SLAC Magnetic Measurements

Planar Insertion Device Analysis

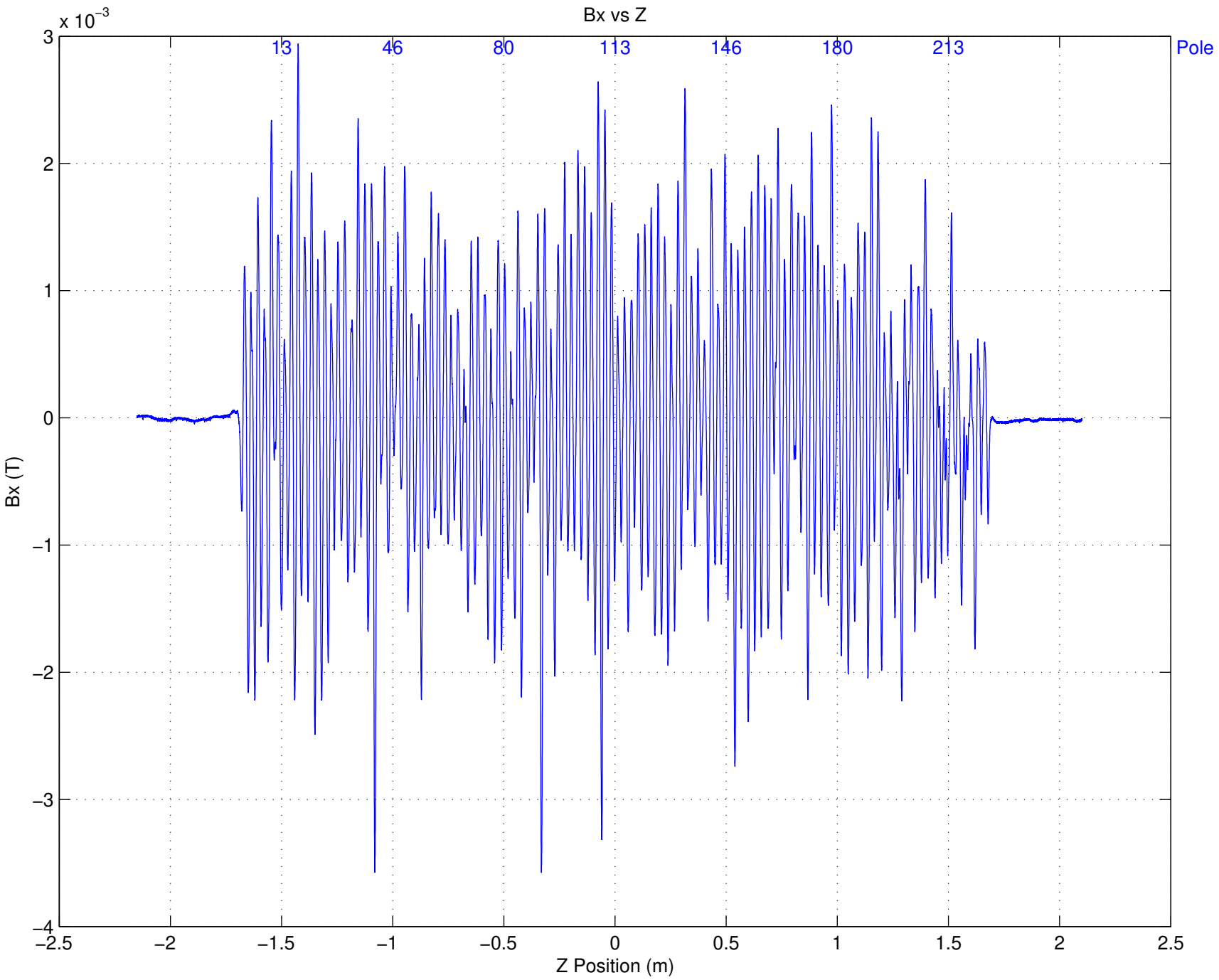
SLAC Magnetic Measurements
Date: 11−21−2012
Time: 13:31:44

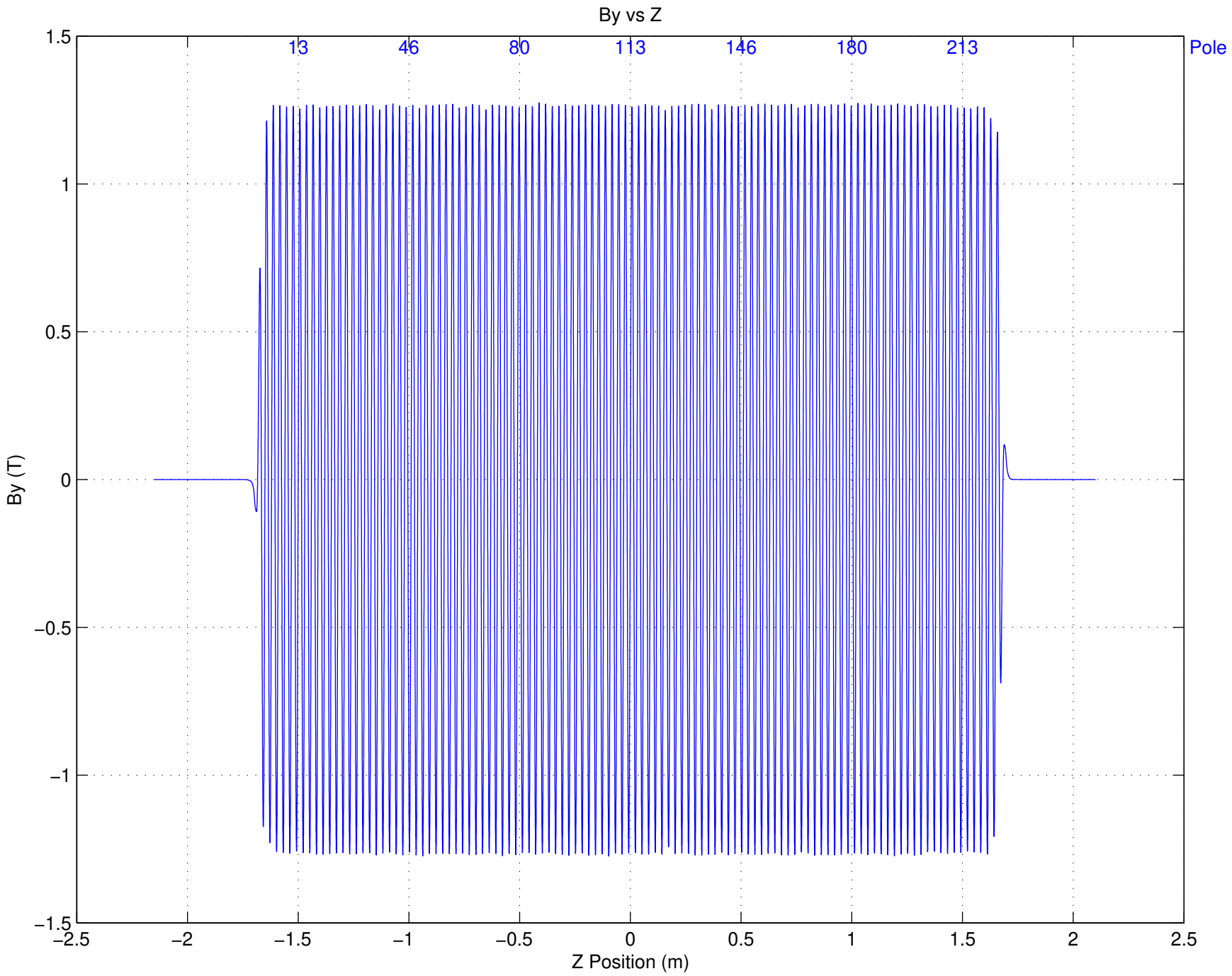
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−27
