SLAC Magnetic Measurements

Planar Insertion Device Analysis

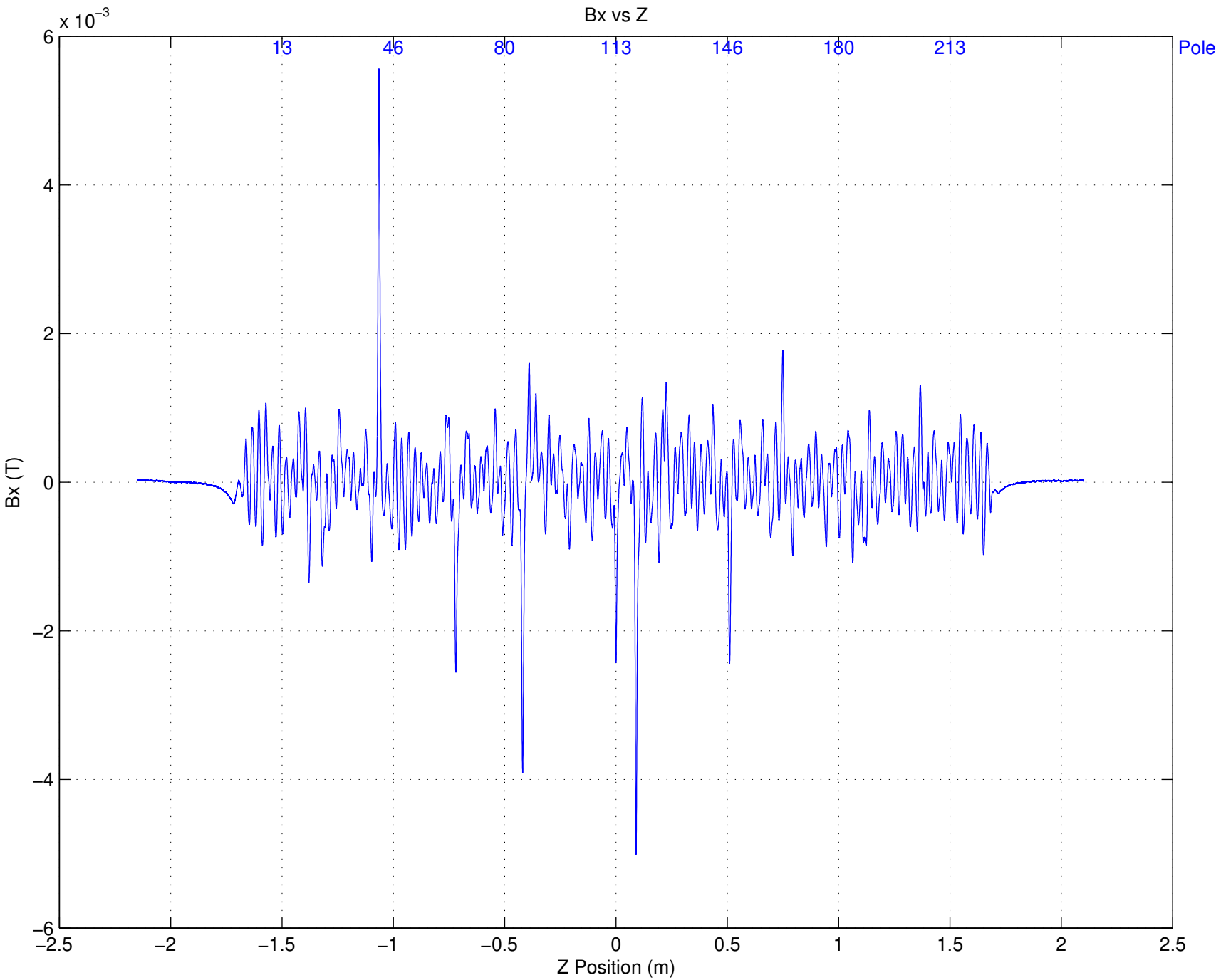
SLAC Magnetic Measurements
Date: 05−12−2010
Time: 14:45:18

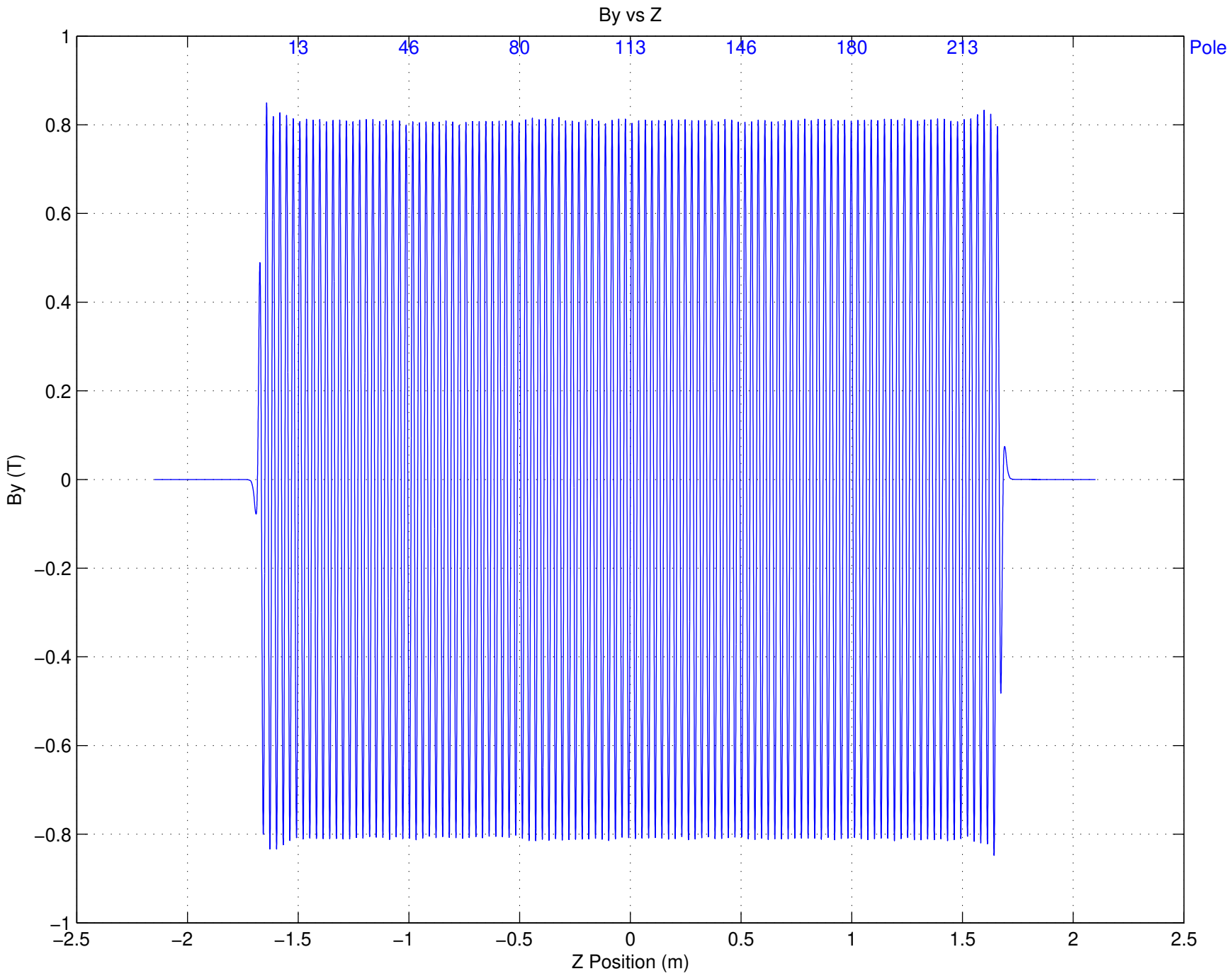
