SLAC Magnetic Measurements

Planar Insertion Device Analysis

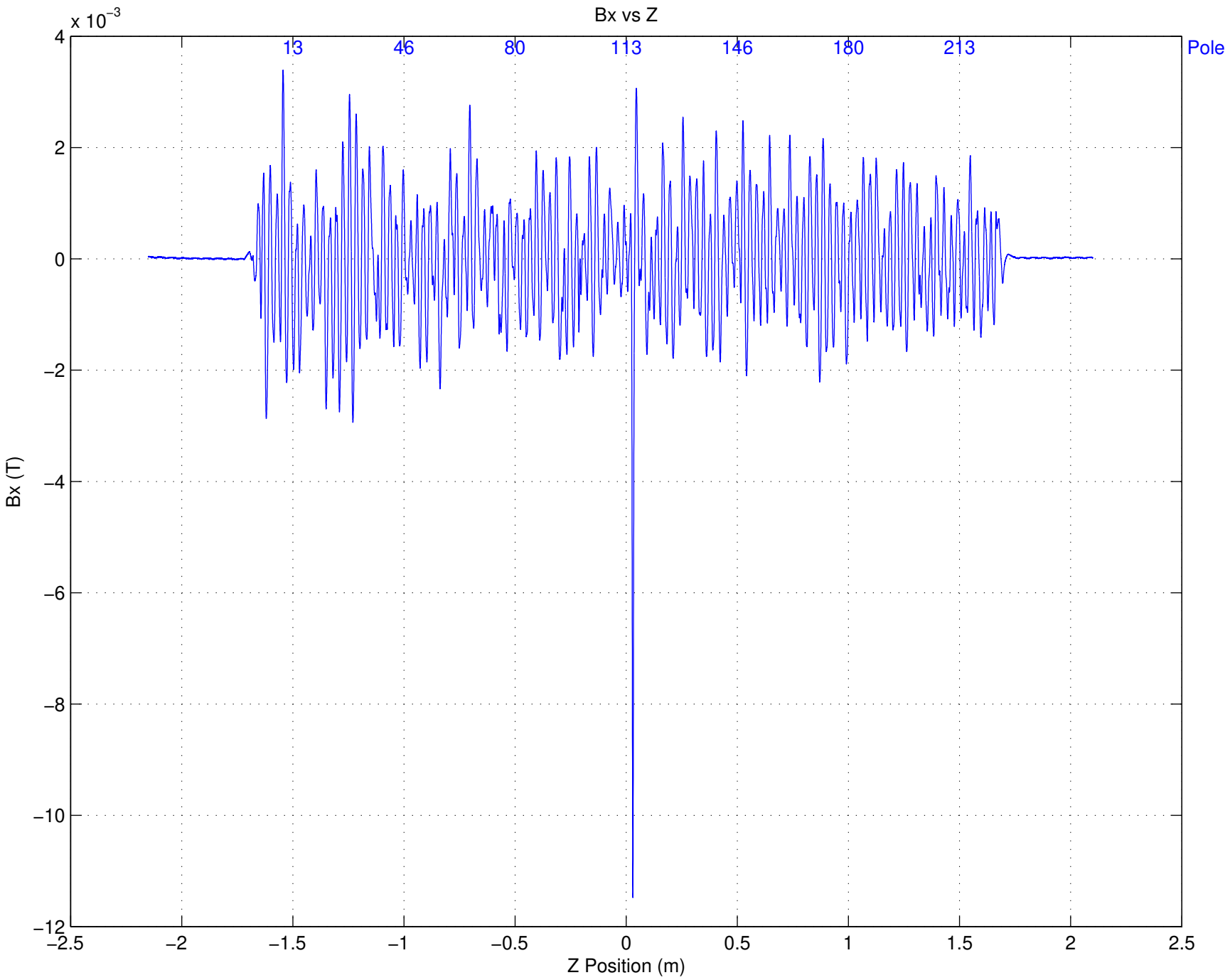
SLAC Magnetic Measurements
Date: 08−24−2011
Time: 09:56:34

