SLAC Magnetic Measurements

Planar Insertion Device Analysis

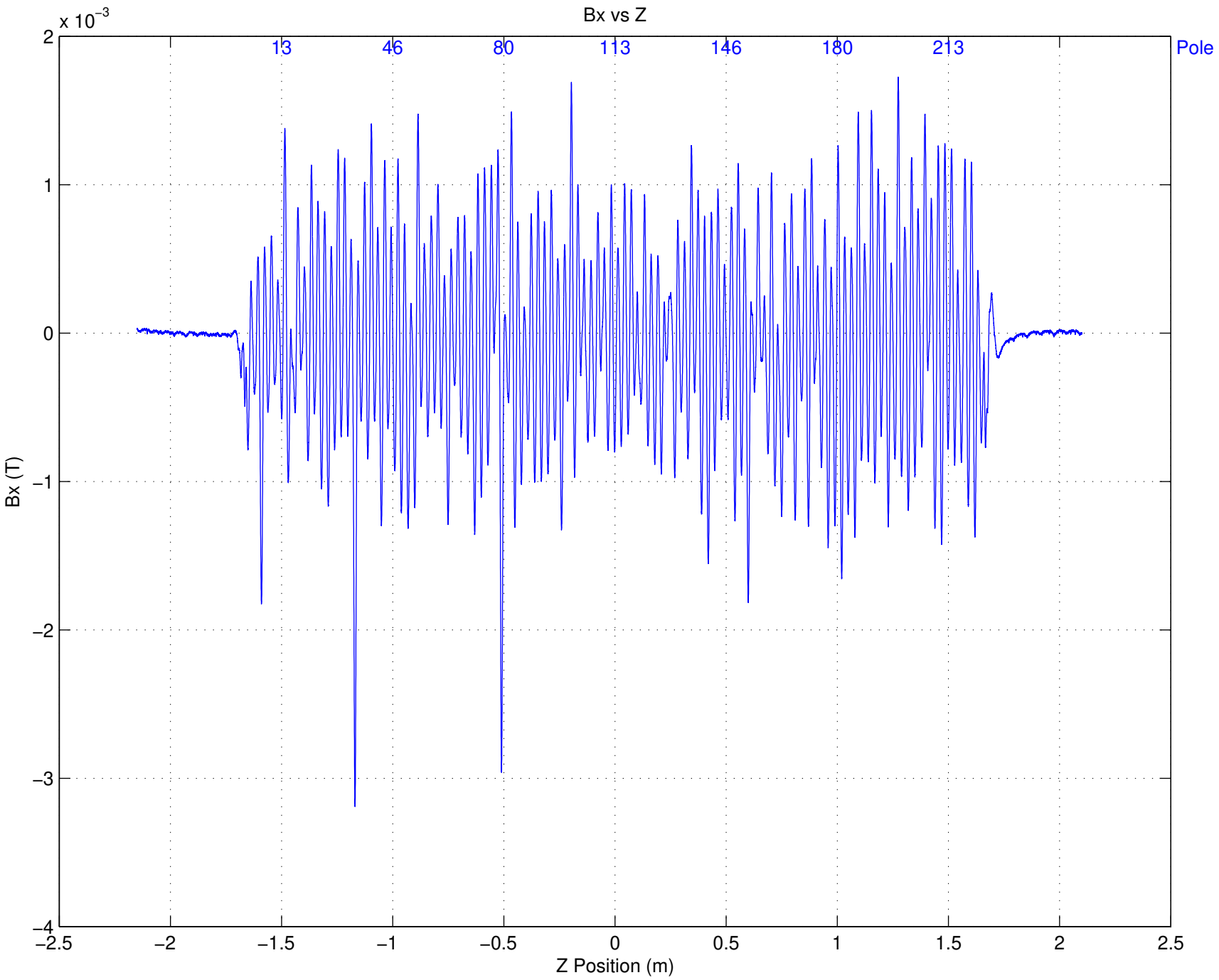
SLAC Magnetic Measurements
Date: 06−16−2010
Time: 15:47:48