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−18
DATASET Number: 3
Tuning Stage: Fine Tuning
Run Number: 8
Measurement Type: Z Scans
Operator: YL
Comment: tuning
Session first run: 7
Measurement Device x:
Measurement Device y: $SENTRON_4$41

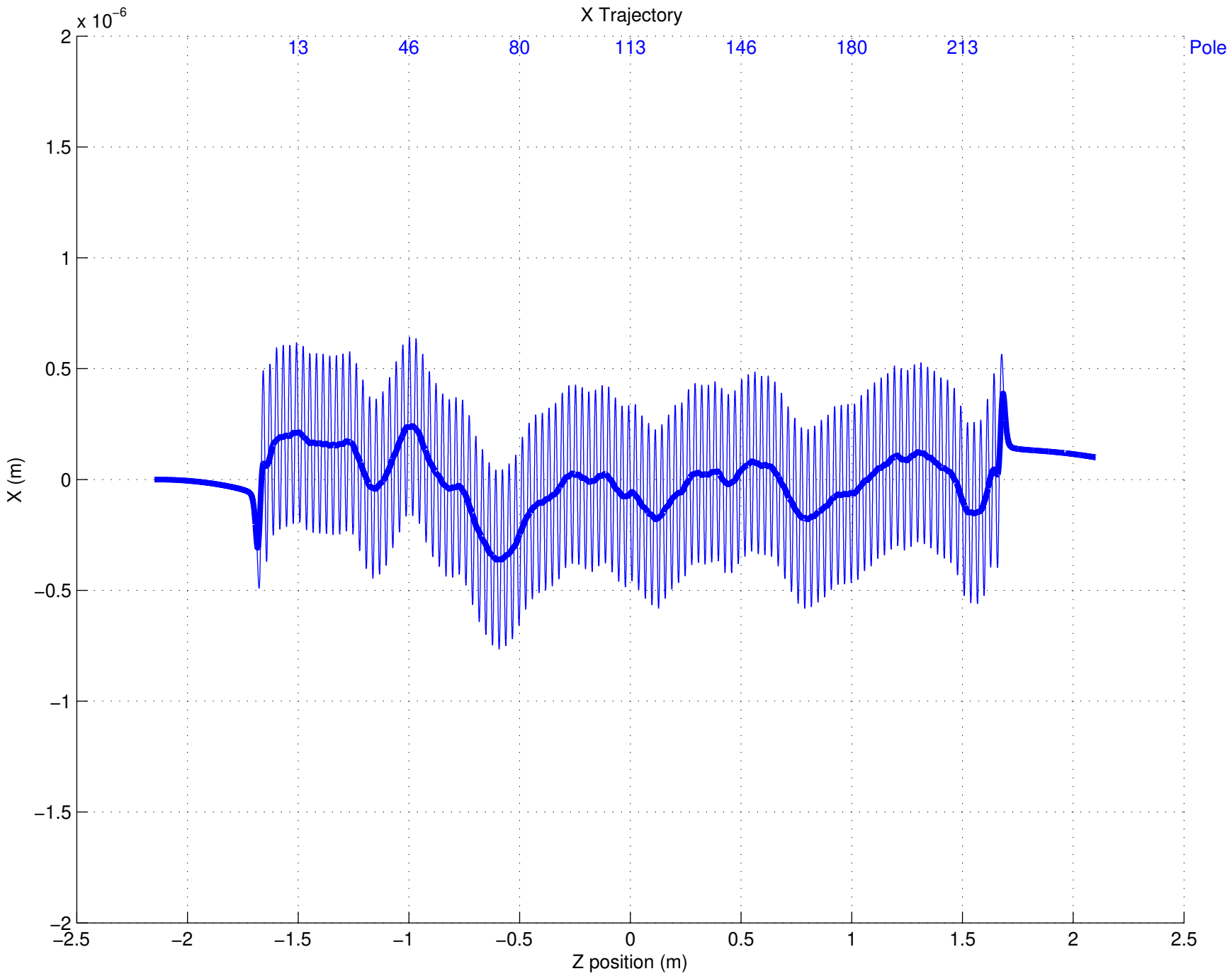
Data File: s:\magdata\LCLS\Undulator\L143−112000−18\DATASET0003\Fine Tuning\Z Scans\Run 008\bscanz.dat

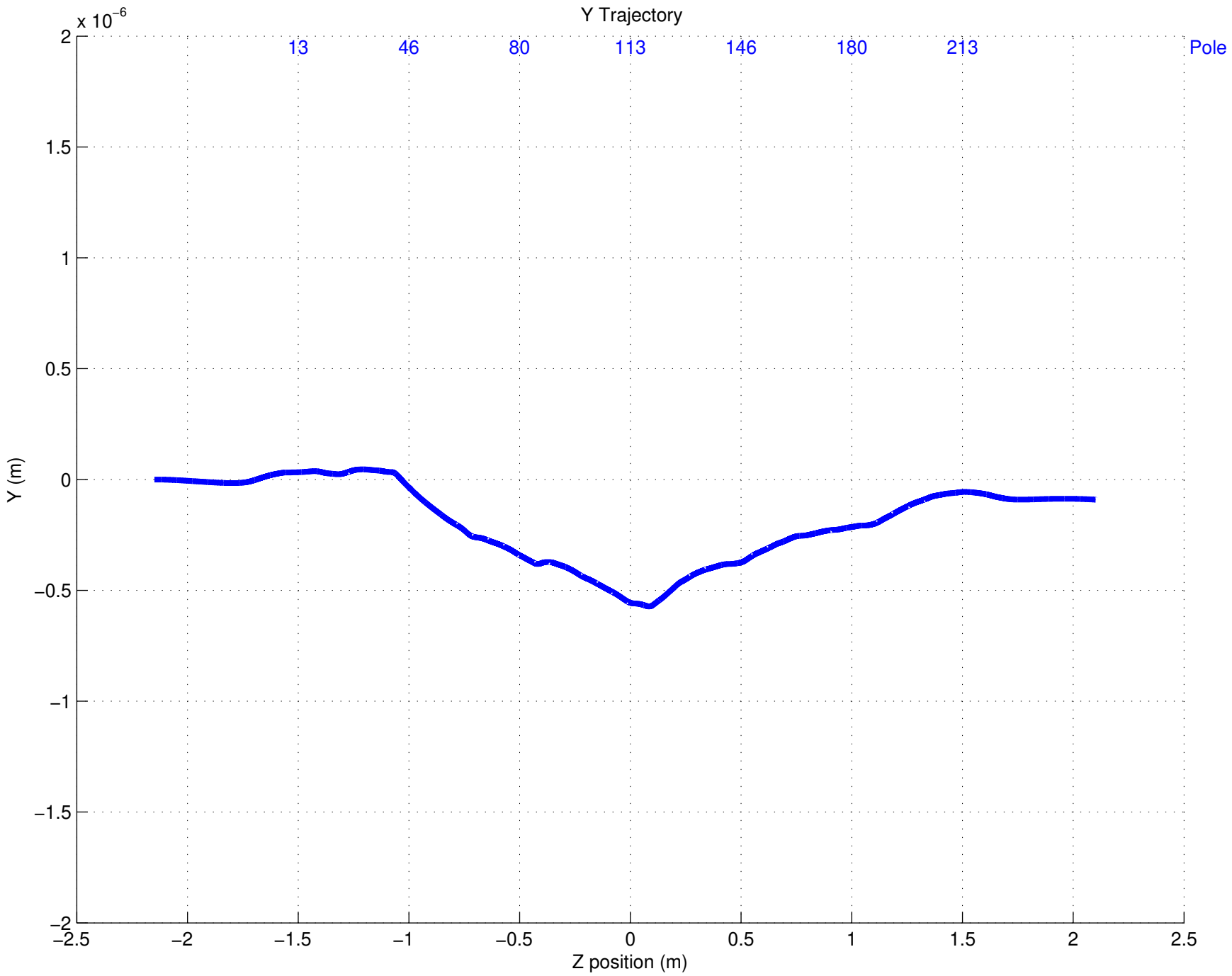
Temperature (C)
