SLAC Magnetic Measurements

Planar Insertion Device Analysis

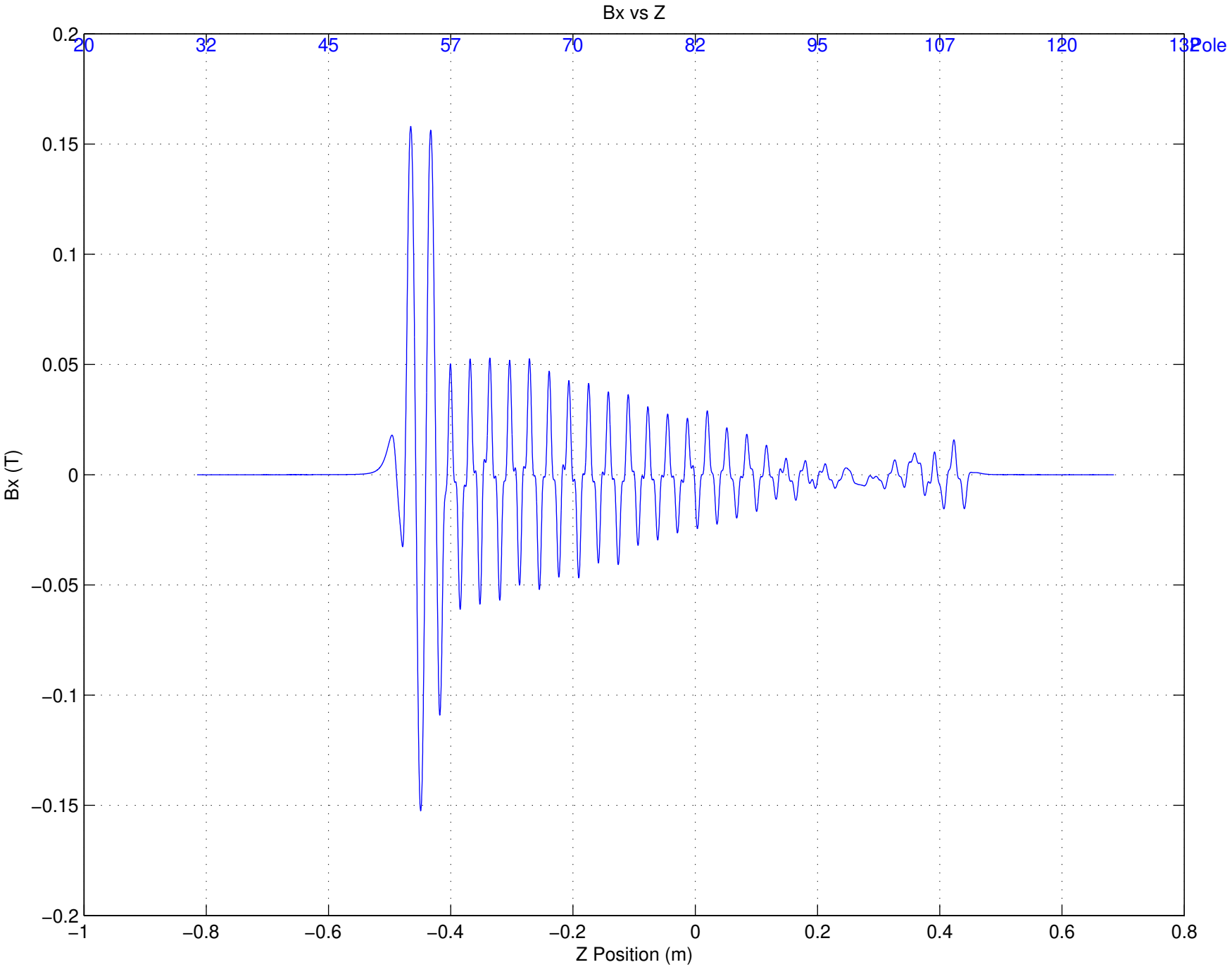
SLAC Magnetic Measurements
Date: 12−11−2012
Time: 10:00:31