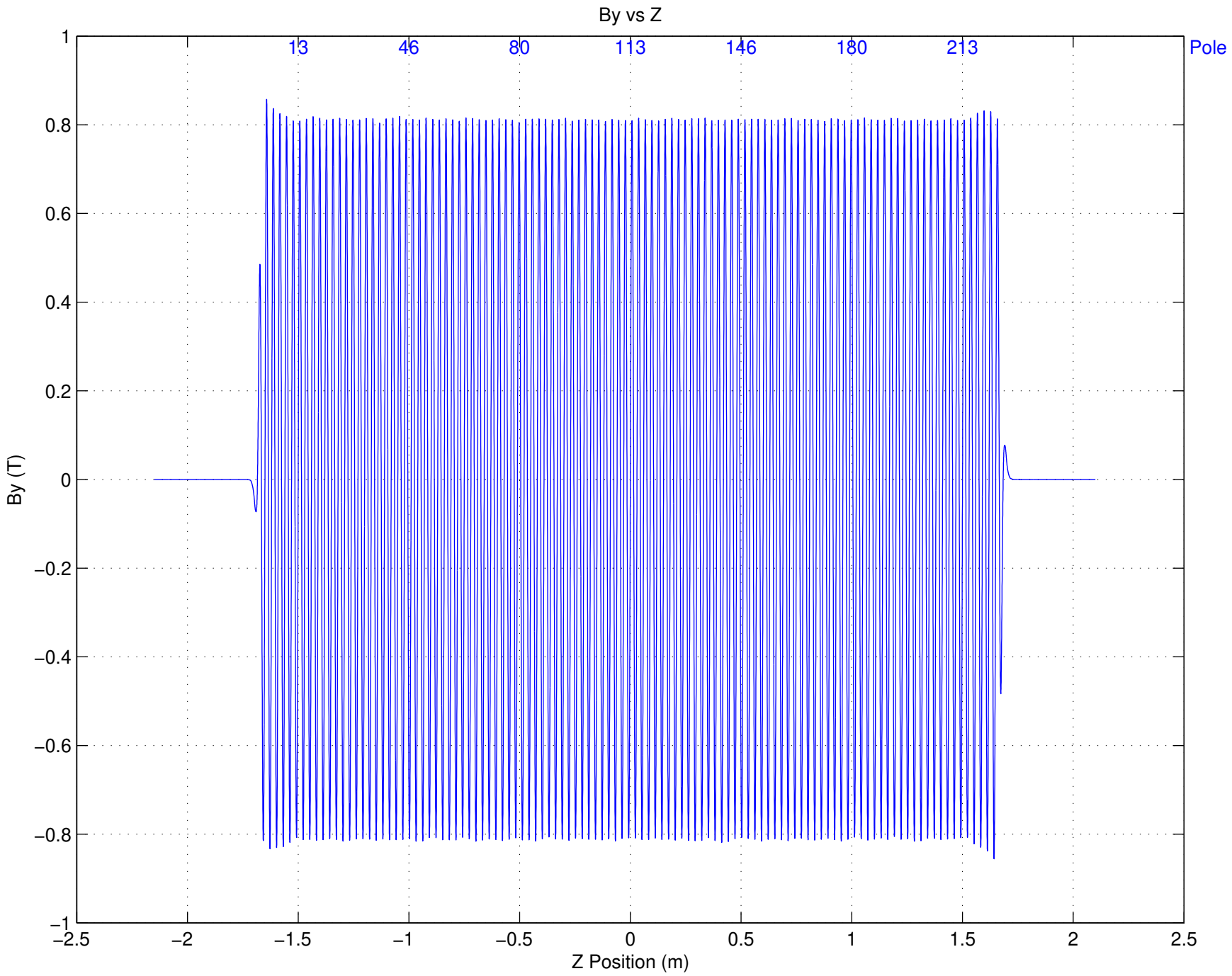
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−01
DATASET Number: 1
Tuning Stage: Fine Tuning
Run Number: 4
Measurement Type: Z Scans
Operator: YL
Comment: find first pole position
Session first run: 4
Measurement Device x:
Measurement Device y: $SENTRON_4$41

