SLAC Magnetic Measurements

Planar Insertion Device Analysis

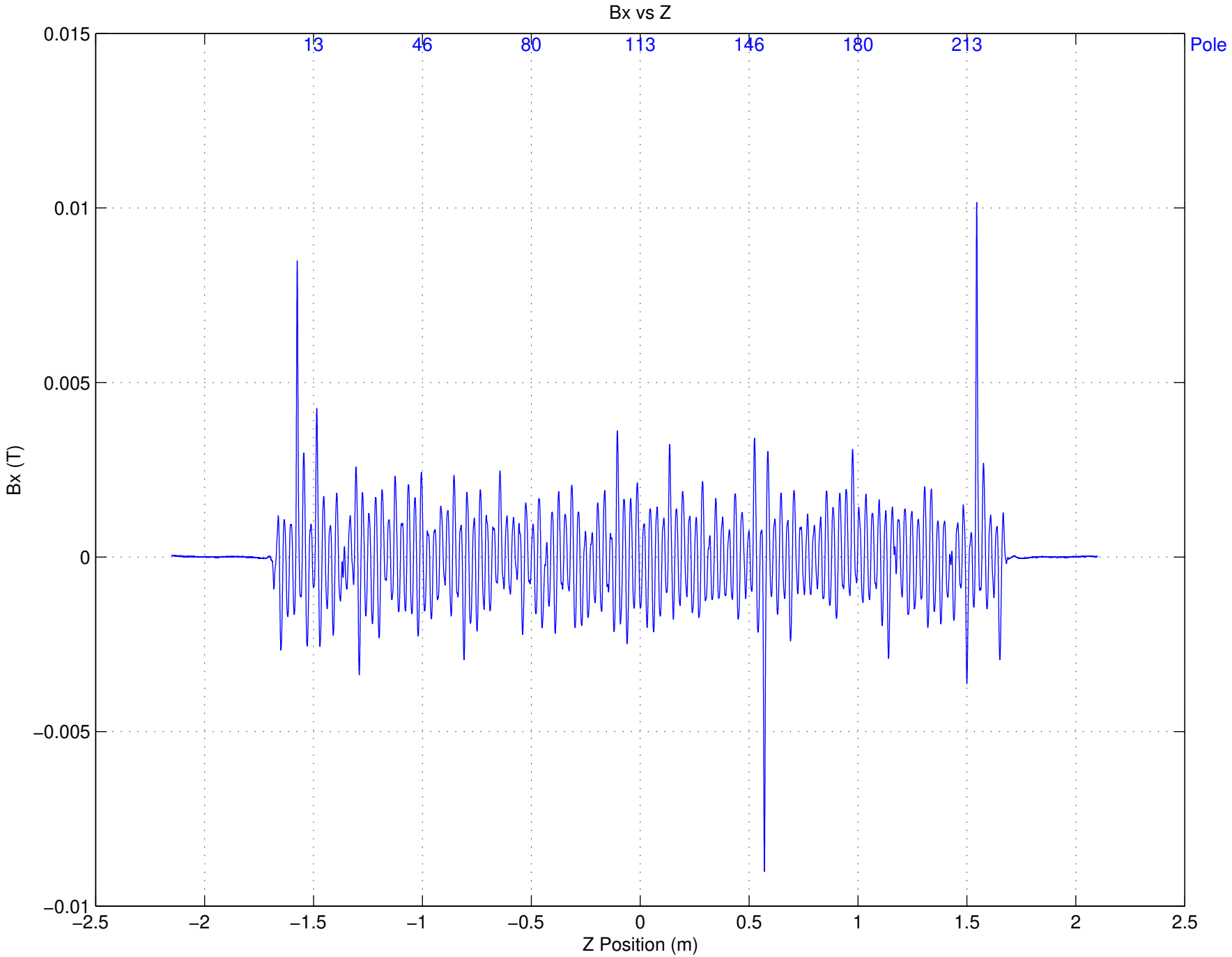
SLAC Magnetic Measurements
Date: 01−15−2013
Time: 11:54:31

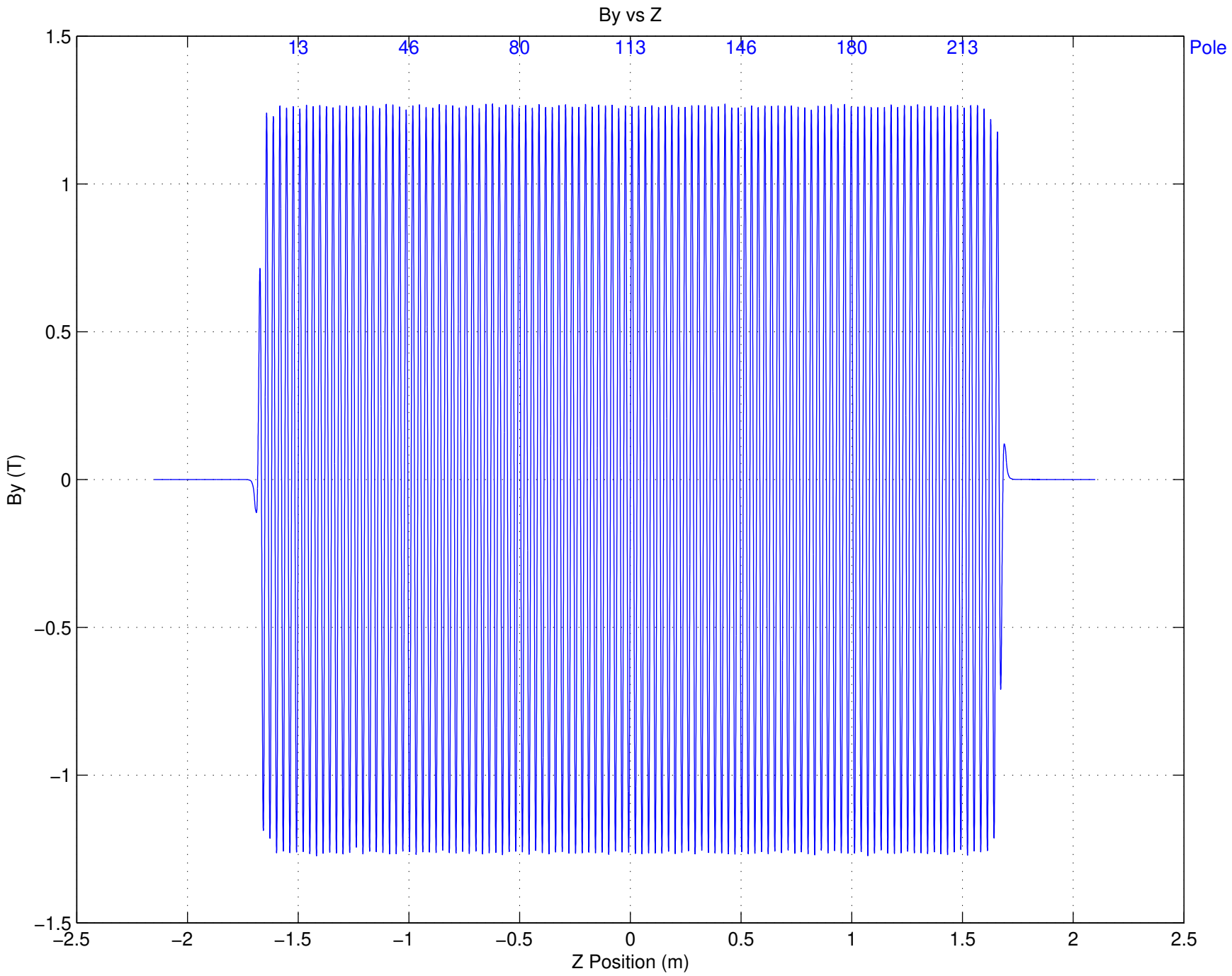
