SLAC Magnetic Measurements

Planar Insertion Device Analysis

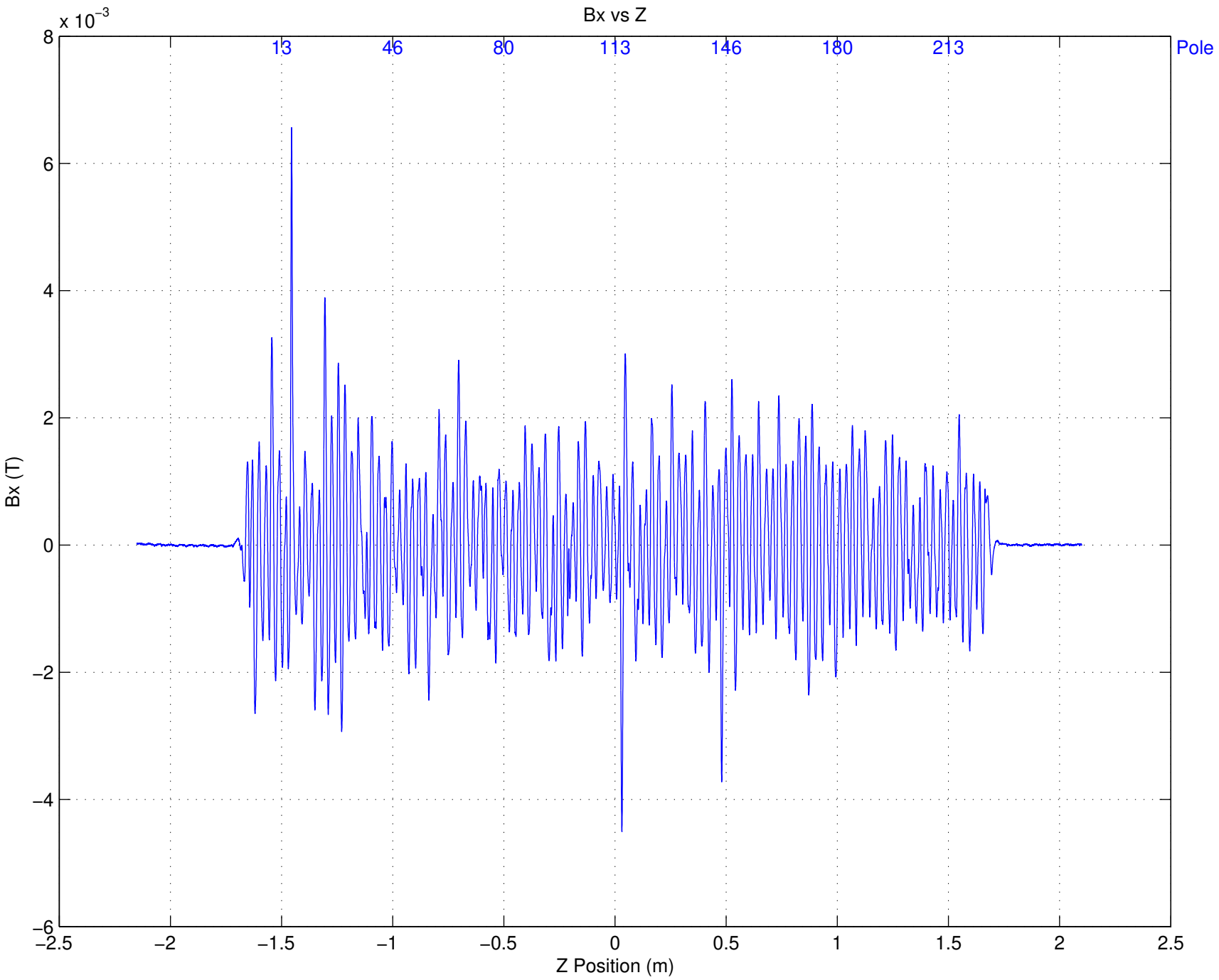
SLAC Magnetic Measurements
Date: 08−26−2011
Time: 16:39:08

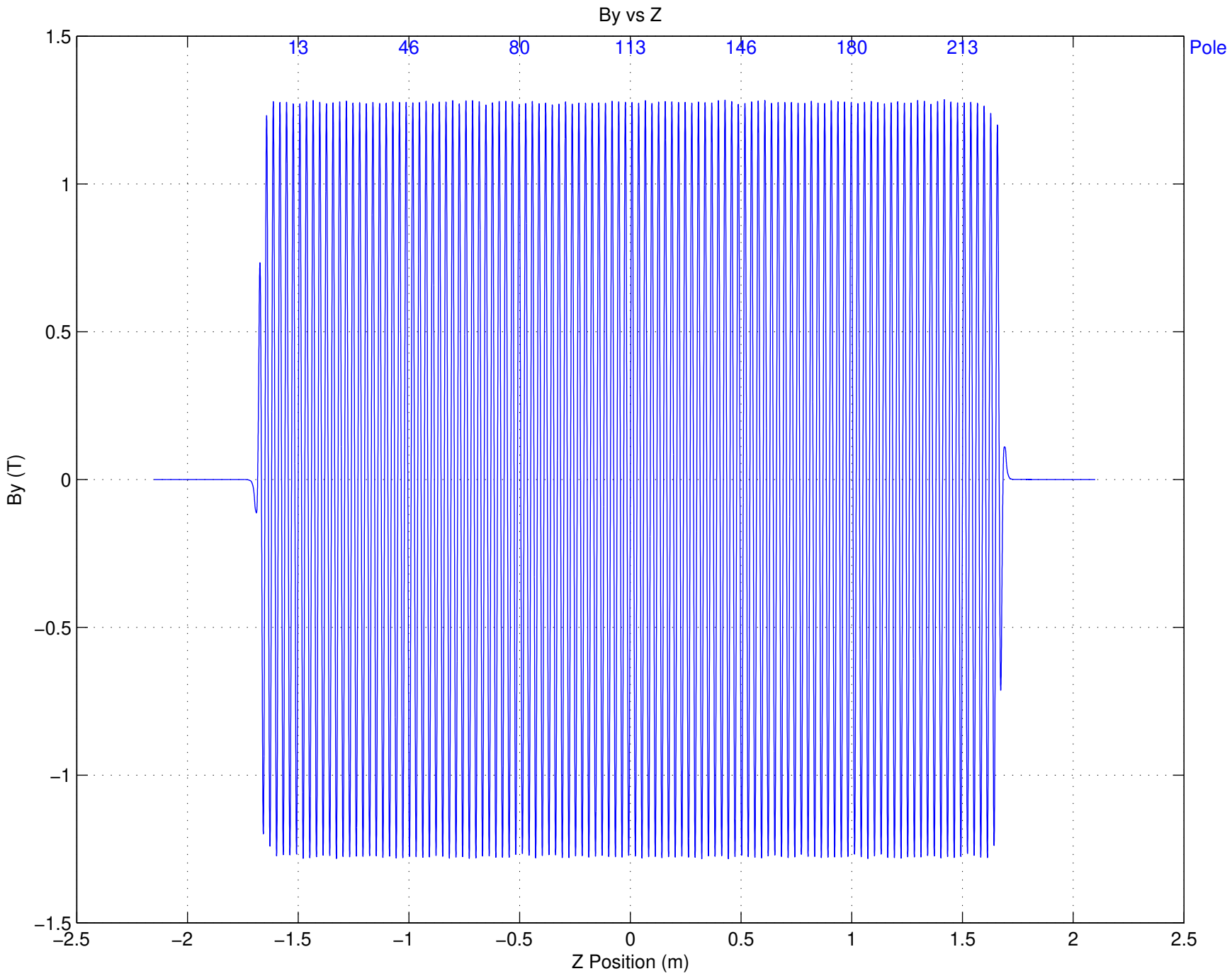
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−11
