SLAC Magnetic Measurements

Planar Insertion Device Analysis

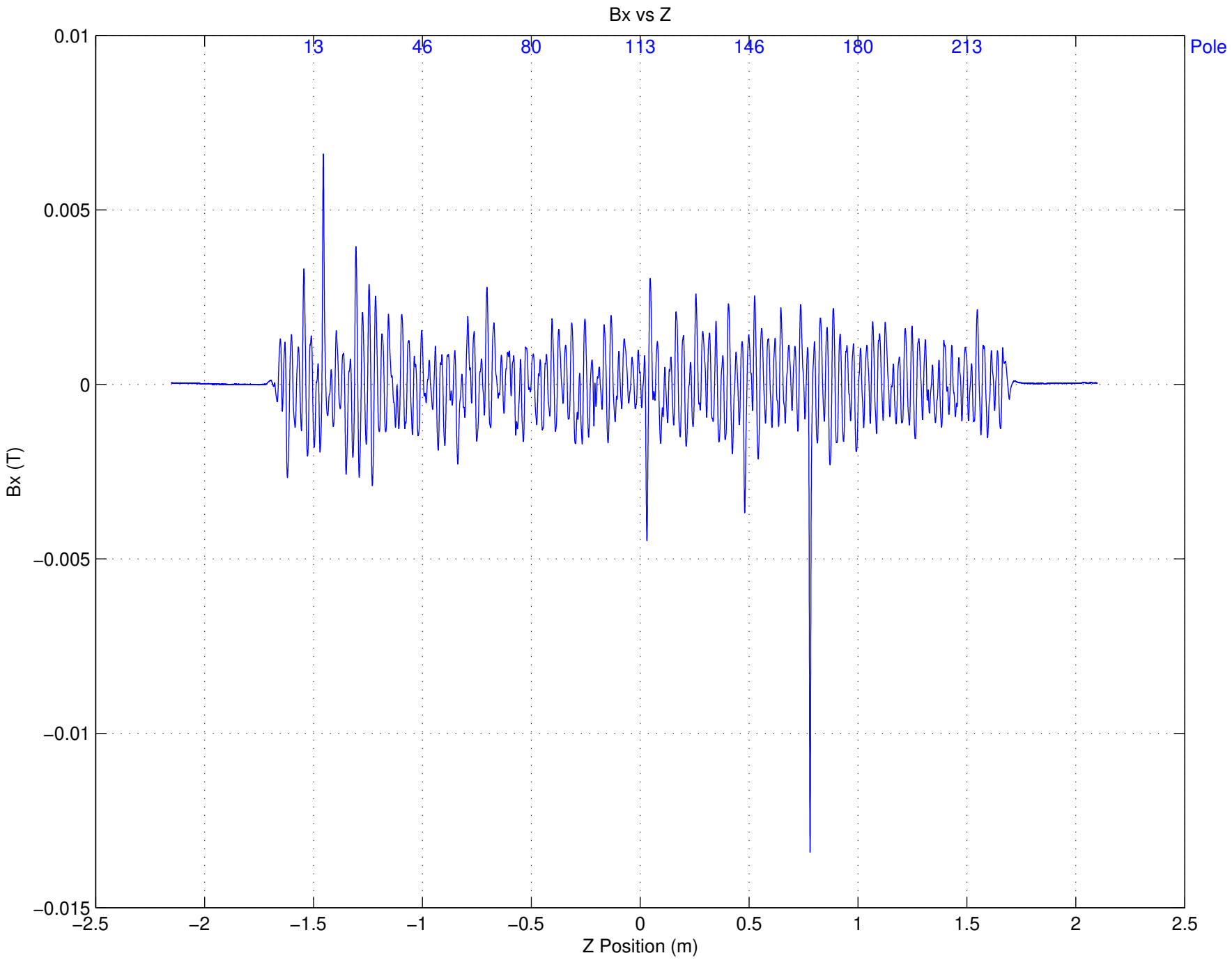
SLAC Magnetic Measurements
Date: 08−31−2011
Time: 11:50:48