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−40
DATASET Number: 3
Tuning Stage: Fine Tuning
Run Number: 20
Measurement Type: Z Scans
Operator: YL
Comment: check; before final scan
Session first run: 20
Measurement Device x:
Measurement Device y: $SENTRON_4$41

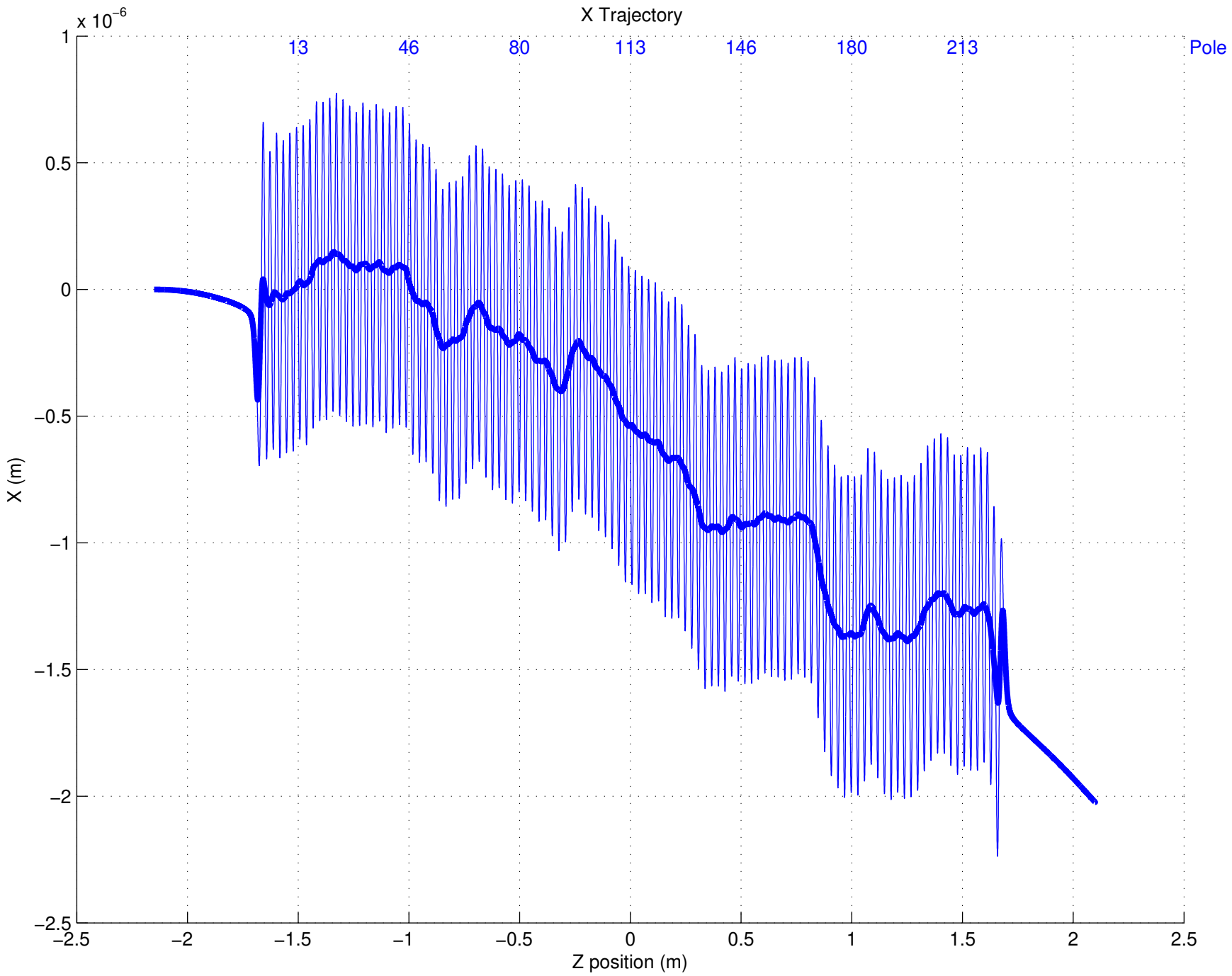
Data File: s:\magdata\LCLS\Undulator\L143−112000−40\DATASET0003\Fine Tuning\Z Scans\Run 020\bscanz.dat

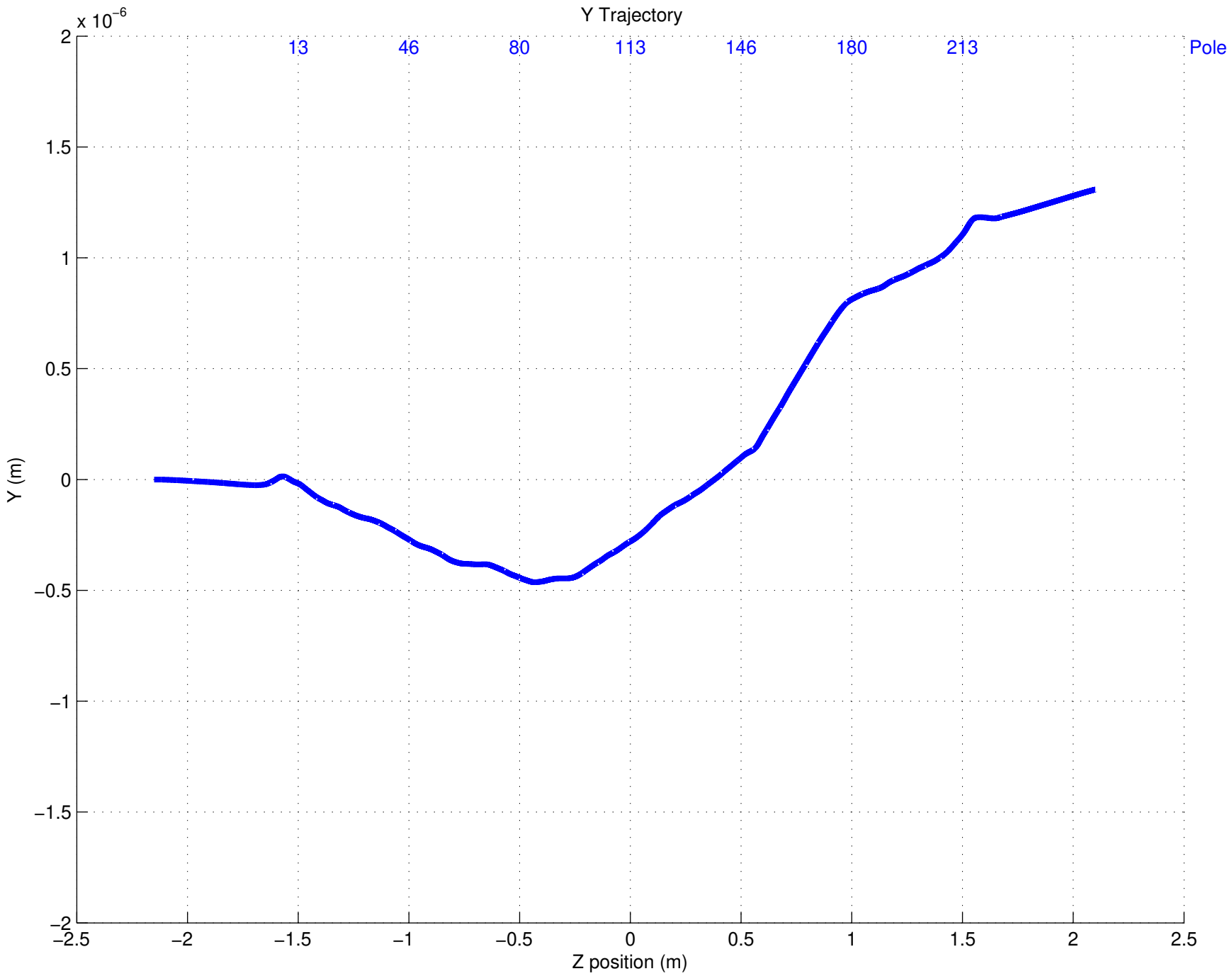