DATASET Number: 3
Tuning Stage: Fine Tuning
Run Number: 12
Measurement Type: Z Scans
Operator: YL
Comment: tuning; after gap adjustment
Session first run: 11
Measurement Device x:
Measurement Device y: $SENTRON_4$41

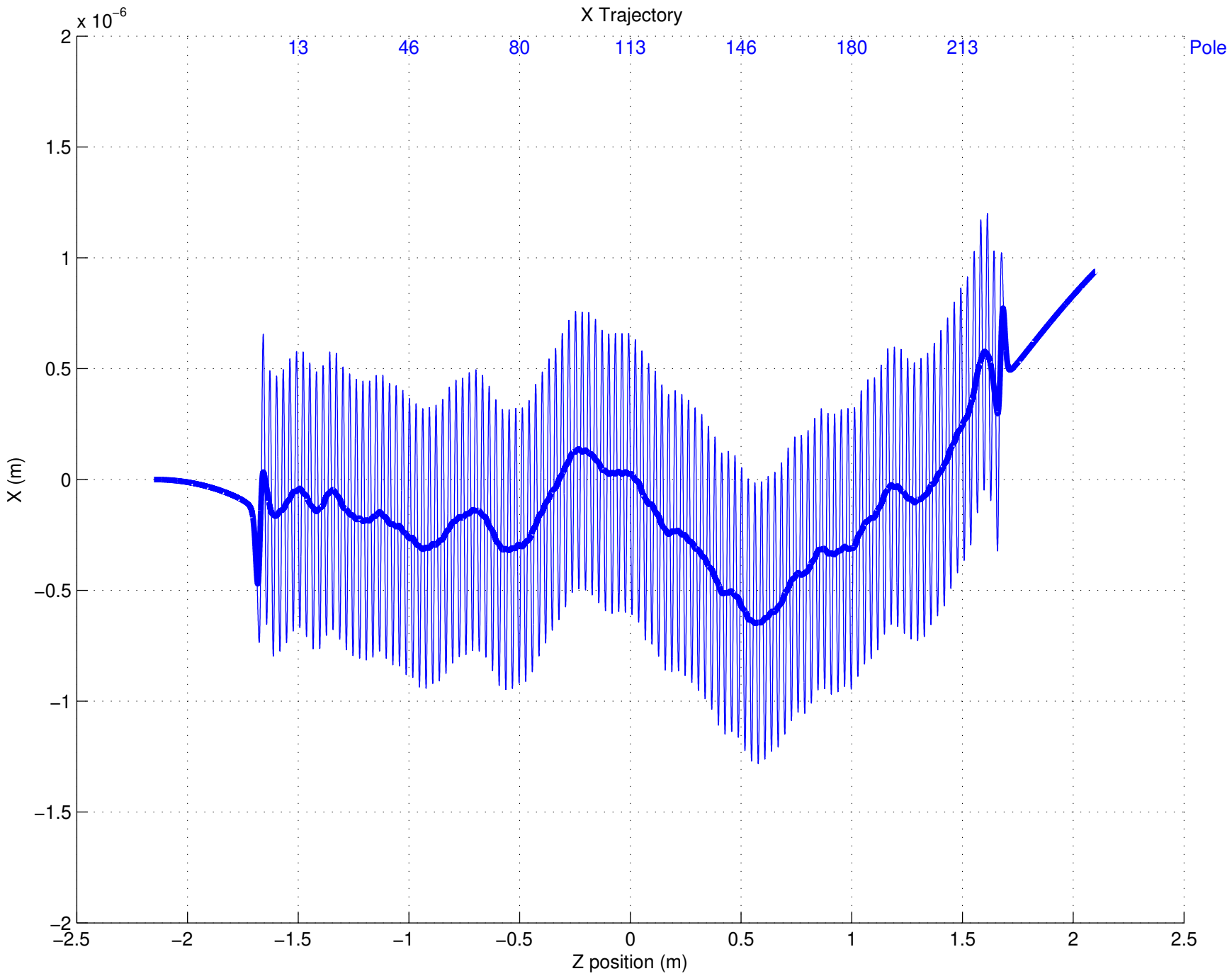
Data File: s:\magdata\LCLS\Undulator\L143−112000−11\DATASET0003\Fine Tuning\Z Scans\Run 012\bscanz.dat

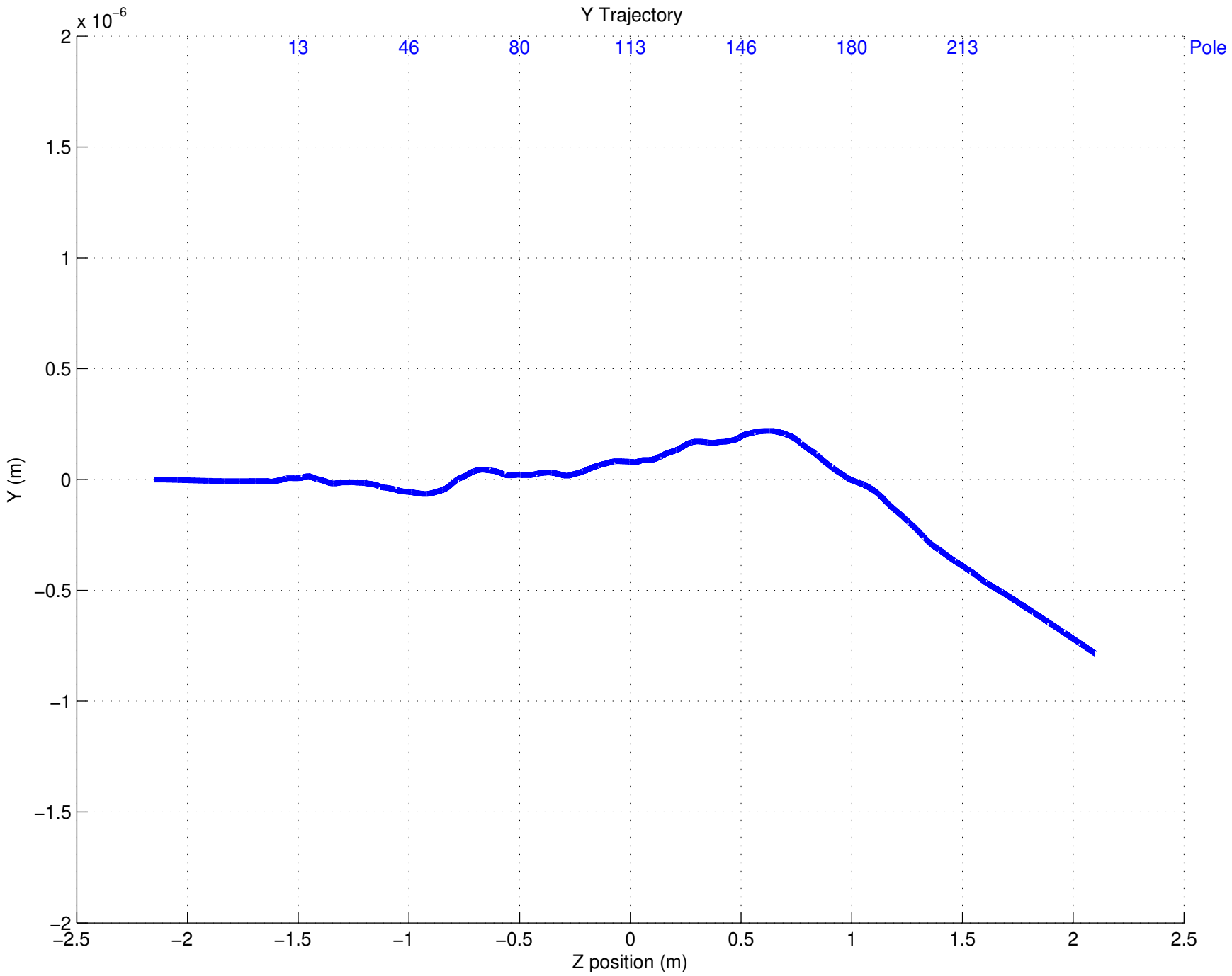
Temperature (C)
L143−112000−11:−−> T1 20.04 −−> T2 20.04 −−> T5 20.02 −−> T3 20.04 −−> Air 20.08 −−> T4 20.04

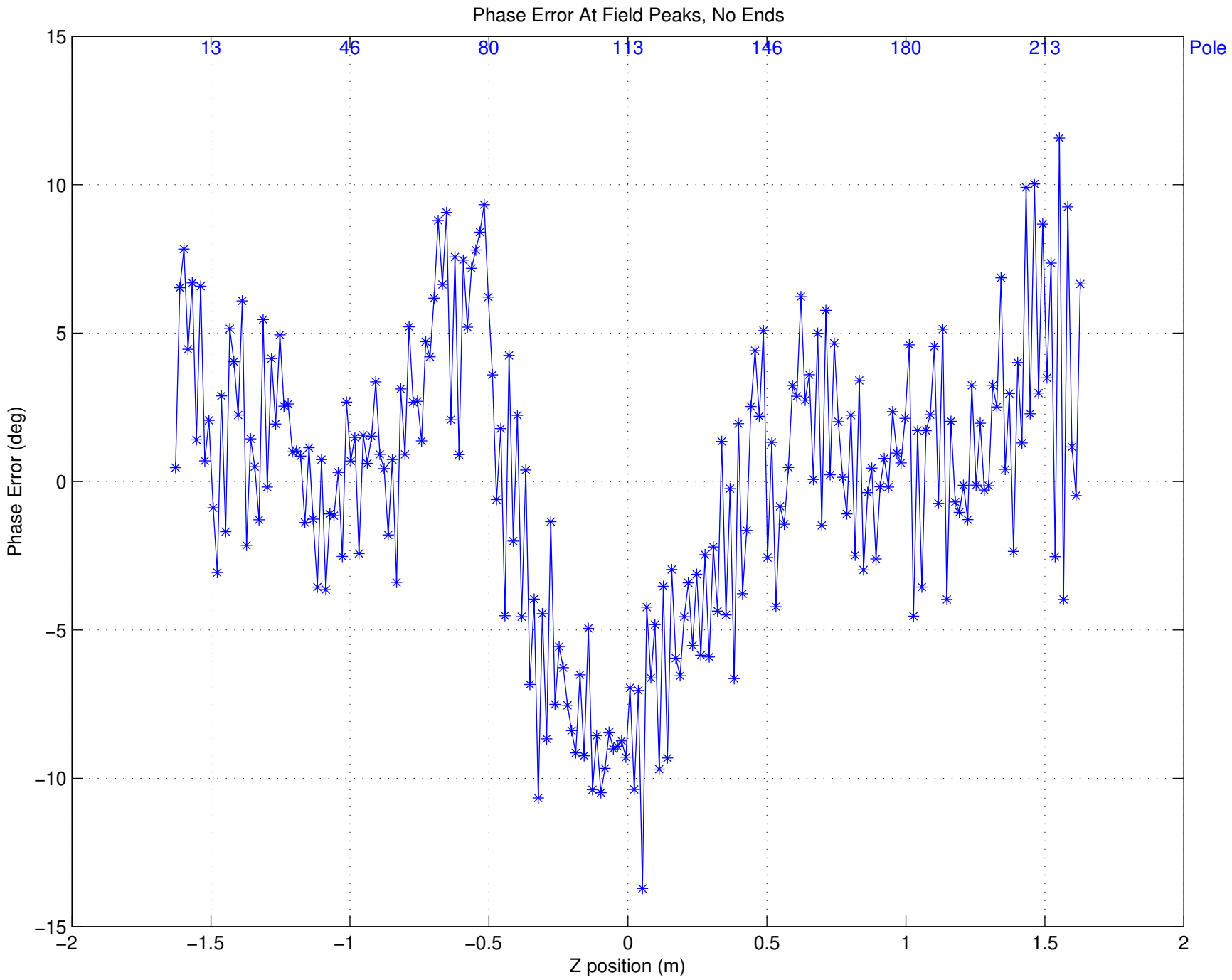
Axes position (m) X:0.027719 Y:0.000312
Initial Hall Probe Zero Measurements:
$Vx_0i$ = 0.001034 V
$Vy_0i$ = −0.002928 V


Bx vs Z
x 10^-3
8
6
4
2
0
−2
−4
−6
