SLAC Magnetic Measurements

Planar Insertion Device Analysis

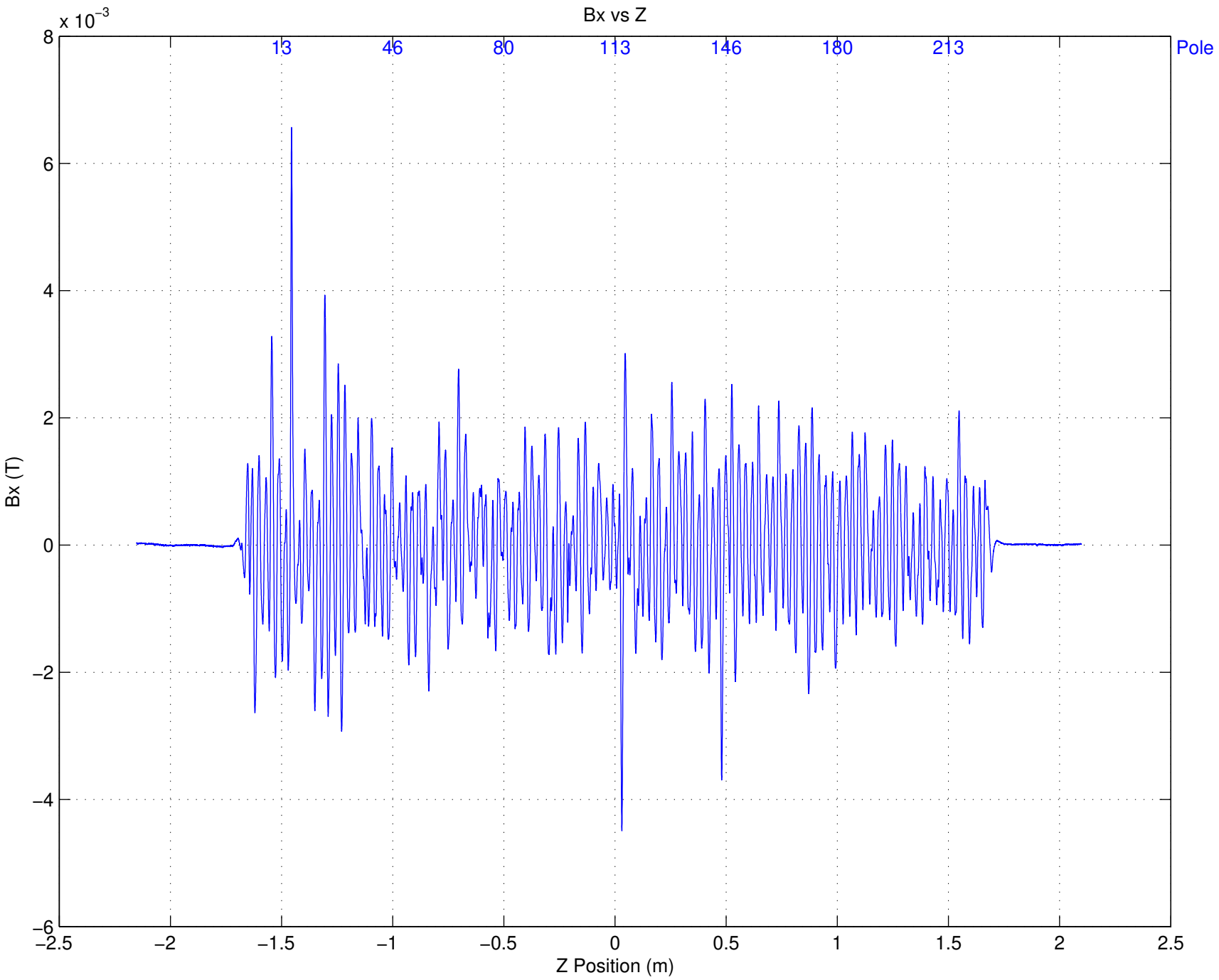
SLAC Magnetic Measurements
Date: 08−31−2011
Time: 10:34:00