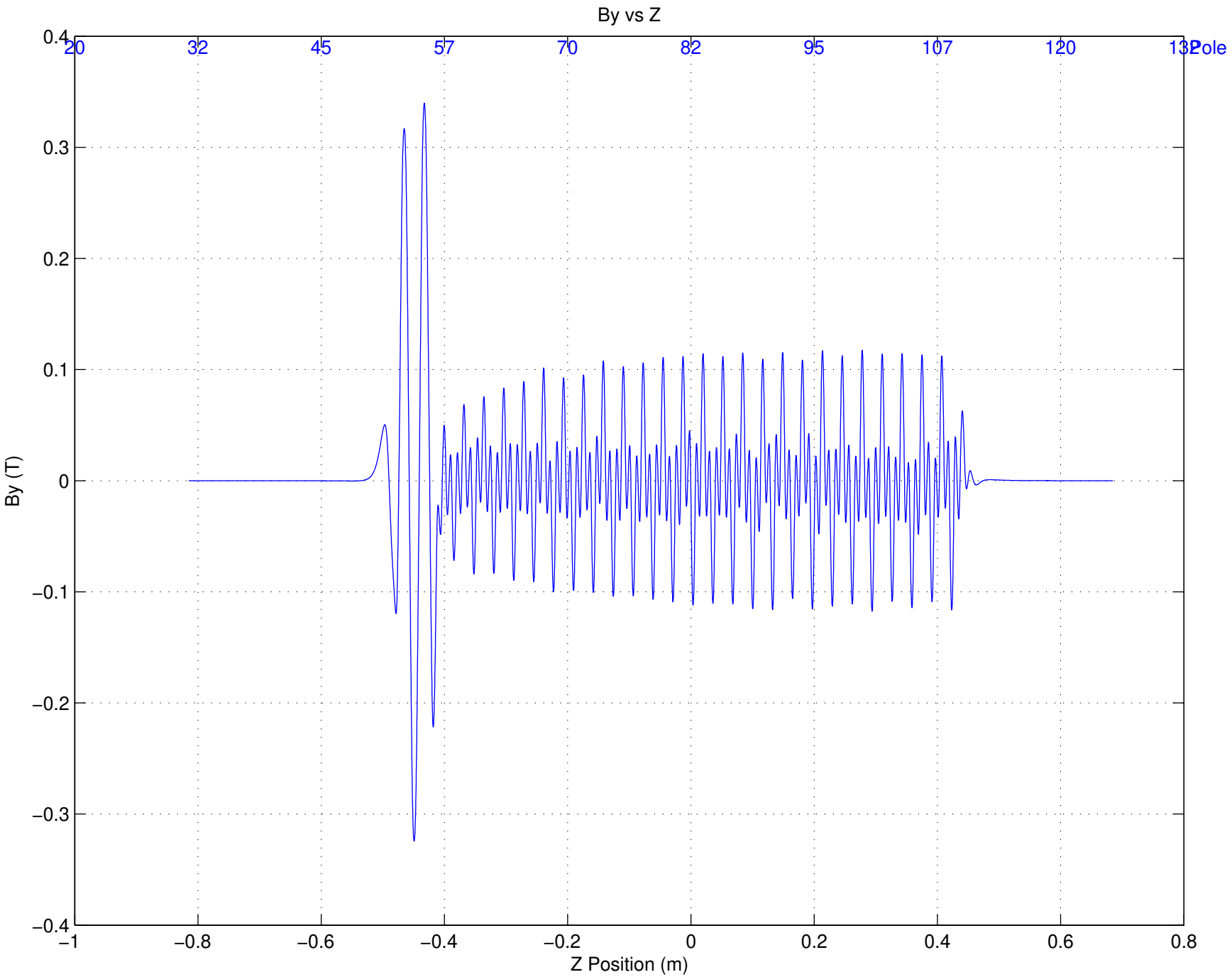
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: DELTA
DATASET Number: 1
Tuning Stage: Fine Tuning
Run Number: 5
Measurement Type: Z Scans
Operator: YL
Comment: find first pole position, quadrant 2
Session first run: 5
Measurement Device x:
Measurement Device y: $SENTRON_4$41

