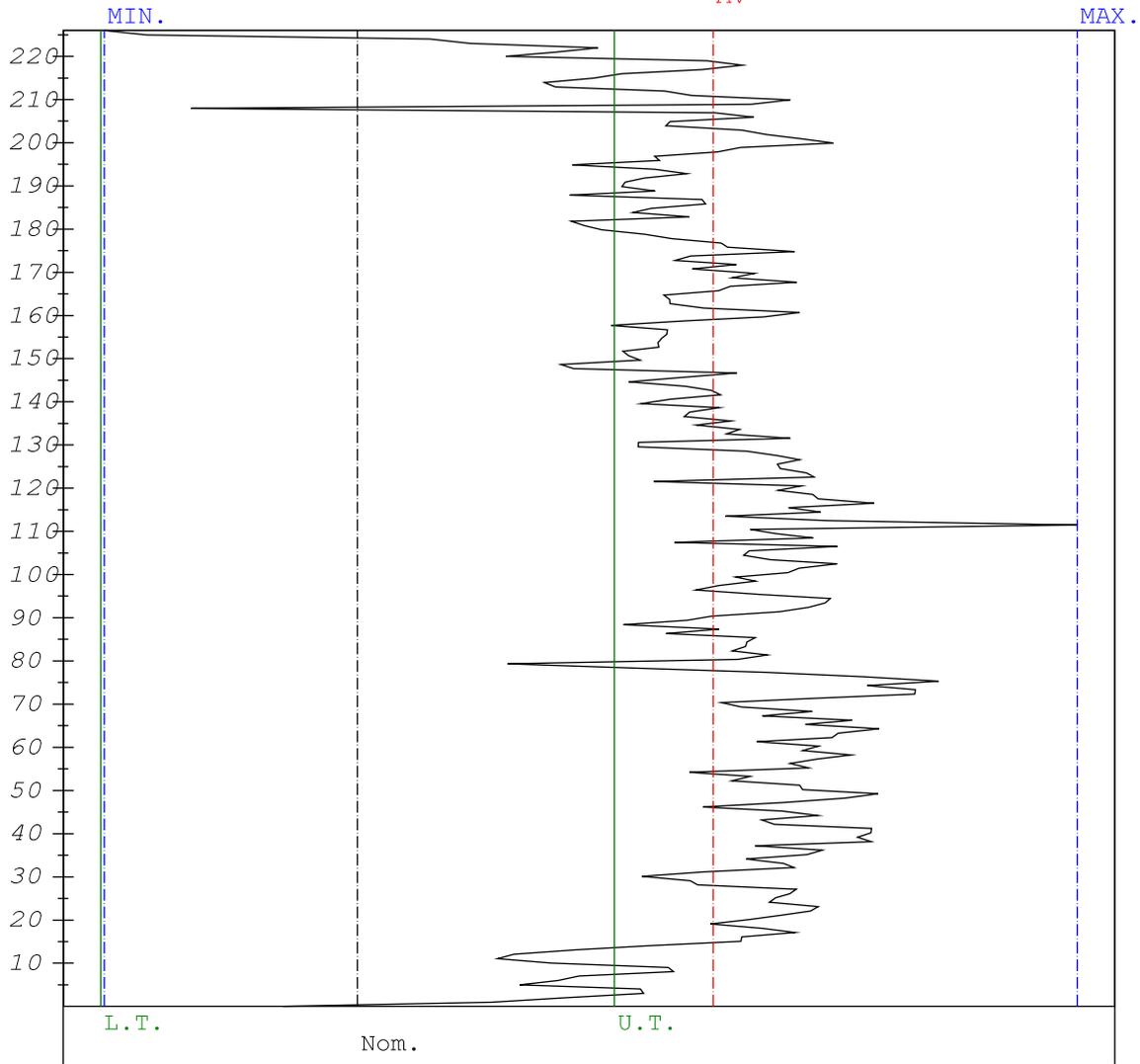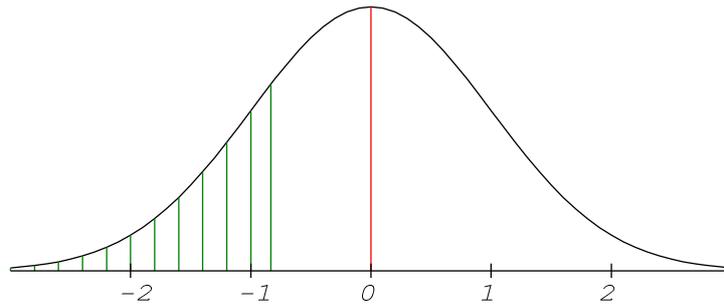| NUM.	X	Y	Z
1	0.0117	179.7751	-1558.155
2	0.0087	179.8348	-584.5184
3	0.0187	179.6941	591.5702
4	0.0865	179.7539	1562.3169
5	248.2047	-0.0199	-1557.987
6	248.2374	0.0072	-584.3752
7	248.2606	0.0173	591.5357
8	248.2843	-0.0423	1562.2582

DOWNSTREAM

135.006

ÁNG.to MAG. C\L= 0.35920

Magnetic C\L

Y1

TB 4

X1

TB 8

91.449

91.437

88.317

156.835

UPSTREAM

135.024

ÁNG.to MAG. C\L= 0.36161

Magnetic C\L

TB 5

X1

TB 1

Y2

156.940

91.265

91.445

88.330

Nominal : 4.5000	Averag :5.1924	Cent.-Dev. :0.6924
Up. Tol. :0.5	Maximum : 5.9009	U.Tol.Ex. > : 79.7 %
Low.Tol. :-0.5	Minimum : 4.0072	L.Tol.Ex. < : 0.0 %
Spl.Size : 226	Stand.-Dev.: 0.2311	In Tolerance: 20.3 %
Outlier : 0	Distribution : NOR	Dimension : mrad

SLAC LCLS-MMF LEITZ CMM	Statistical Evaluation Pole Tip Gap Angle *Post Magnetic Alignment*	*DATE:10-DEC-2007* *UNDULATOR # 21* *DATASET # 0001* *PROGRAM VERSION 2.5*