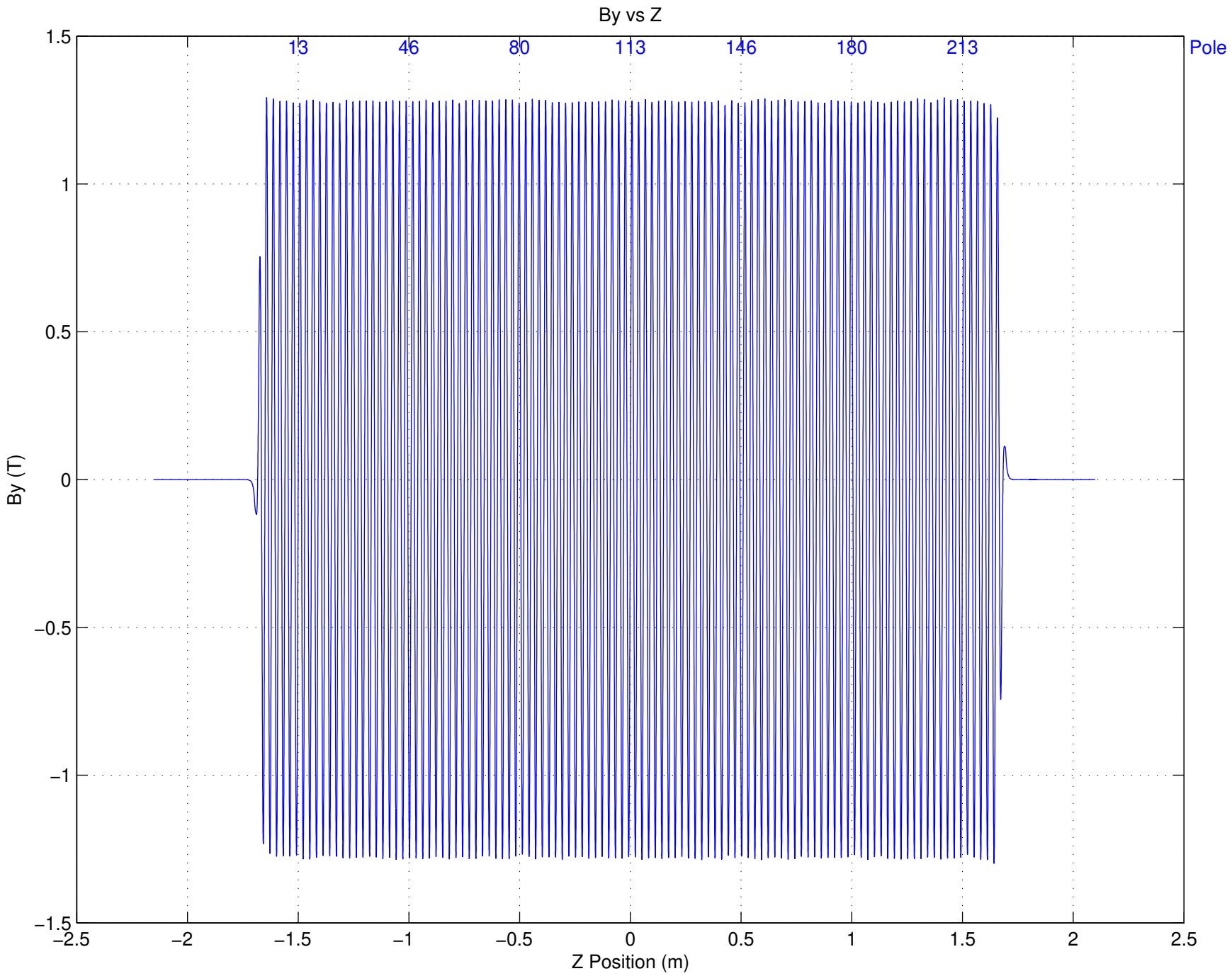
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−11
DATASET Number: 3
Tuning Stage: Fine Tuning
Run Number: 2
Measurement Type: Z Scans
Operator: YL
Comment: find first pole position
Session first run: 2
Measurement Device x:
Measurement Device y: $SENTRON_4$41