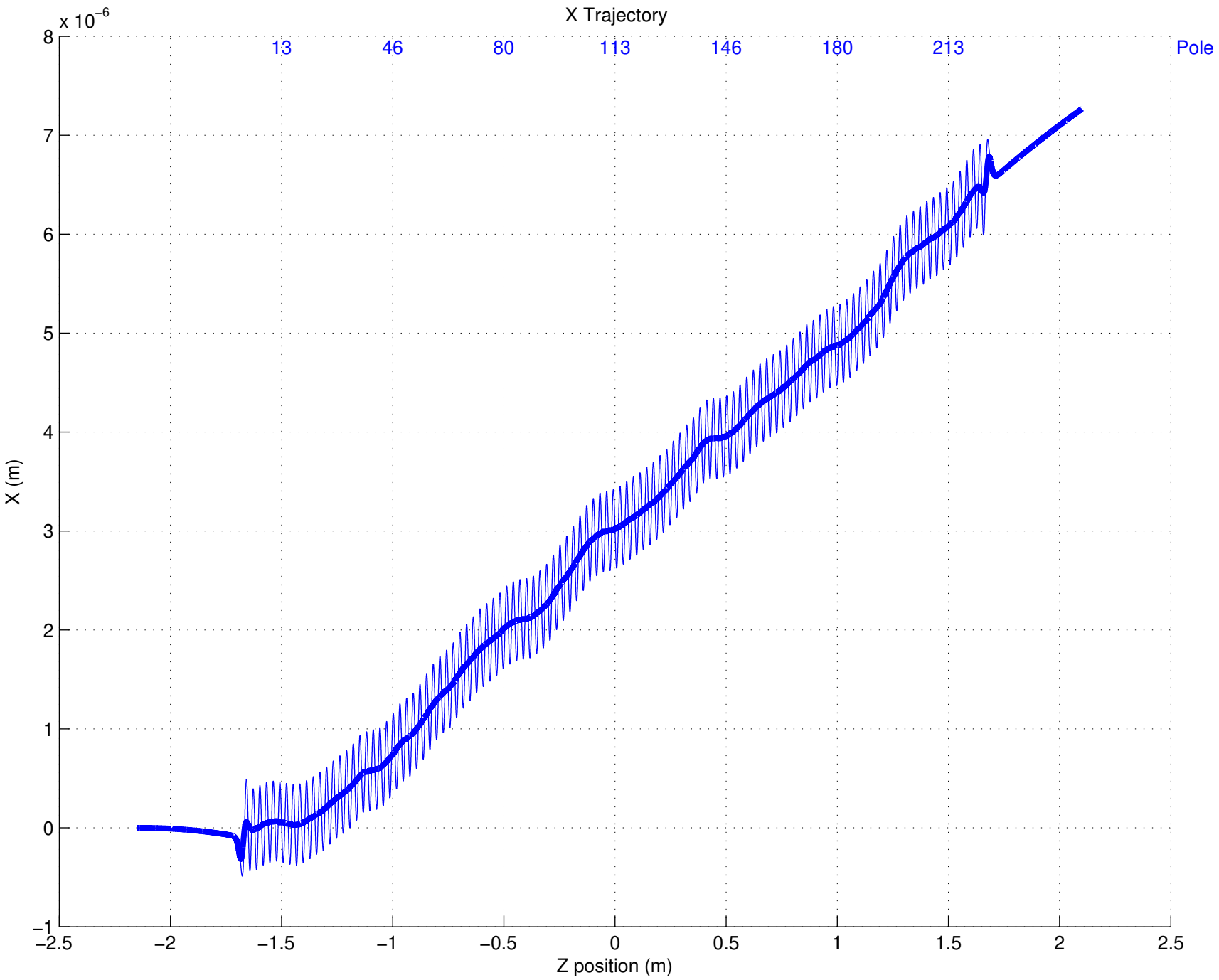
Data File: s:\magdata\LCLS\Undulator\L143−112000−01\DATASET0001\Fine Tuning\Z Scans\Run 004\bscanz.dat