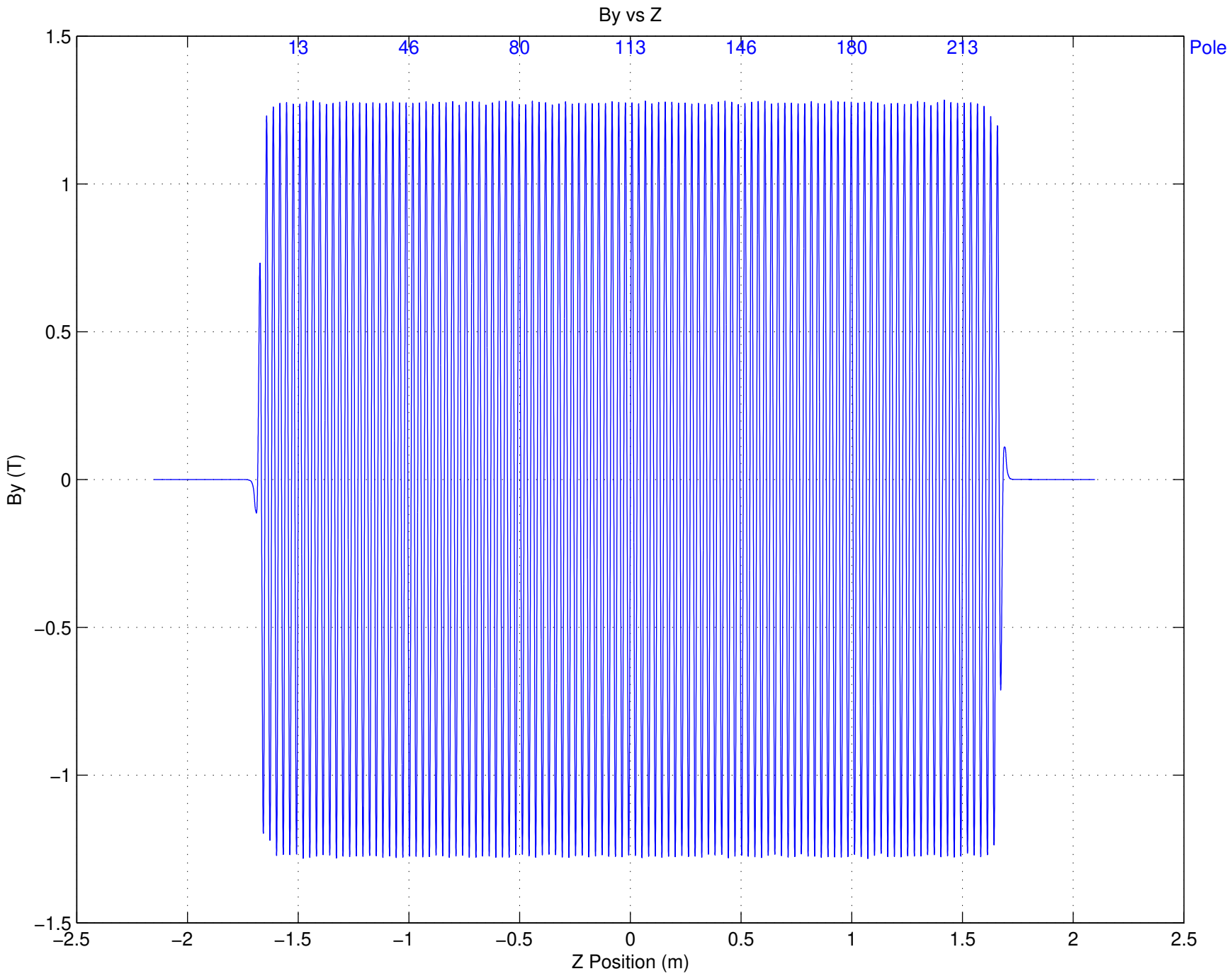
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−11
DATASET Number: 3
Tuning Stage: Fine Tuning
Run Number: 15
Measurement Type: Z Scans
Operator: YL
Comment: tuning; after second gap adjustment
Session first run: 14
Measurement Device x:
Measurement Device y: $SENTRON_4$41