DATASET Number: 3
Tuning Stage: Fine Tuning
Run Number: 4
Measurement Type: Z Scans
Operator: YL
Comment: tuning
Session first run: 4
Measurement Device x:
Measurement Device y: $SENTRON_4$41

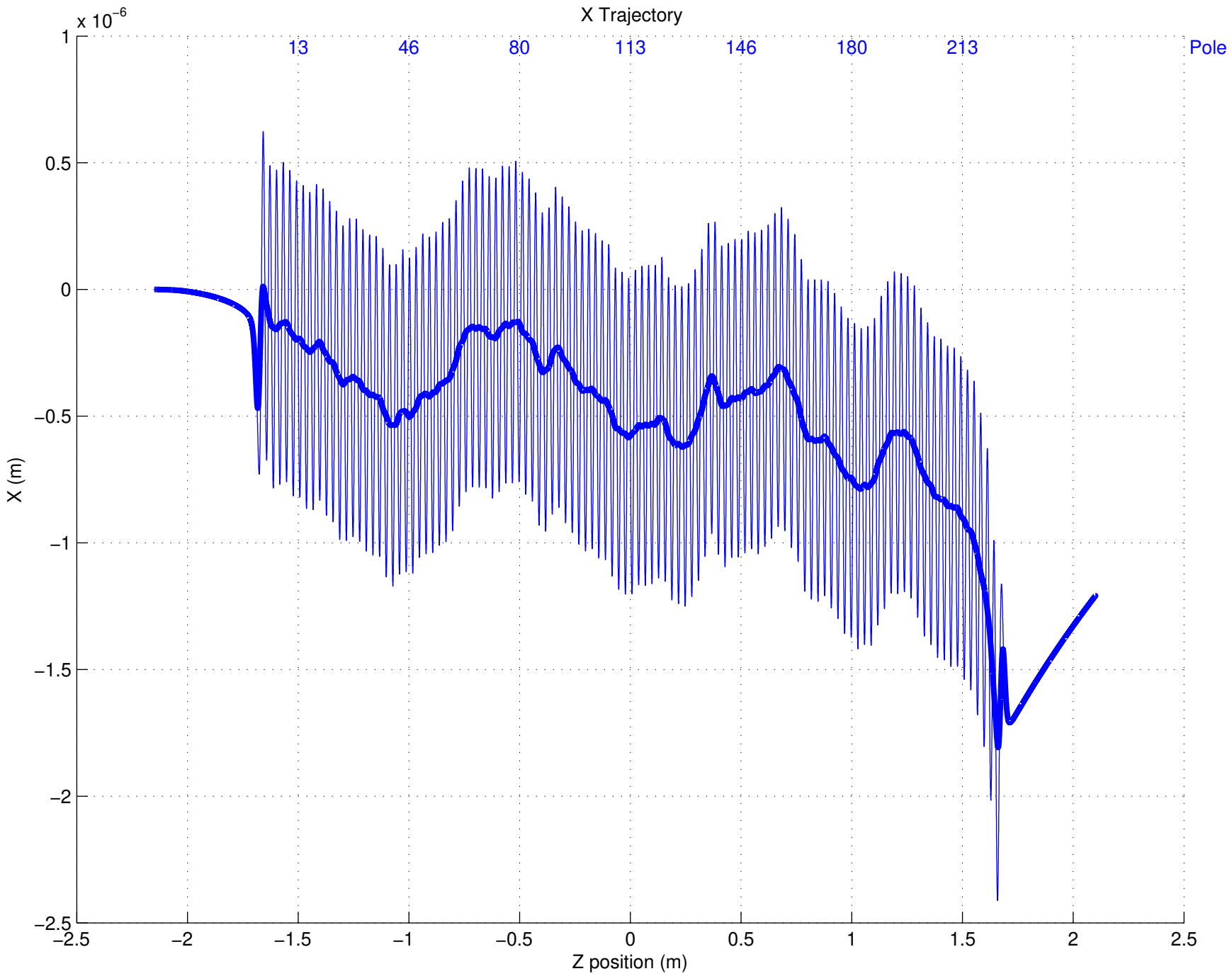
Data File: s:\magdata\LCLS\Undulator\L143−112000−27\DATASET0003\Fine Tuning\Z Scans\Run 004\bscanz.dat

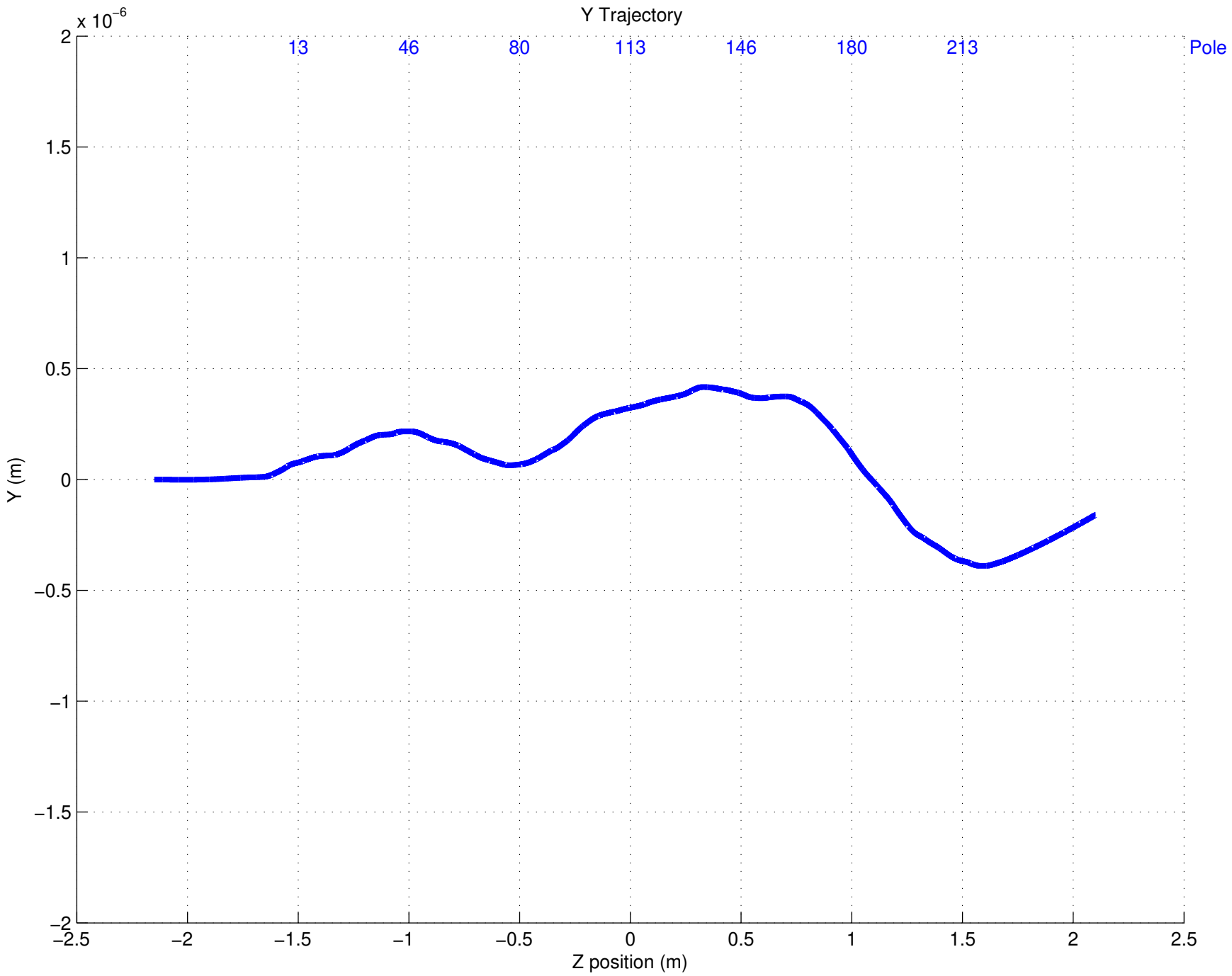
Temperature (C)
L143−112000−27:−−> T1 20.35 −−> T2 20.35 −−> T5 20.21 −−> T3 20.35 −−> Air 19.99 −−> T4 20.31

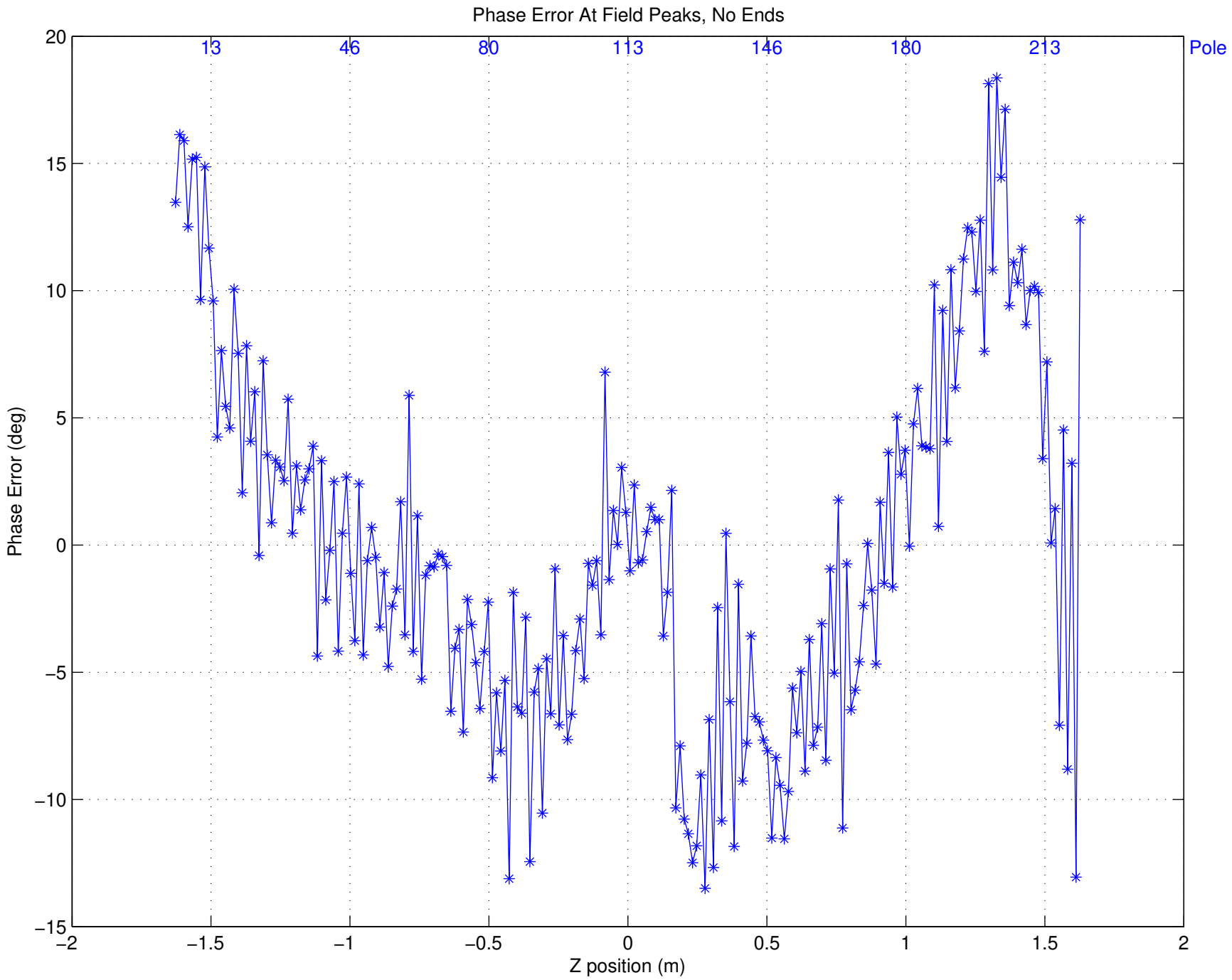
Axes position (m) X:0.030172 Y:0.000216
Initial Hall Probe Zero Measurements:
Vx_0i = 0.000984 V
Vy_0i = −0.003409 V


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