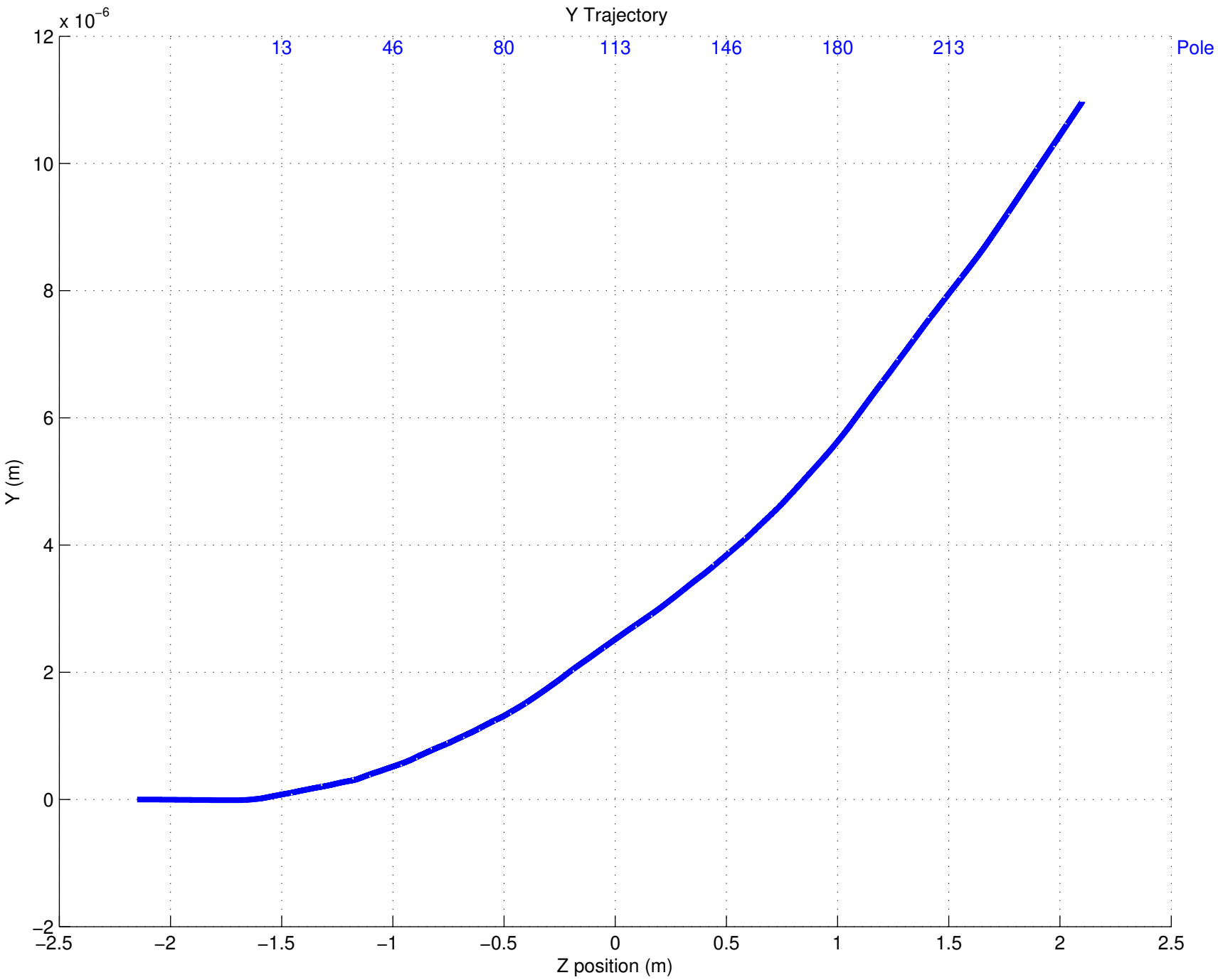
Temperature (C)
L143−112000−01:−−> T5 20.04 −−> T2 20.03 −−> T1 20.08 −−> T3 20.04 −−> Air 20.06 −−> T4 20.02