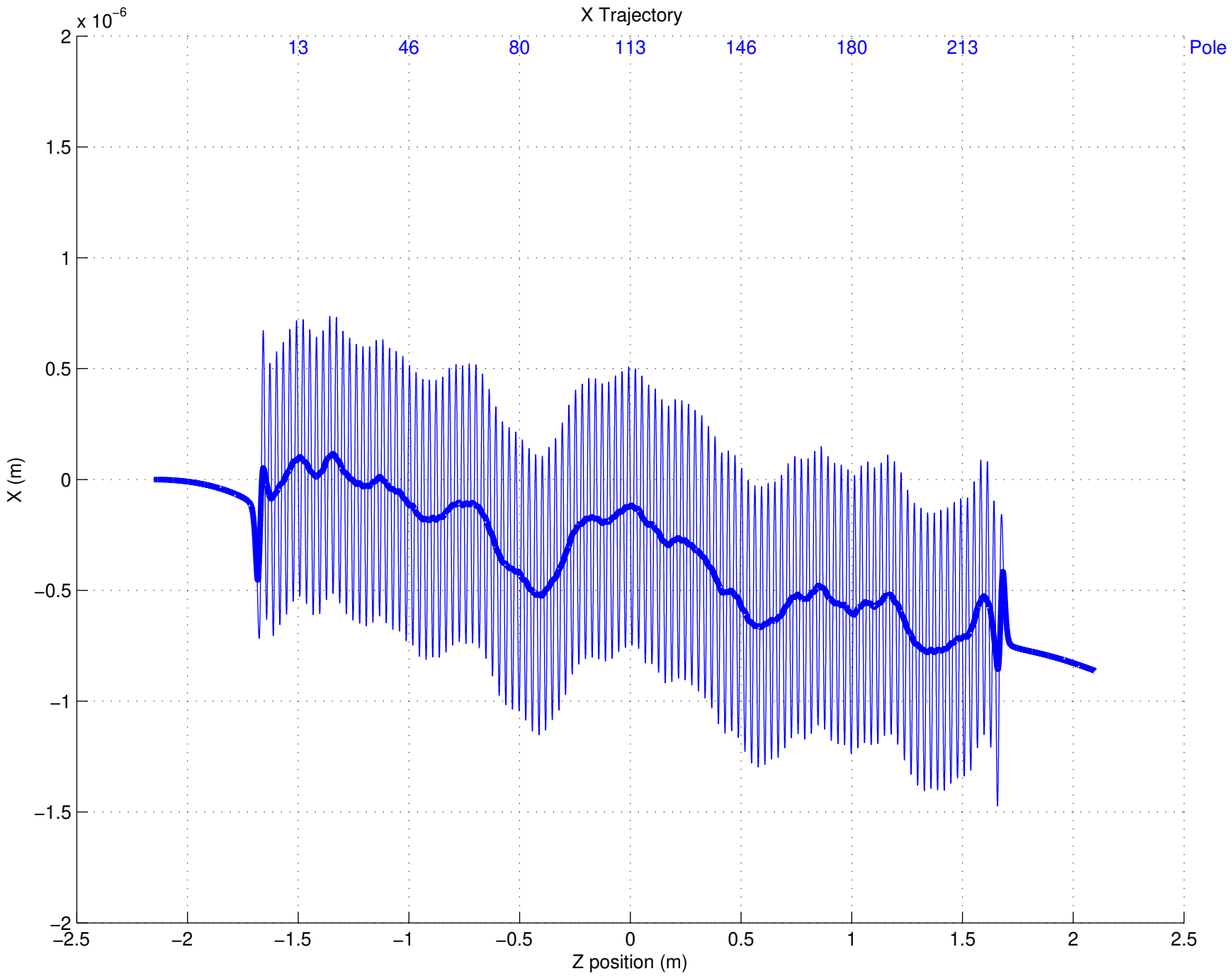
Data File: s:\magdata\LCLS\Undulator\L143−112000−11\DATASET0003\Fine Tuning\Z Scans\Run 015\bscanz.dat