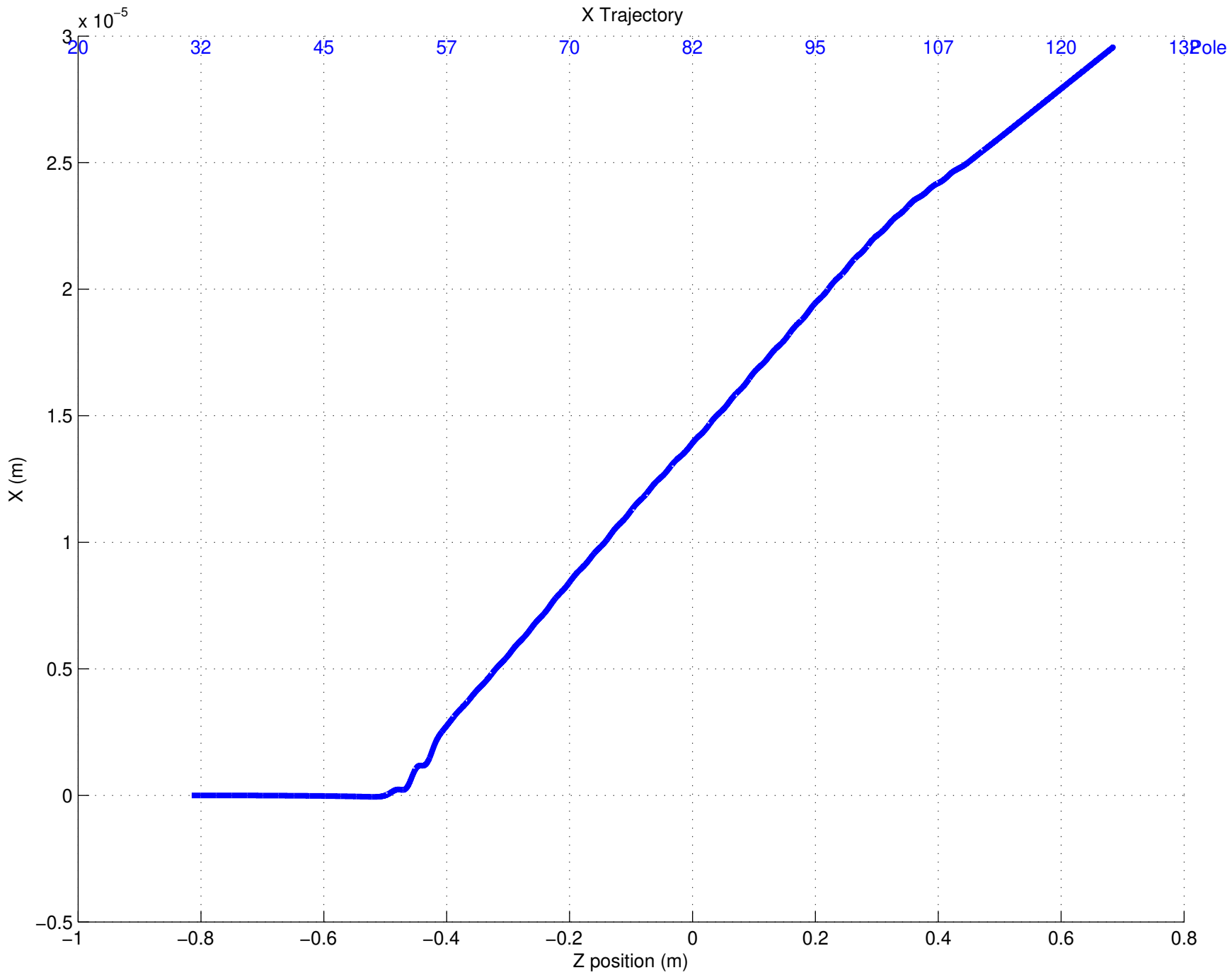
Data File: s:\magdata\LCLS\Undulator\DELTA\DATASET0001\Fine Tuning\Z Scans\Run 005\bscanz.dat

