SLAC Magnetic Measurements

Planar Insertion Device Analysis

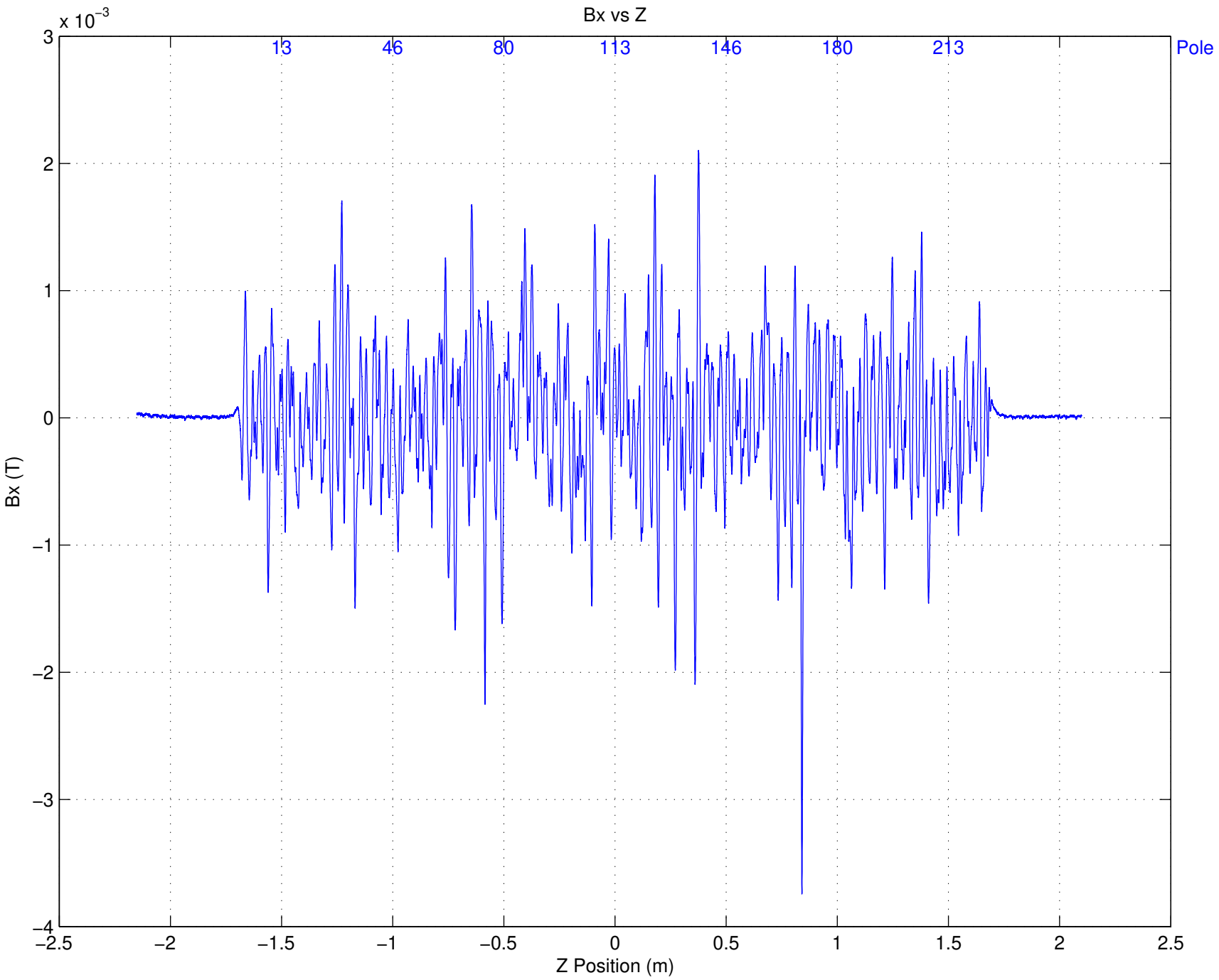
SLAC Magnetic Measurements
Date: 09−07−2012
Time: 09:56:02