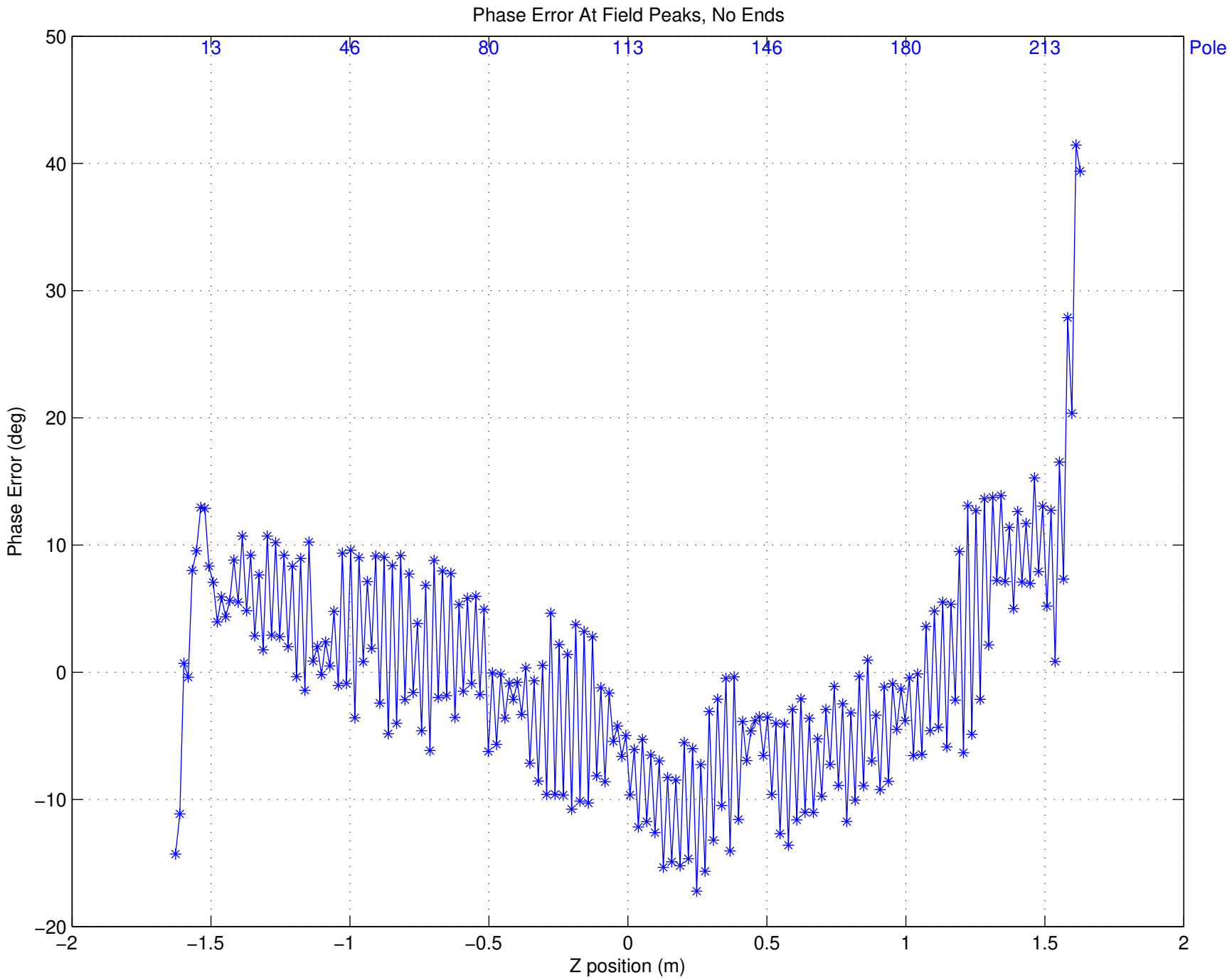
Axes position (m) X:0.026885 Y:0.000418
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001302 V
Vy_0i = −0.003090 V


Bx vs Z
x 10^-3
2
1
0
−1
−2
−3
−4
Bx (T)
13
46
80
113
146
180
213
Pole
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)