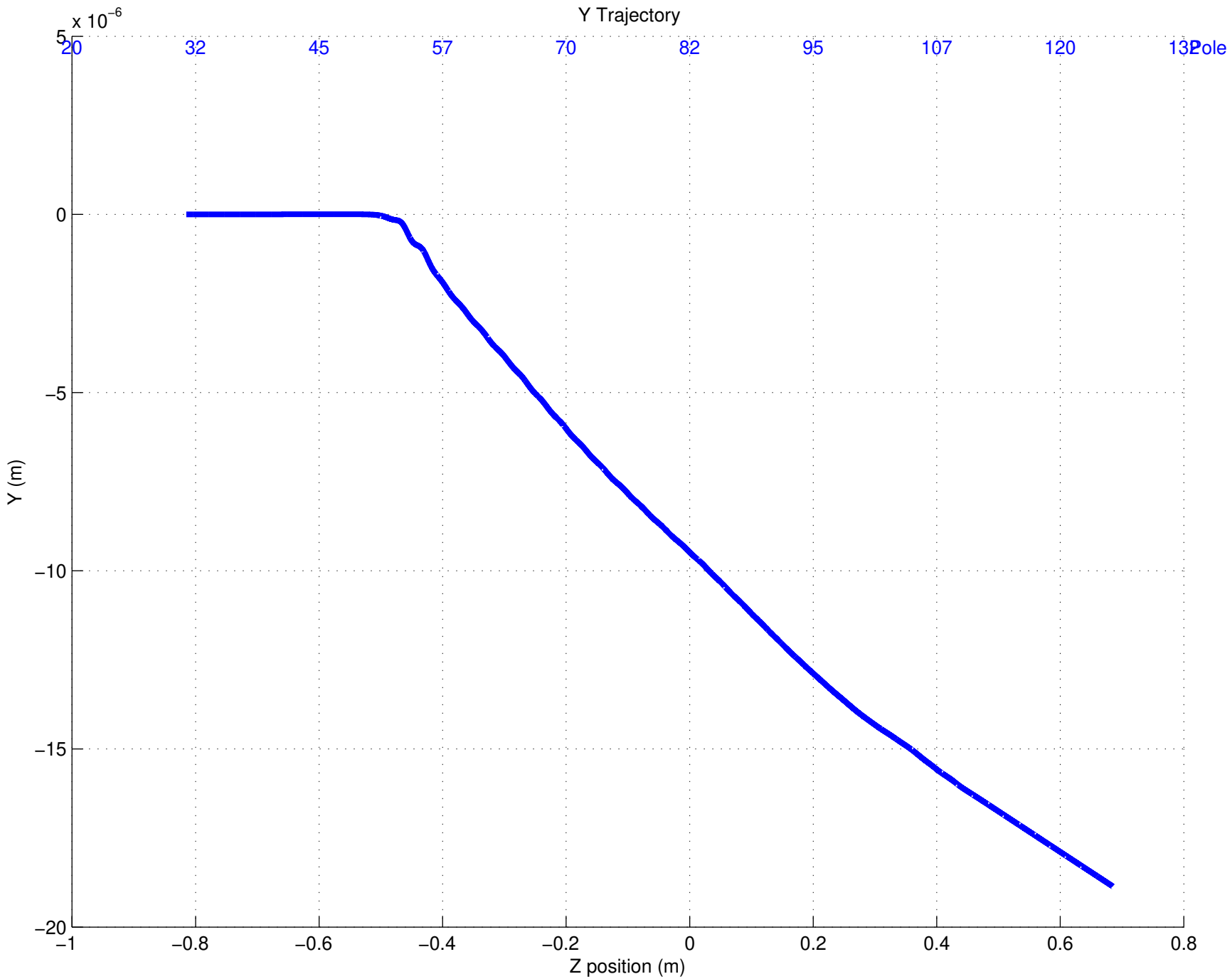
Temperature (C)
DELTA:−−> T1 20.05 −−> T2 20.07 −−> T5 19.91 −−> T3 20.11 −−> Air 19.99 −−> T4 19.89