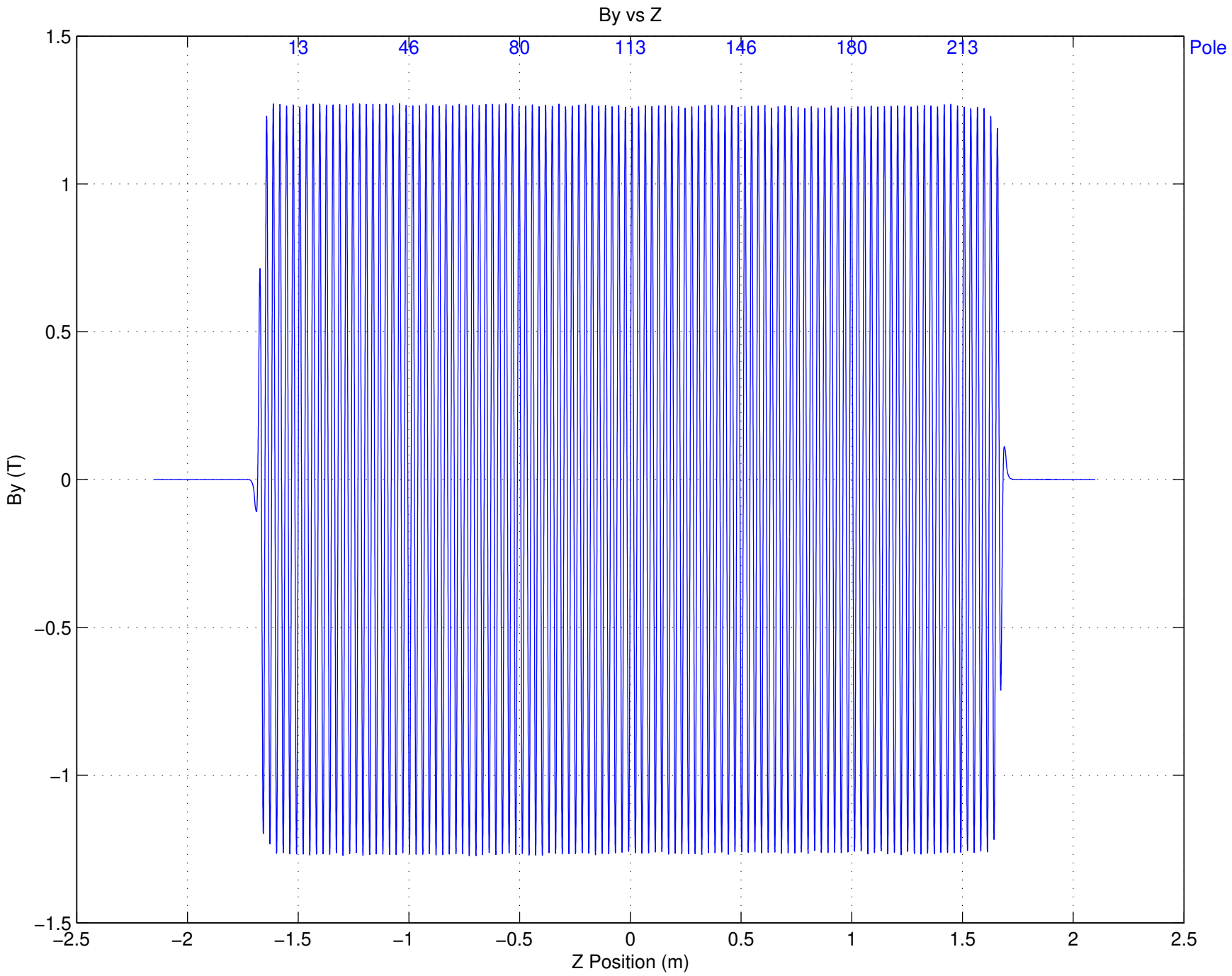
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−20
DATASET Number: 8
Tuning Stage: Fine Tuning
Run Number: 2
Measurement Type: Z Scans
Operator: YL
Comment: at min K
Session first run: 2
Measurement Device x:
Measurement Device y: $SENTRON_4$41