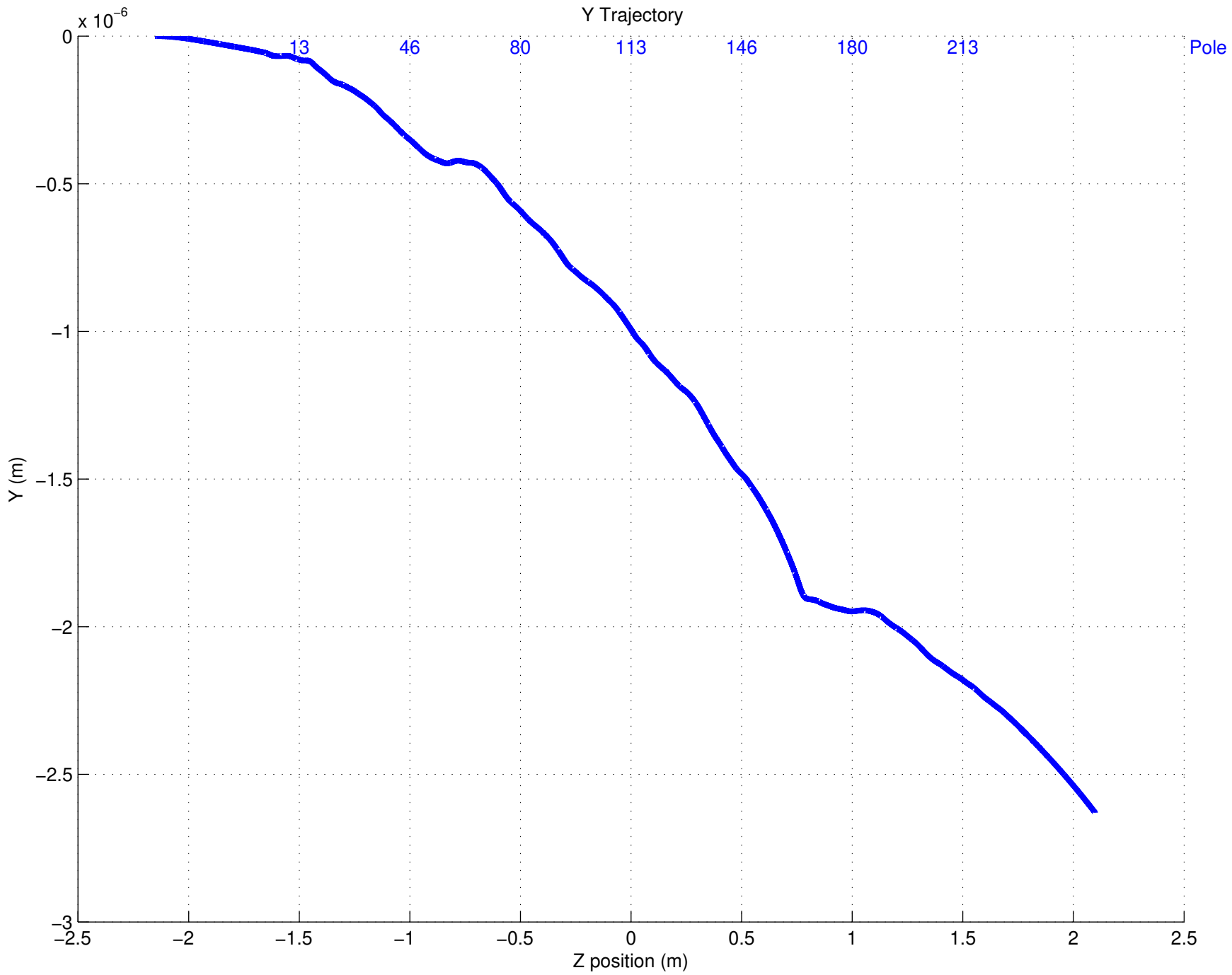
Temperature (C)
L143−112000−11:−−> T1 19.99 −−> T2 19.99 −−> T5 19.96 −−> T3 19.98 −−> Air 20.05 −−> T4 19.97