L143−112000−18:−−> T5 19.95 −−> T2 19.94 −−> T1 19.98 −−> T3 19.96 −−> Air 19.98 −−> T4 19.95

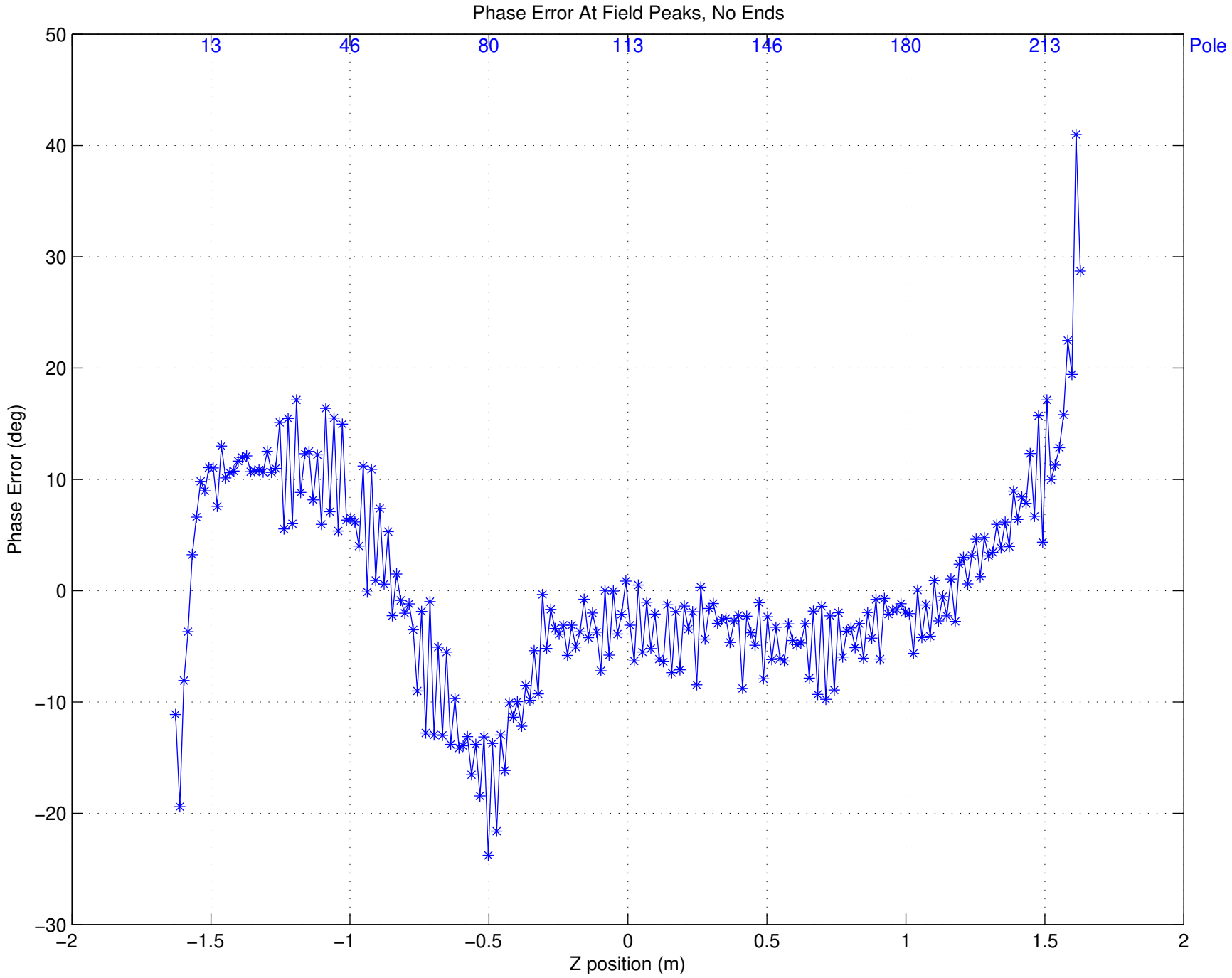
Axes position (m) X:0.026015 Y:0.000304
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001320 V
Vy_0i = −0.003044 V