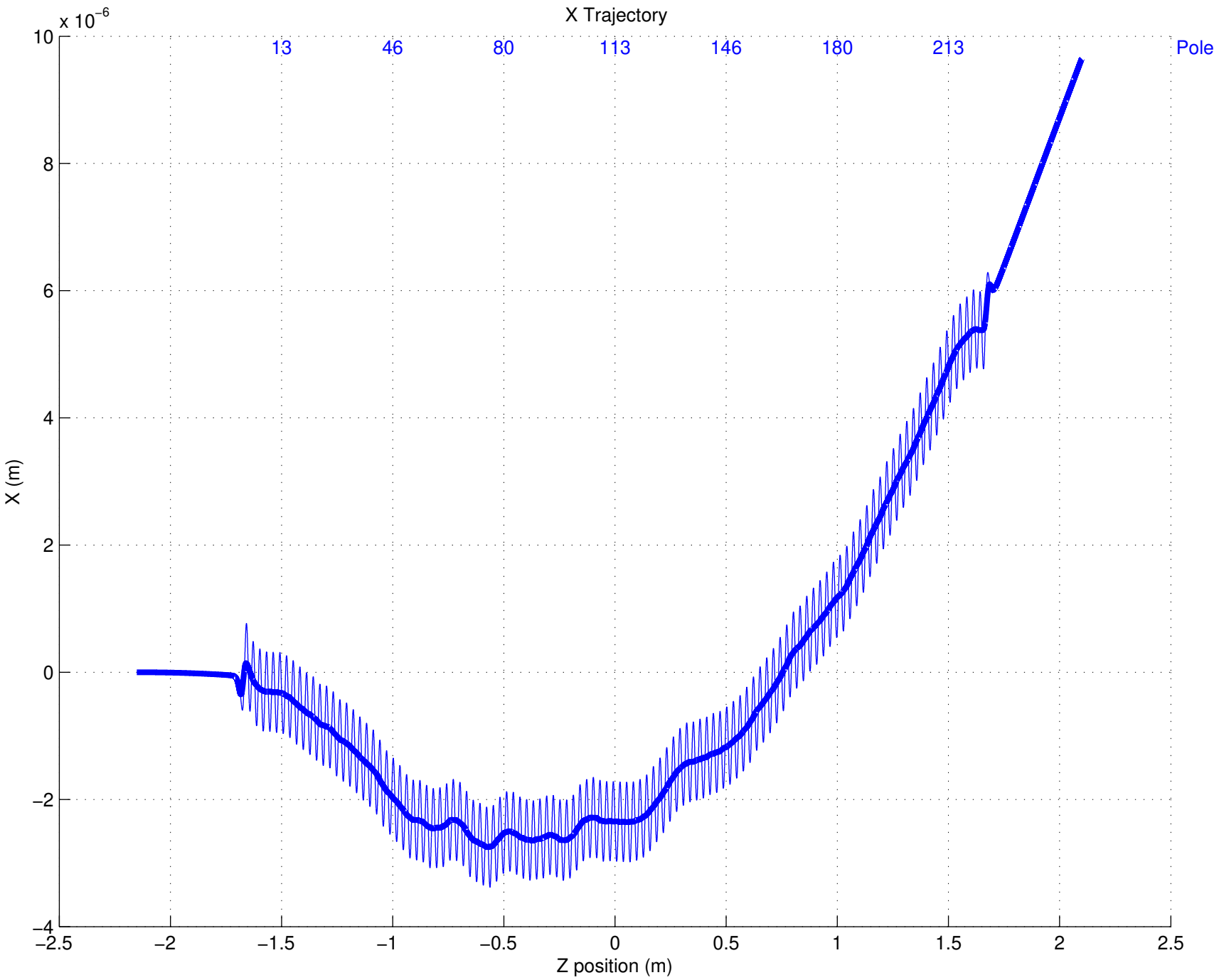
Data File: s:\magdata\LCLS\Undulator\L143−112000−20\DATASET0008\Fine Tuning\Z Scans\Run 002\bscanz.dat