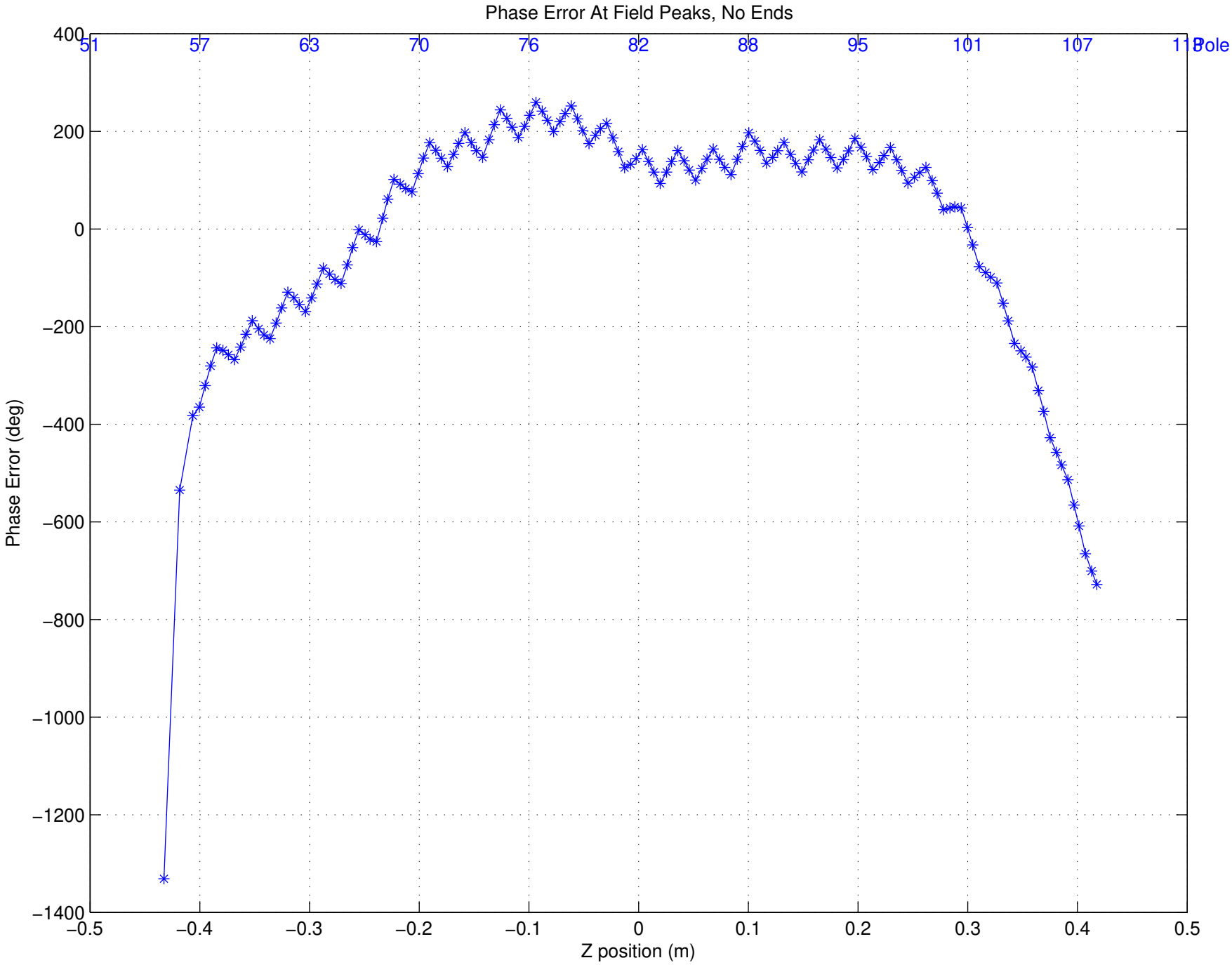
Axes position (m) X:0.030000 Y:−0.000100
Initial Hall Probe Zero Measurements:
Vx_0i = 0.000894 V
Vy_0i = −0.003560 V


Bx vs Z
20
32
45
57
70
82
95
107
120
132
Pole
0.2
0.15
0.1
0.05
0
−0.05
−0.1
−0.15
−0.2
Bx (T)
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z Position (m)