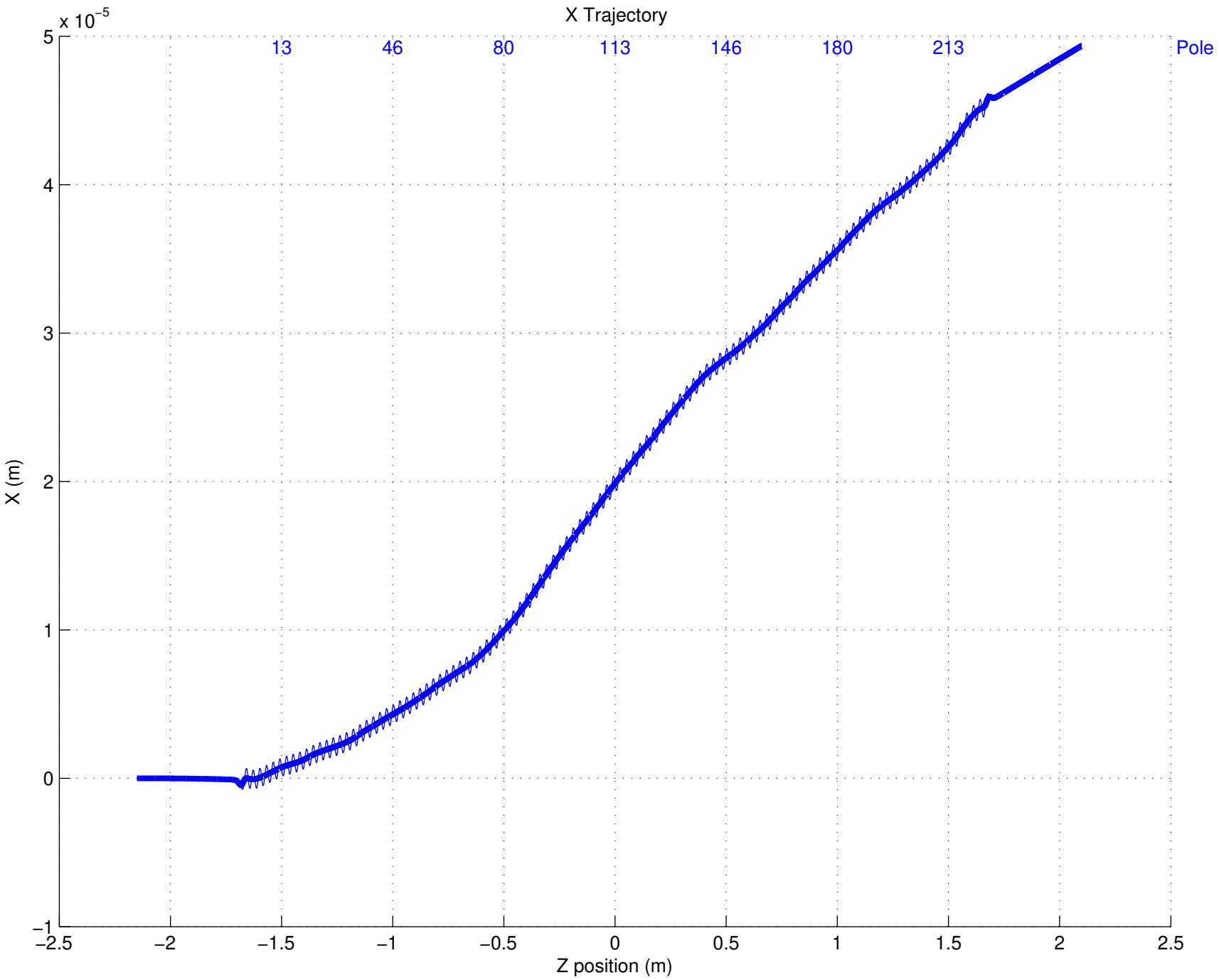
Data File: s:\magdata\LCLS\Undulator\L143−112000−11\DATASET0003\Fine Tuning\Z Scans\Run 002\bscanz.dat