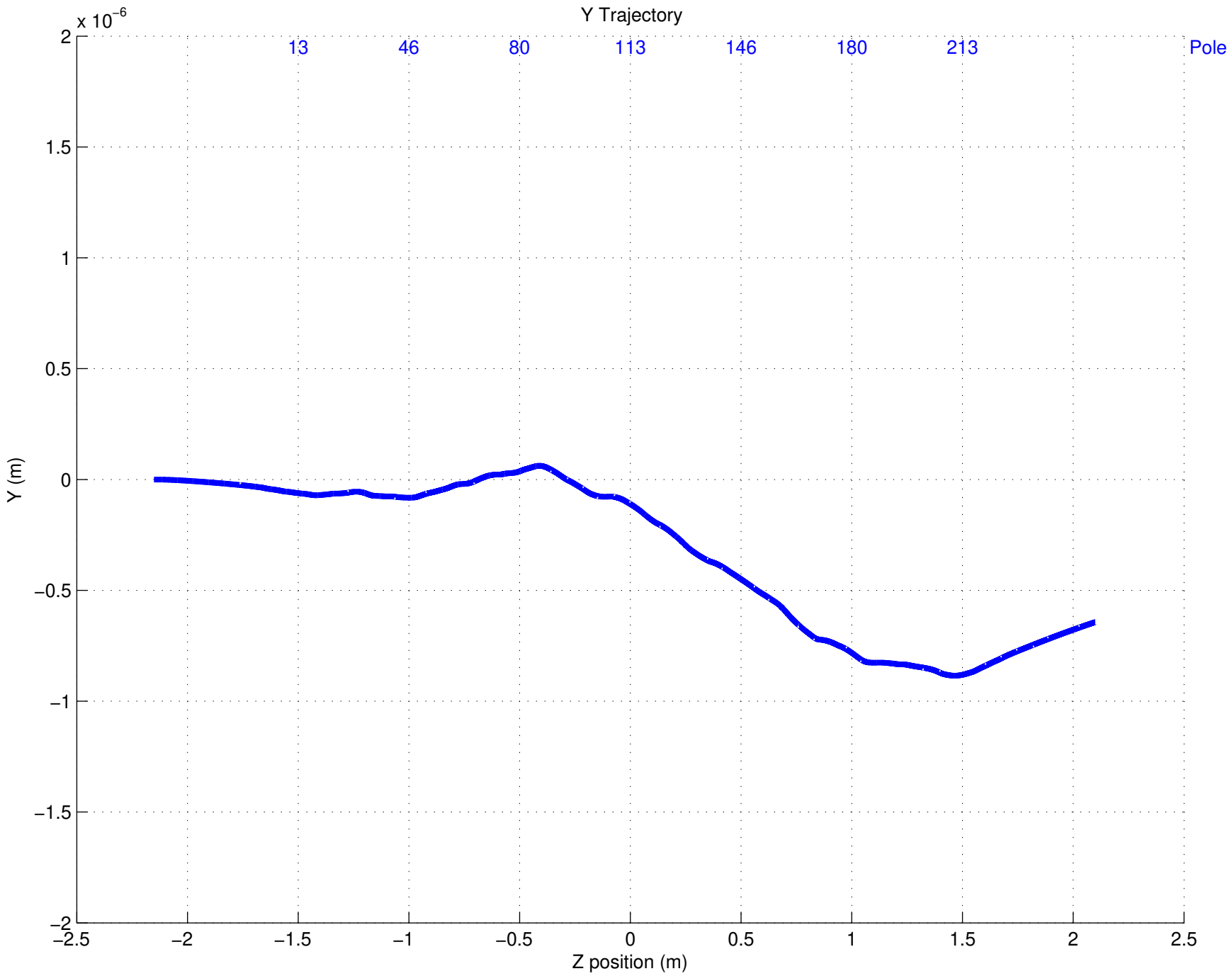
Temperature (C)
L143−112000−20:−−> T1 20.05 −−> T2 20.04 −−> T5 19.99 −−> T3 20.03 −−> Air 20.00 −−> T4 20.02