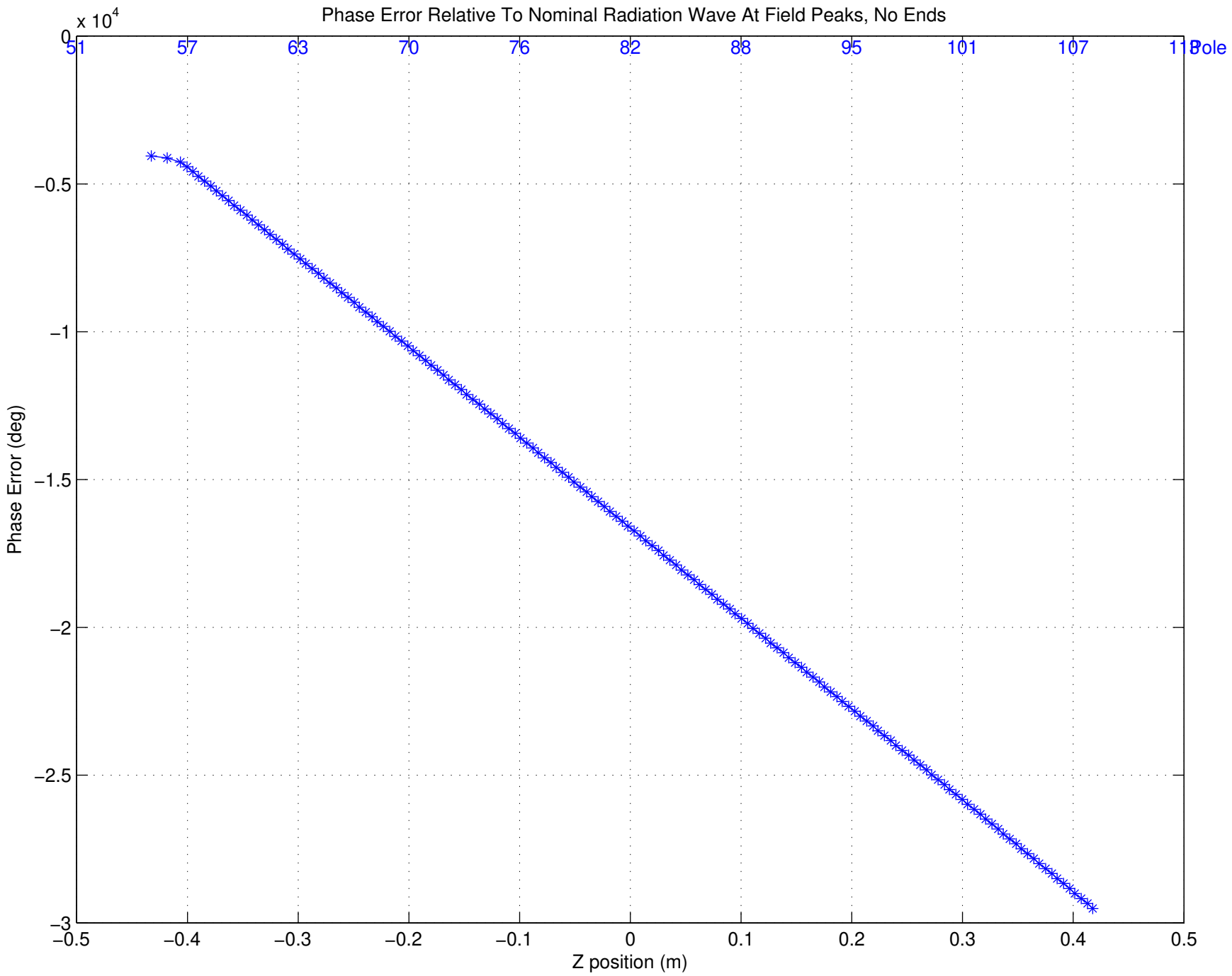

By vs Z
20
32
45
57
70
82
95
107
120
132
Pole
0.4
0.3
0.2
0.1
0
−0.1
−0.2
−0.3
−0.4
By (T)
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z Position (m)


X Trajectory
x 10^-5
3
2.5
2
1.5
1
0.5
0
−0.5
X (m)
20
32
45
57
70
82
95
107
120
132
Pole
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z position (m)


Y Trajectory
x 10^-6
5
0
−5
−10
−15
−20
Y (m)
20
32
45
57
70
82
95
107
120
132
Pole
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z position (m)



Phase Error: Ave = −0.000000 deg, RMS = 246.712794 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
x 10^4
0
−0.5
−1
−1.5
−2
−2.5
−3
Phase Error (deg)
51
57
63
70
76
82
88
95
101
107
Pole
−0.5
−0.4
−0.3
−0.2
−0.1
0
0.1
0.2
0.3
0.4
0.5
Z position (m)