Bx vs Z
x 10^-3
6
4
2
0
−2
−4
−6
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)

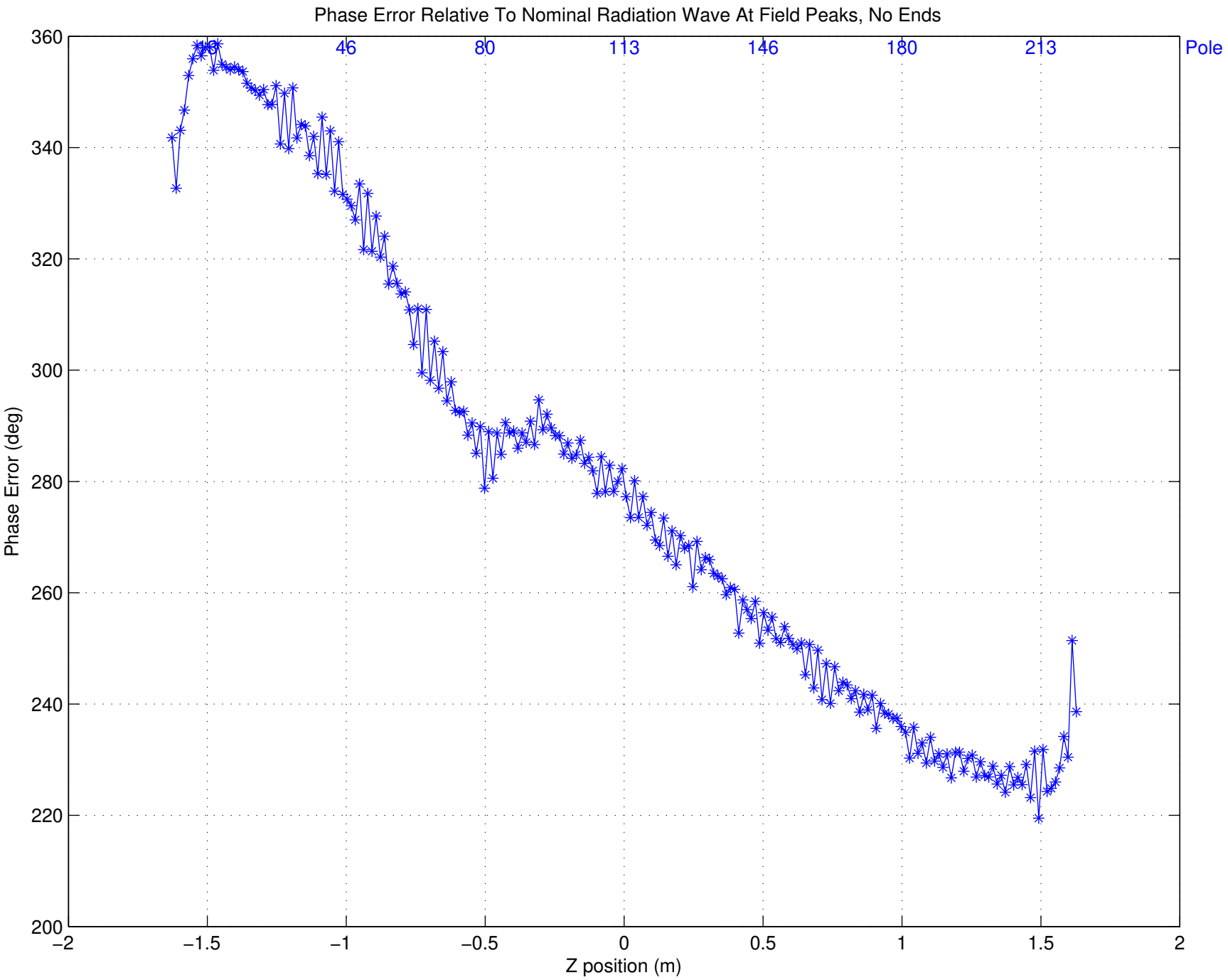

By vs Z
13
46
80
113
146
180
213
Pole
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


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 = 8.998015 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
46
80
113
146
180
213
Pole
360
340
320
300
280
260
240
220
200
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)