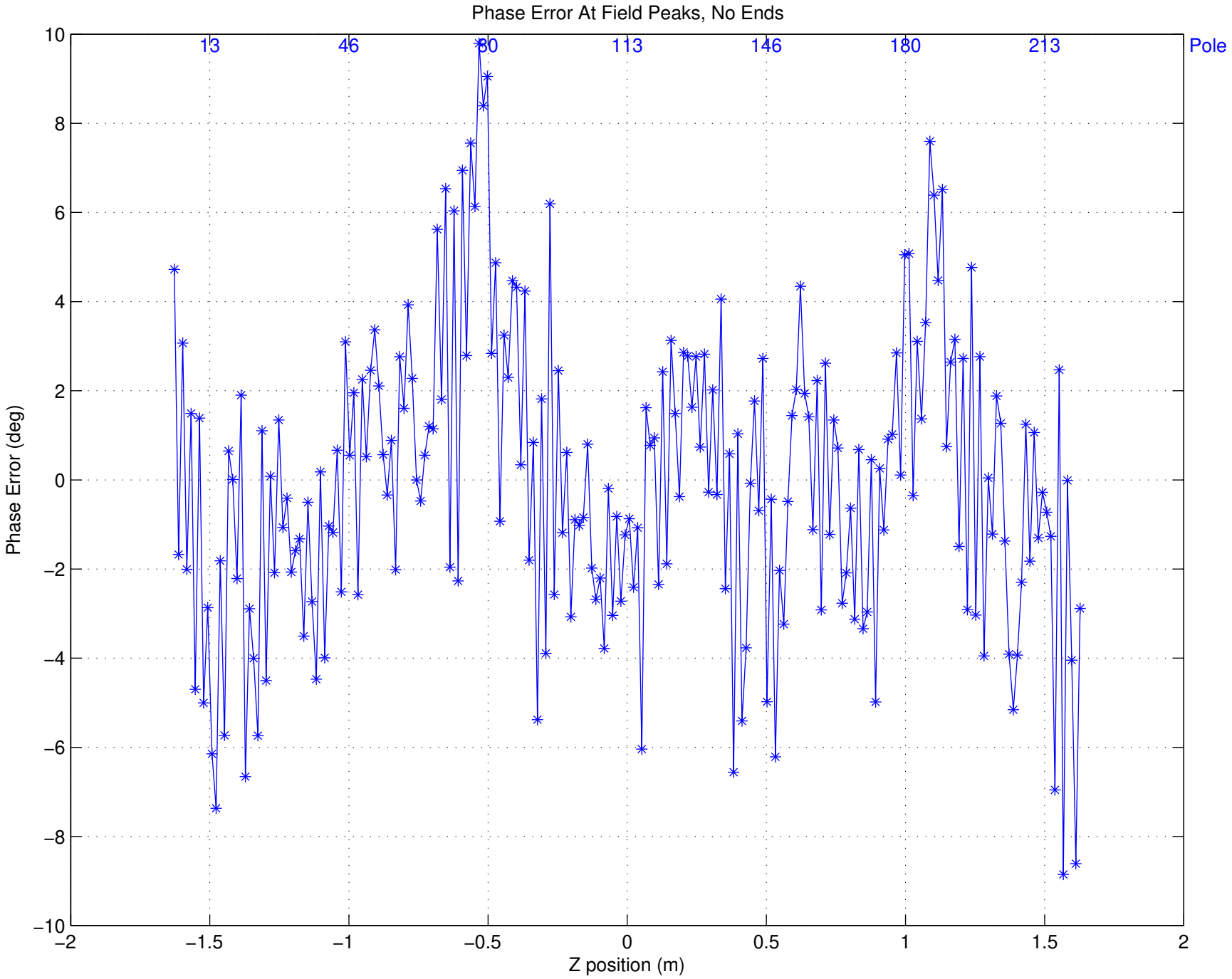
Axes position (m) X:0.027750 Y:0.000312
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001094 V
Vy_0i = −0.003011 V


Bx vs Z
13
46
80
113
146
180
213
Pole
0.01
0.005
0
−0.005
−0.01
−0.015
Bx (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)