Temperature (C)
L143−112000−40:−−> T1 19.95 −−> T2 19.94 −−> T5 19.89 −−> T3 19.94 −−> Air 19.95 −−> T4 19.92

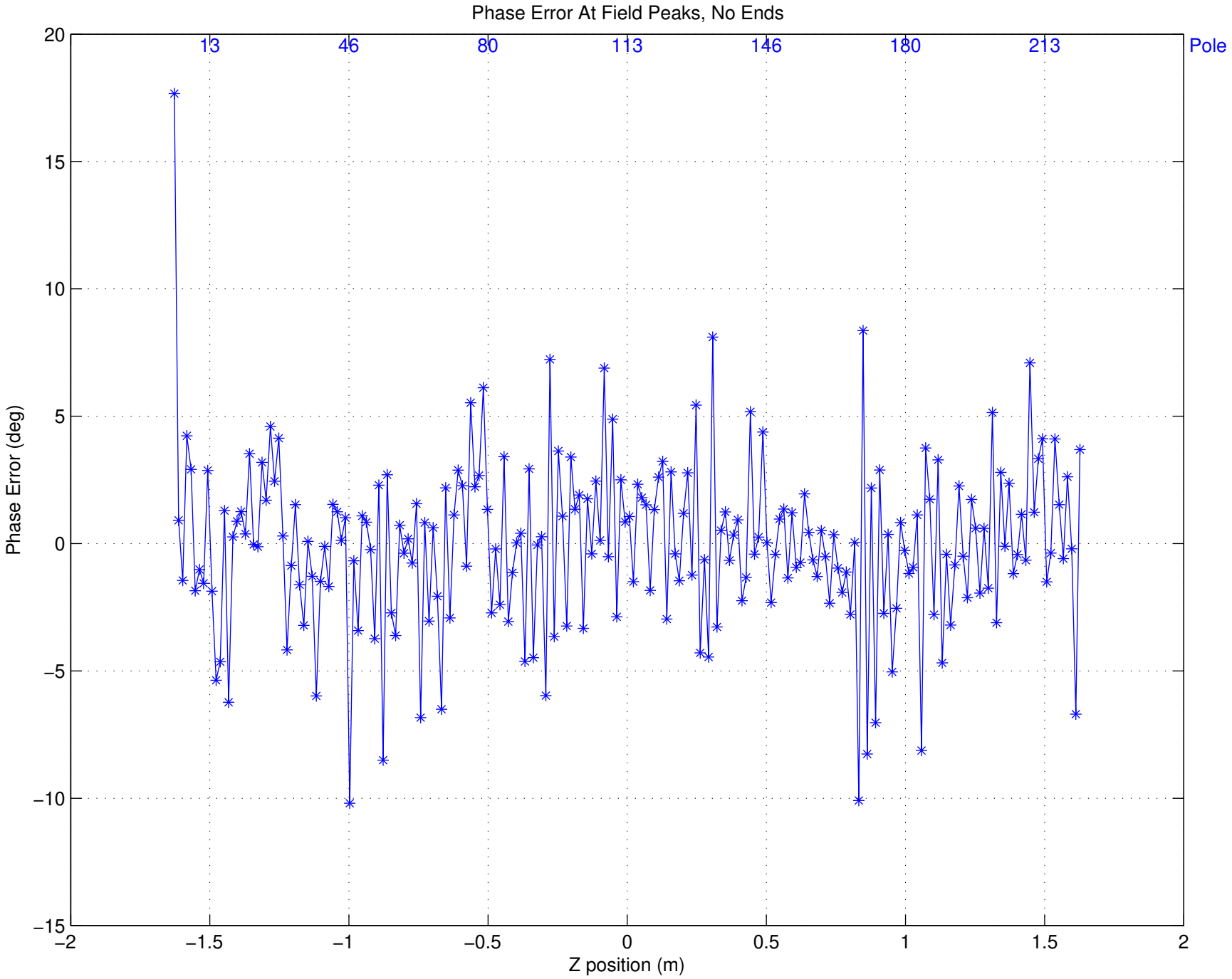
Axes position (m) X:0.030000 Y:0.000280
Initial Hall Probe Zero Measurements:
Vx_0i = 0.000869 V
Vy_0i = −0.003910 V


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

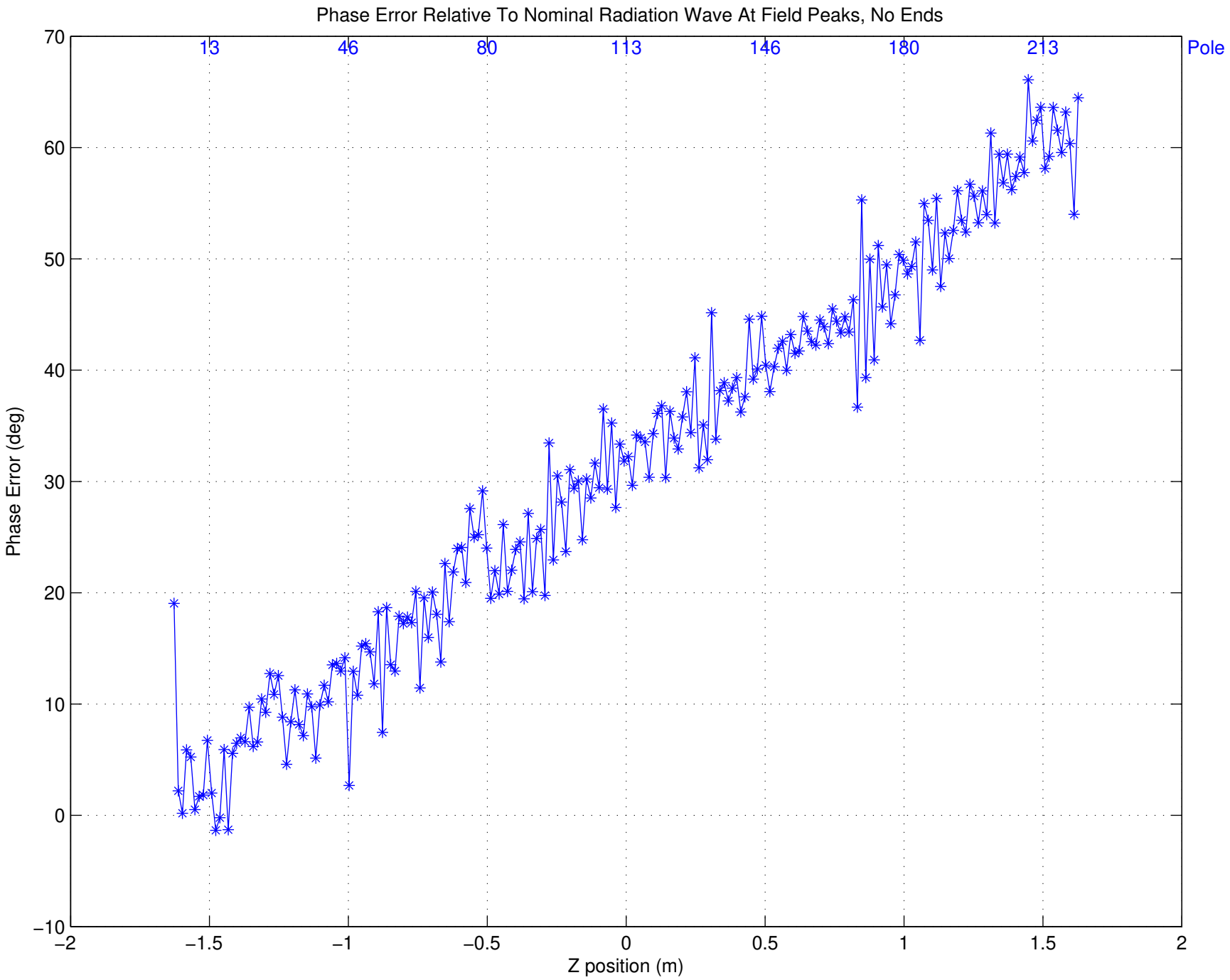

By vs Z
13
46
80
113
146
180
213
Pole
1.5
1
0.5
0
−0.5
−1
−1.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


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 = 3.341800 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
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)