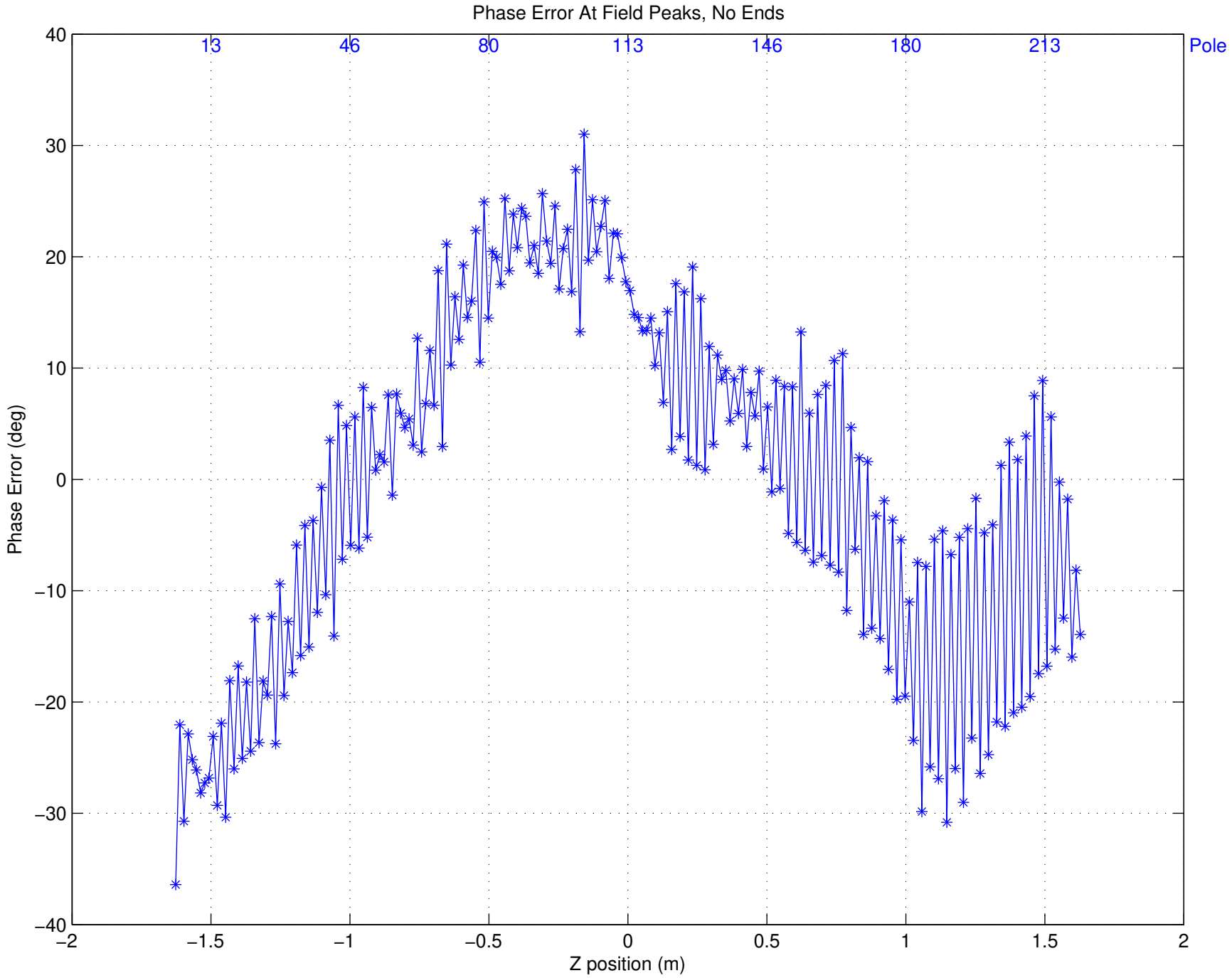
Axes position (m) X:0.029878 Y:0.000265
Initial Hall Probe Zero Measurements:
Vx_0i = 0.000933 V
Vy_0i = −0.003073 V