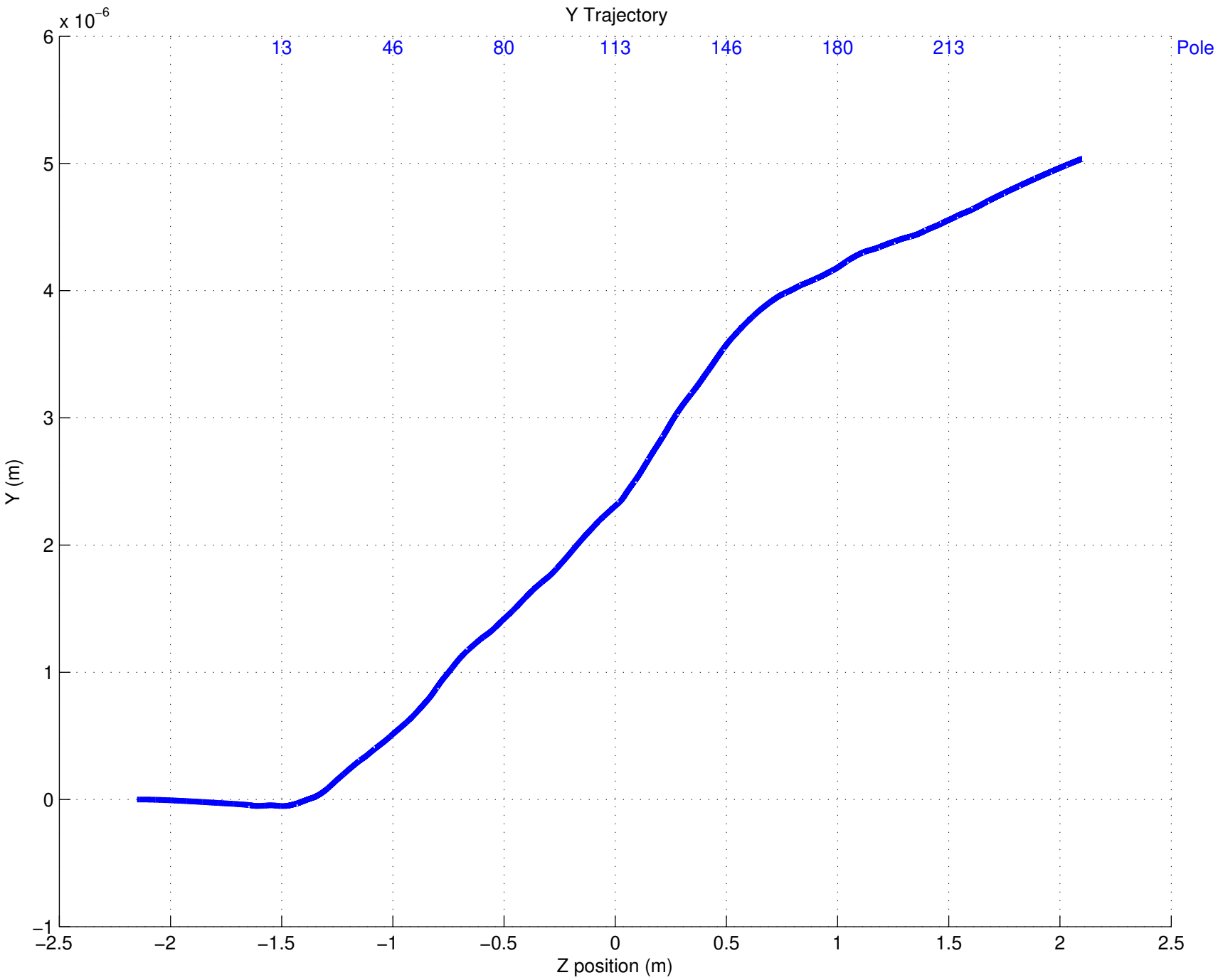
Temperature (C)
L143−112000−11:−−> T1 19.94 −−> T2 19.91 −−> T5 19.90 −−> T3 19.90 −−> Air 20.06 −−> T4 19.88