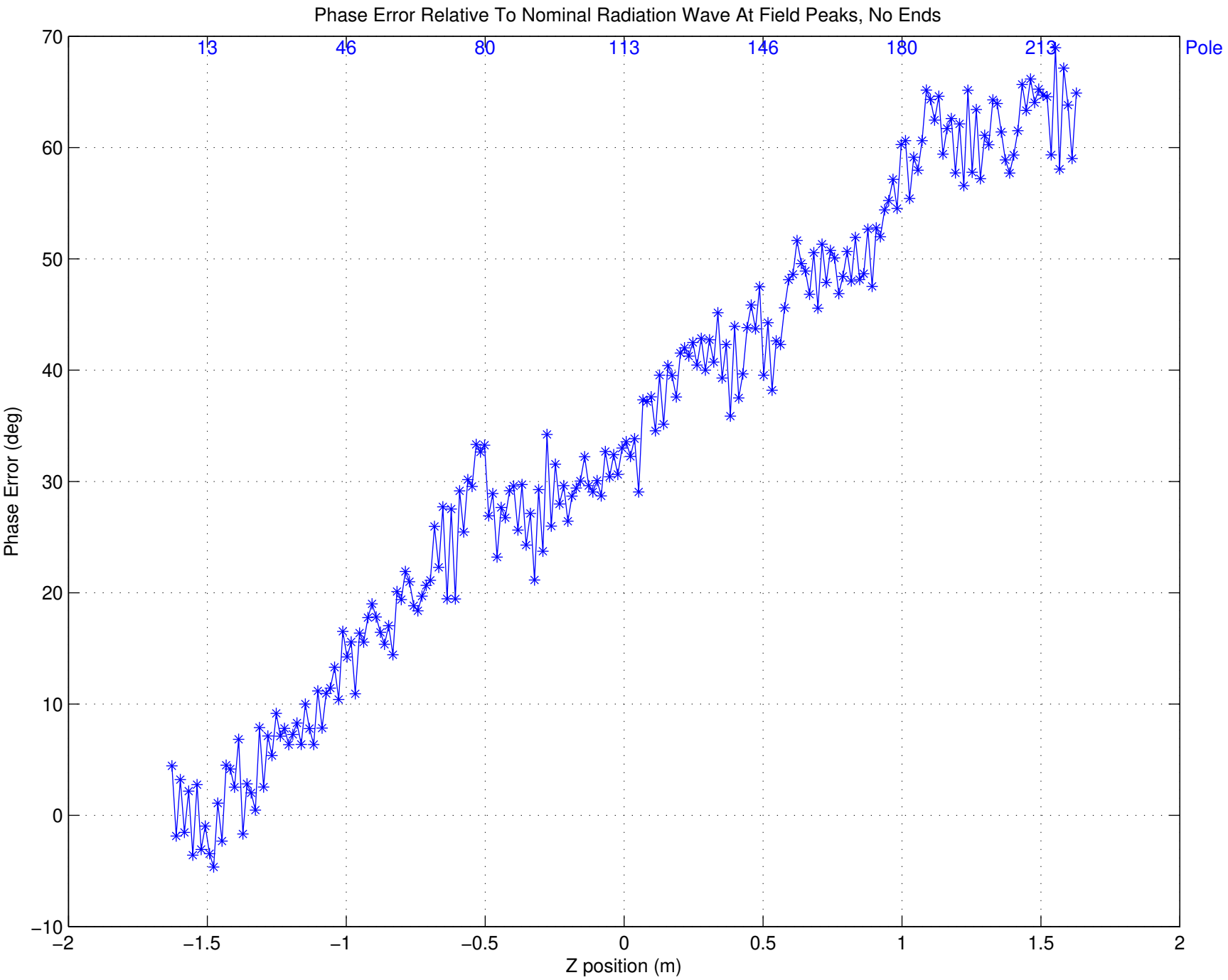

By vs Z
13
46
80
113
146
180
213
Pole
1.5
1
0.5
0
−0.5
−1
−1.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


X Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
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
0
−0.5
−1
−1.5
−2
−2.5
−3
Y (m)
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)



Phase Error: Ave = 0.000000 deg, RMS = 3.331557 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
13
46
80
113
146
180
213
Pole
70
60
50
40
30
20
10
0
−10
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Phase Error (deg)
Z position (m)