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

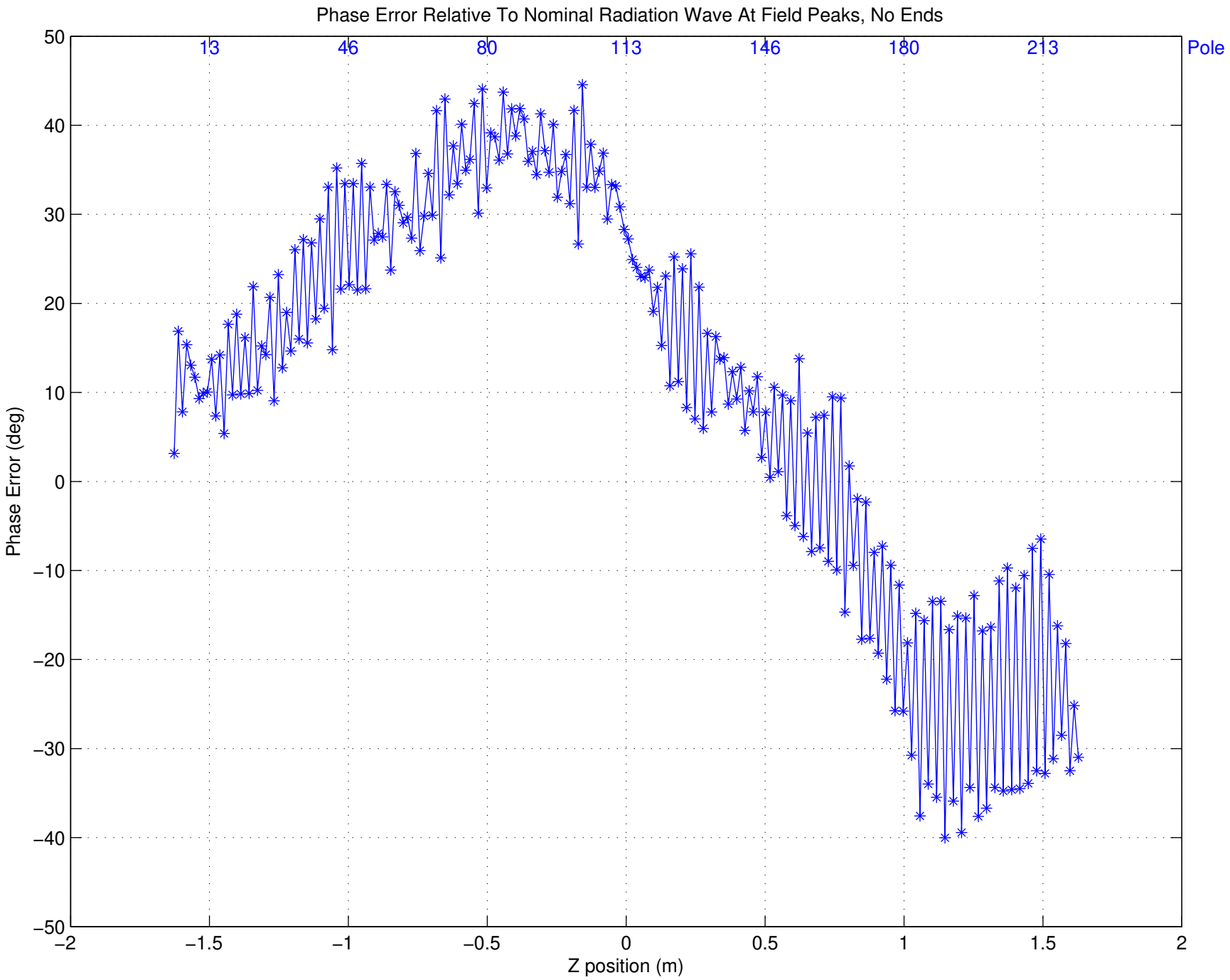

By vs Z
13
46
80
113
146
180
213
Pole
1.5
1
0.5
0
−0.5
−1
−1.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


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


Y Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
2
1.5
1
0.5
0
−0.5
−1
−1.5
−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 = 15.950146 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
13
46
80
113
146
180
213
Pole
50
40
30
20
10
0
−10
−20
−30
−40
−50
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)