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)

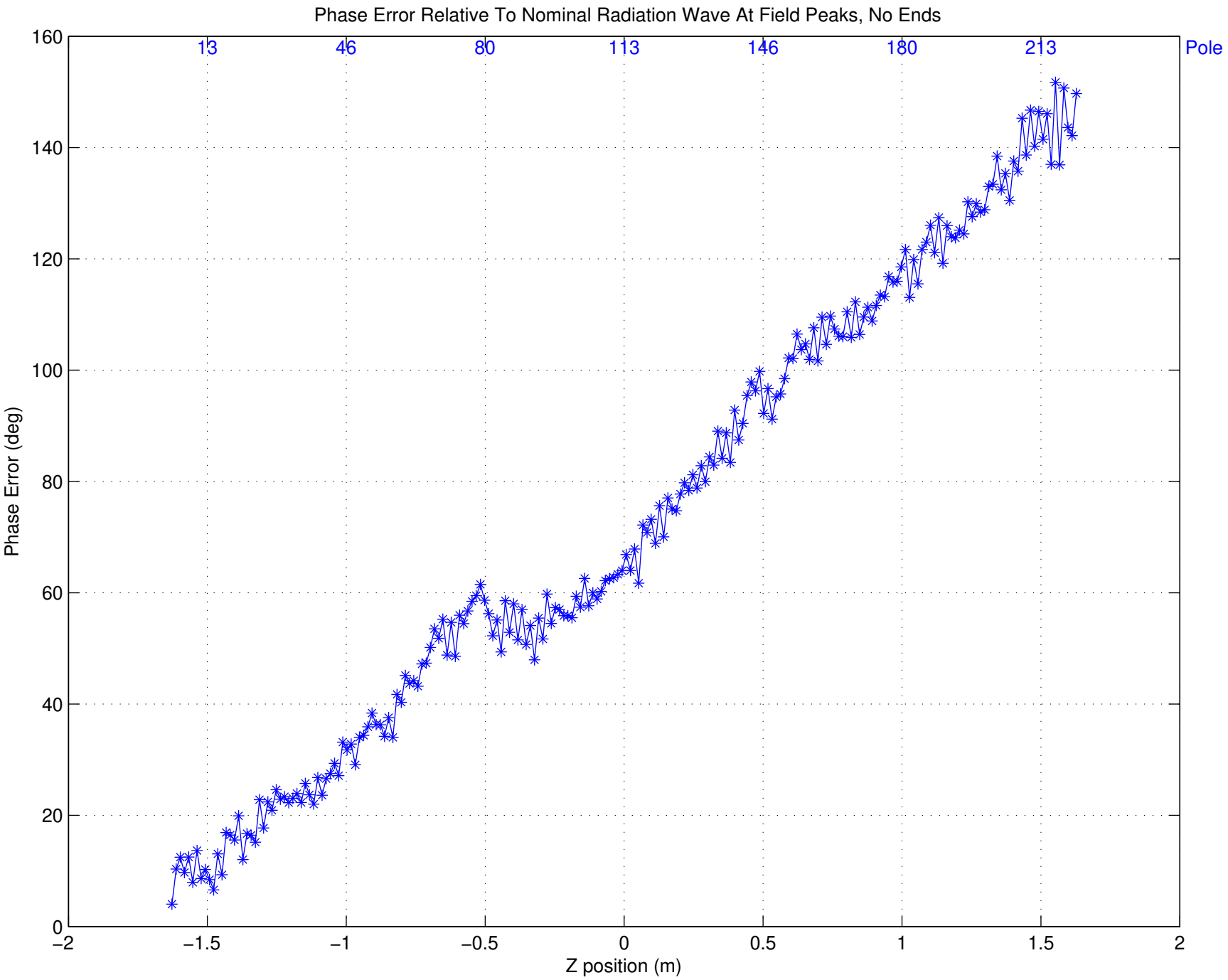

By vs Z
13
46
80
113
146
180
213
Pole
1.5
1
0.5
0
−0.5
−1
−1.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


X Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
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
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 = 4.866174 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
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)