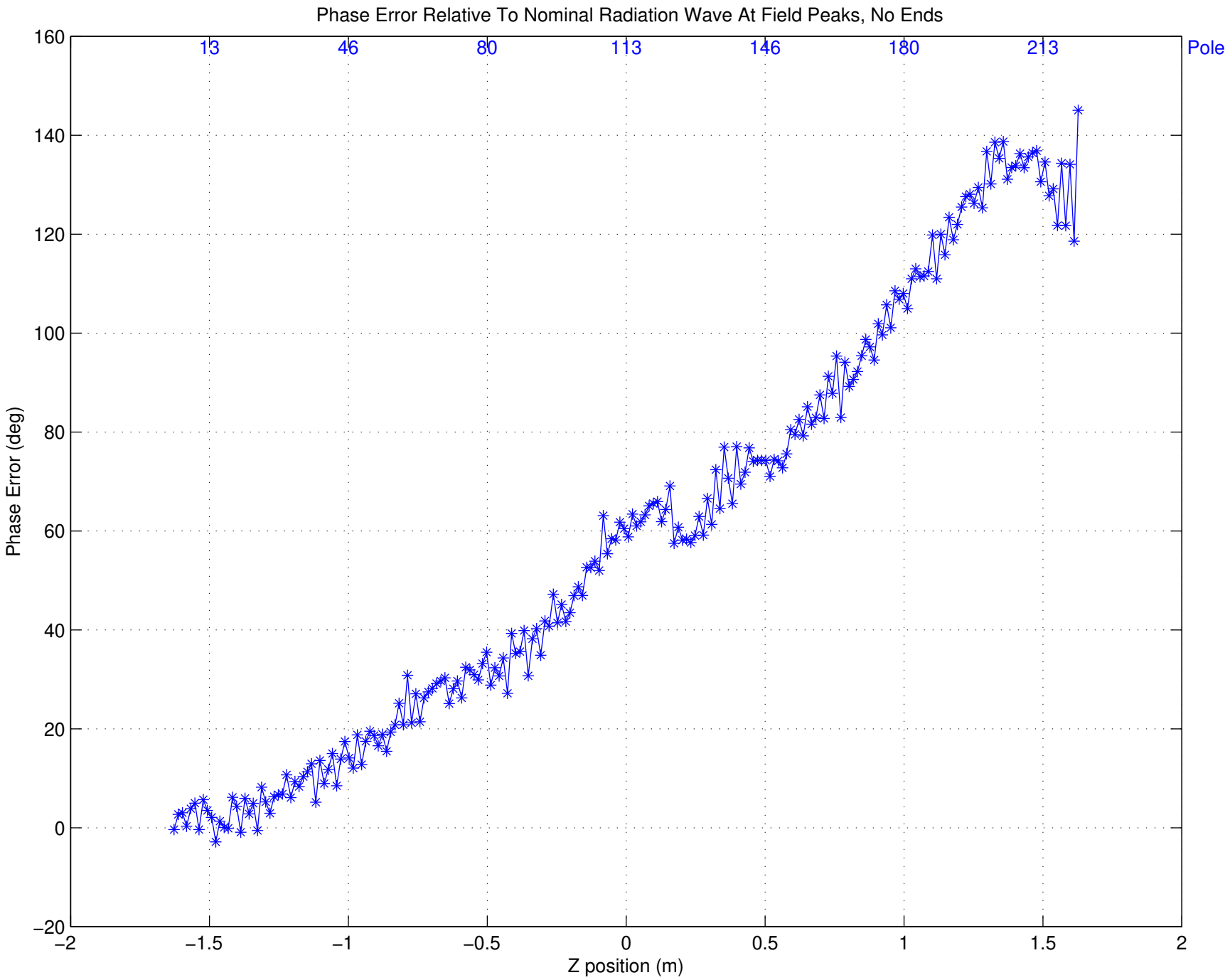

By vs Z
13
46
80
113
146
180
213
Pole
1.5
1
0.5
0
−0.5
−1
−1.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


X Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
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 = 7.180923 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
13
46
80
113
146
180
213
Pole
160
140
120
100
80
60
40
20
0
−20
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)