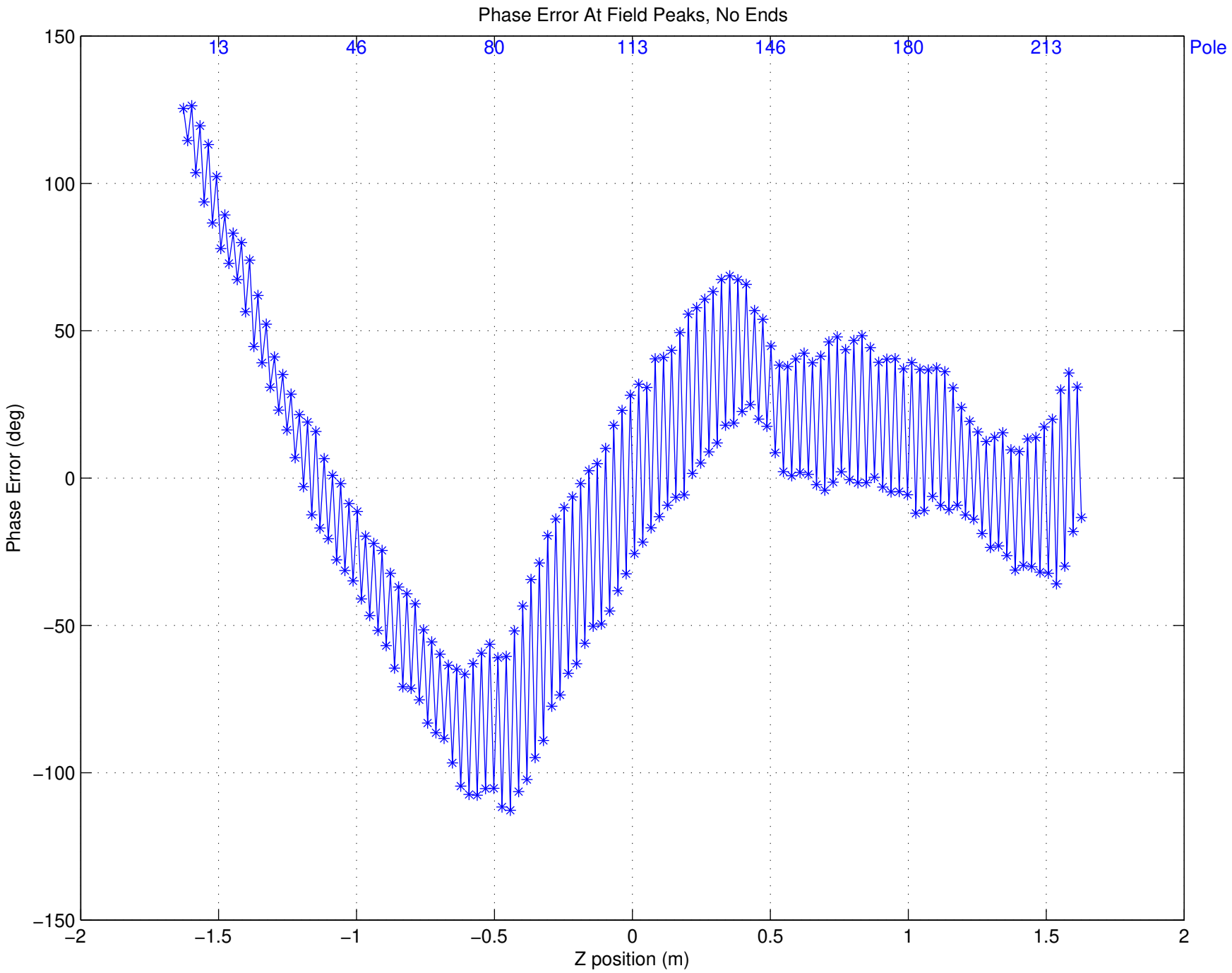
Axes position (m) X:0.027910 Y:0.000304
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001076 V
Vy_0i = −0.003039 V


Bx vs Z
x 10^-3
4
2
0
−2
−4
−6
−8
−10
−12
Bx (T)
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)