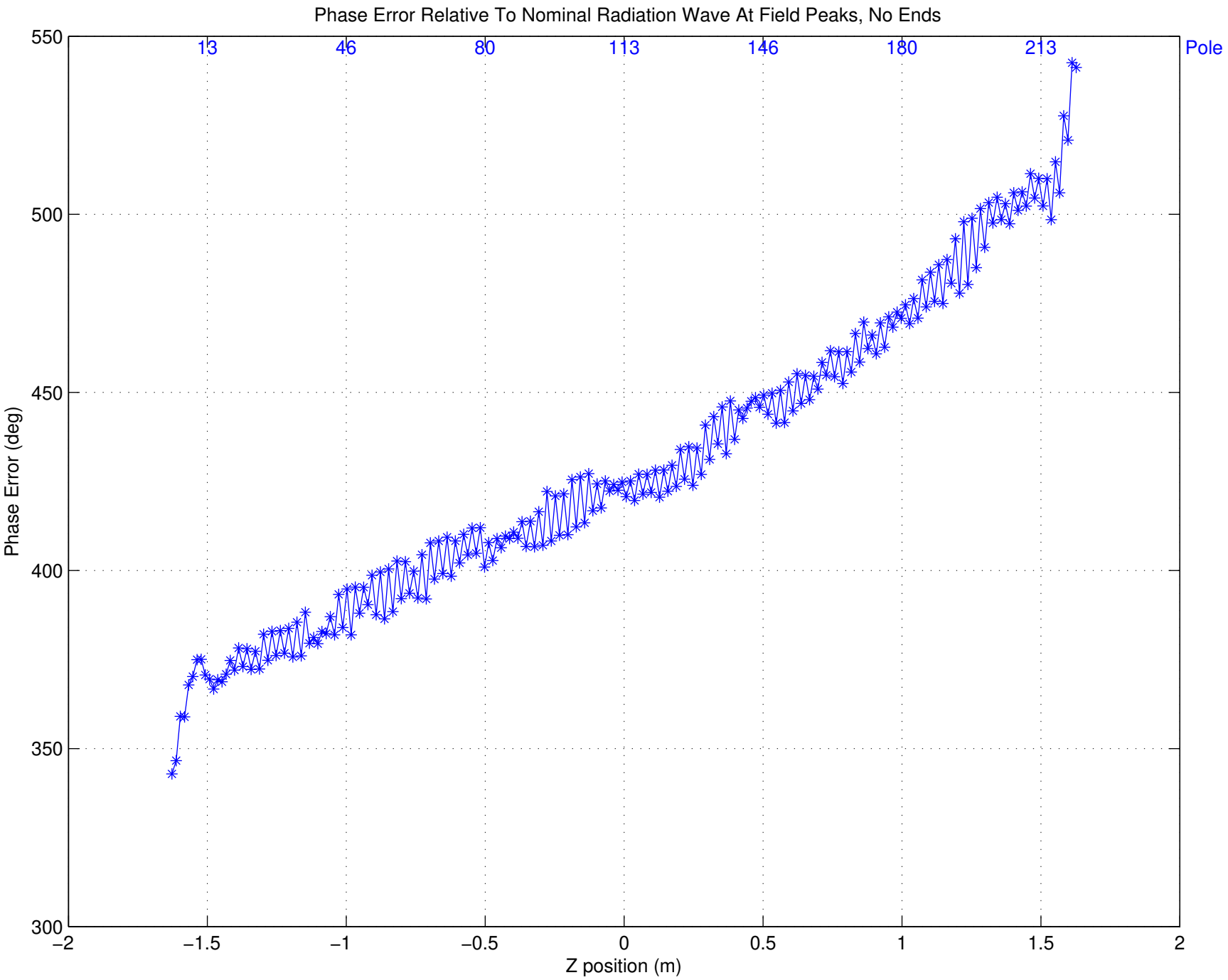

By vs Z
13
46
80
113
146
180
213
Pole
By (T)
Z Position (m)
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5


X Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
X (m)
Z position (m)
8
7
6
5
4
3
2
1
0
−1
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5


Y Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
12
10
8
6
4
2
0
−2
Y (m)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z position (m)



Phase Error: Ave = −0.000000 deg, RMS = 8.793488 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
13
46
80
113
146
180
213
Pole
550
500
450
400
350
300
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)