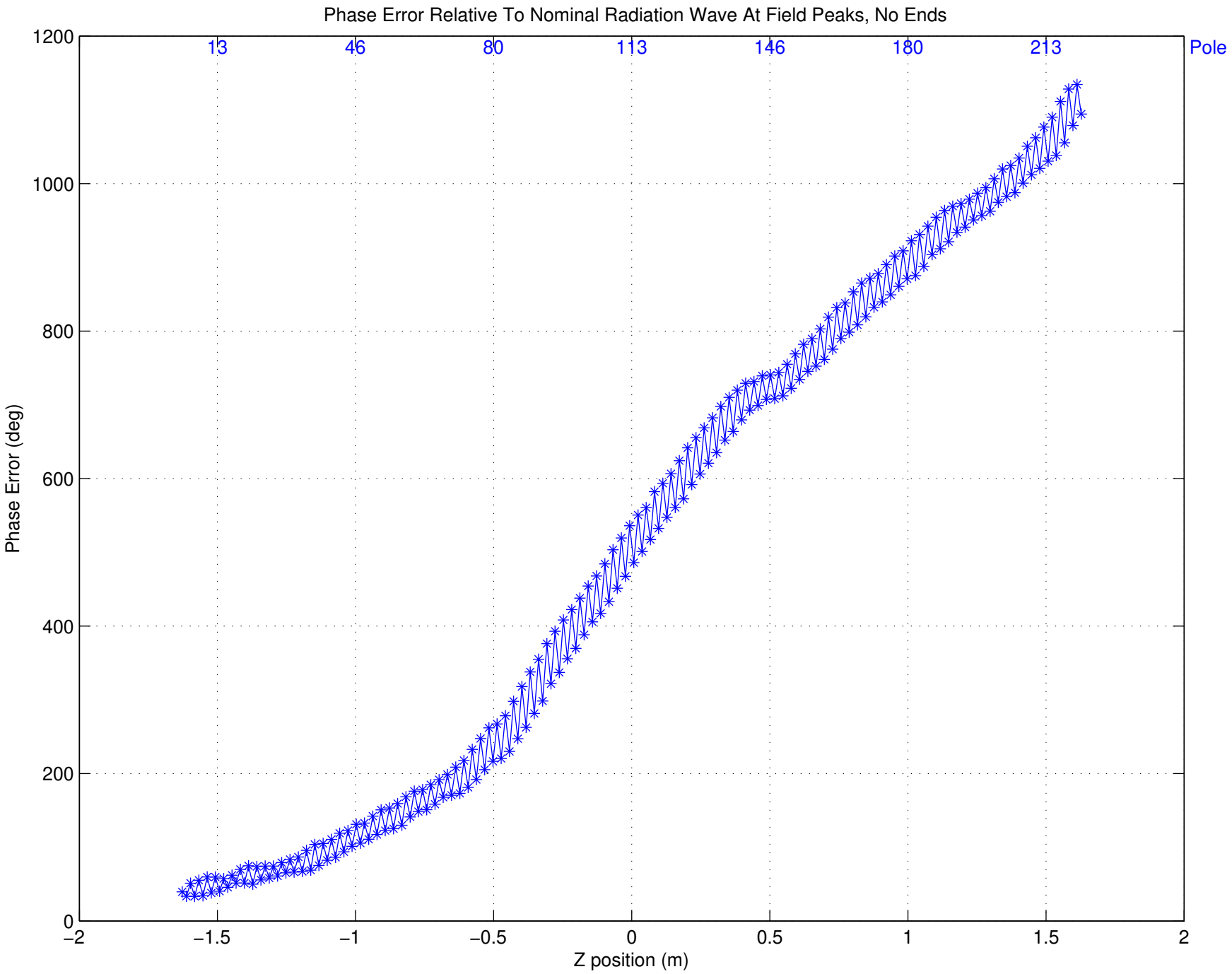

By vs Z
13
46
80
113
146
180
213
Pole
1.5
1
0.5
0
−0.5
−1
−1.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


X Trajectory
x 10^-5
5
4
3
2
1
0
−1
X (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)


Y Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
6
5
4
3
2
1
0
−1
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 = 50.527746 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
13
46
80
113
146
180
213
Pole
1200
1000
800
600
400
200
0
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)