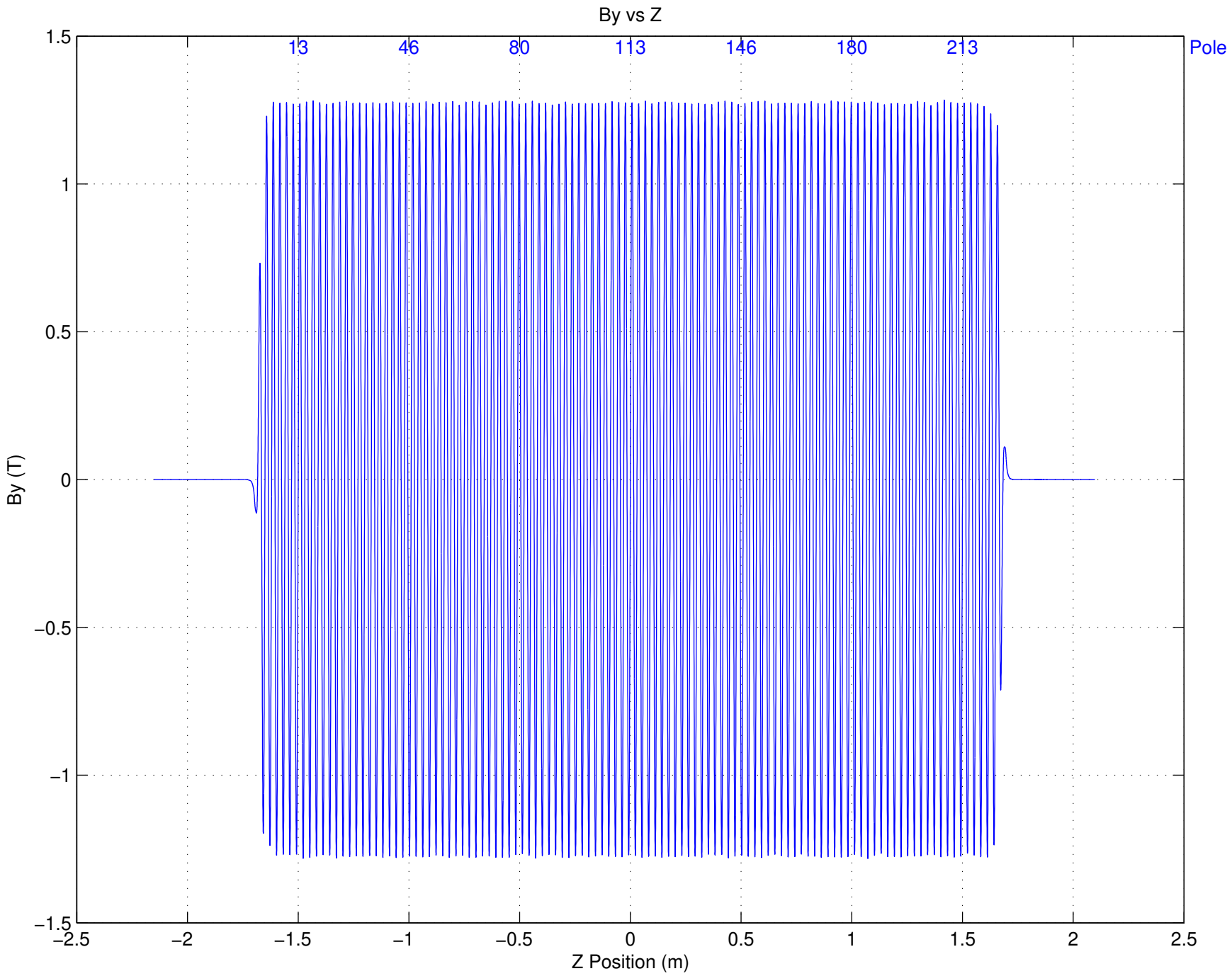
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−11
DATASET Number: 3
Tuning Stage: Fine Tuning
Run Number: 14
Measurement Type: Z Scans
Operator: YL
Comment: tuning; after second gap adjustment
Session first run: 14
Measurement Device x:
Measurement Device y: $SENTRON_4$41

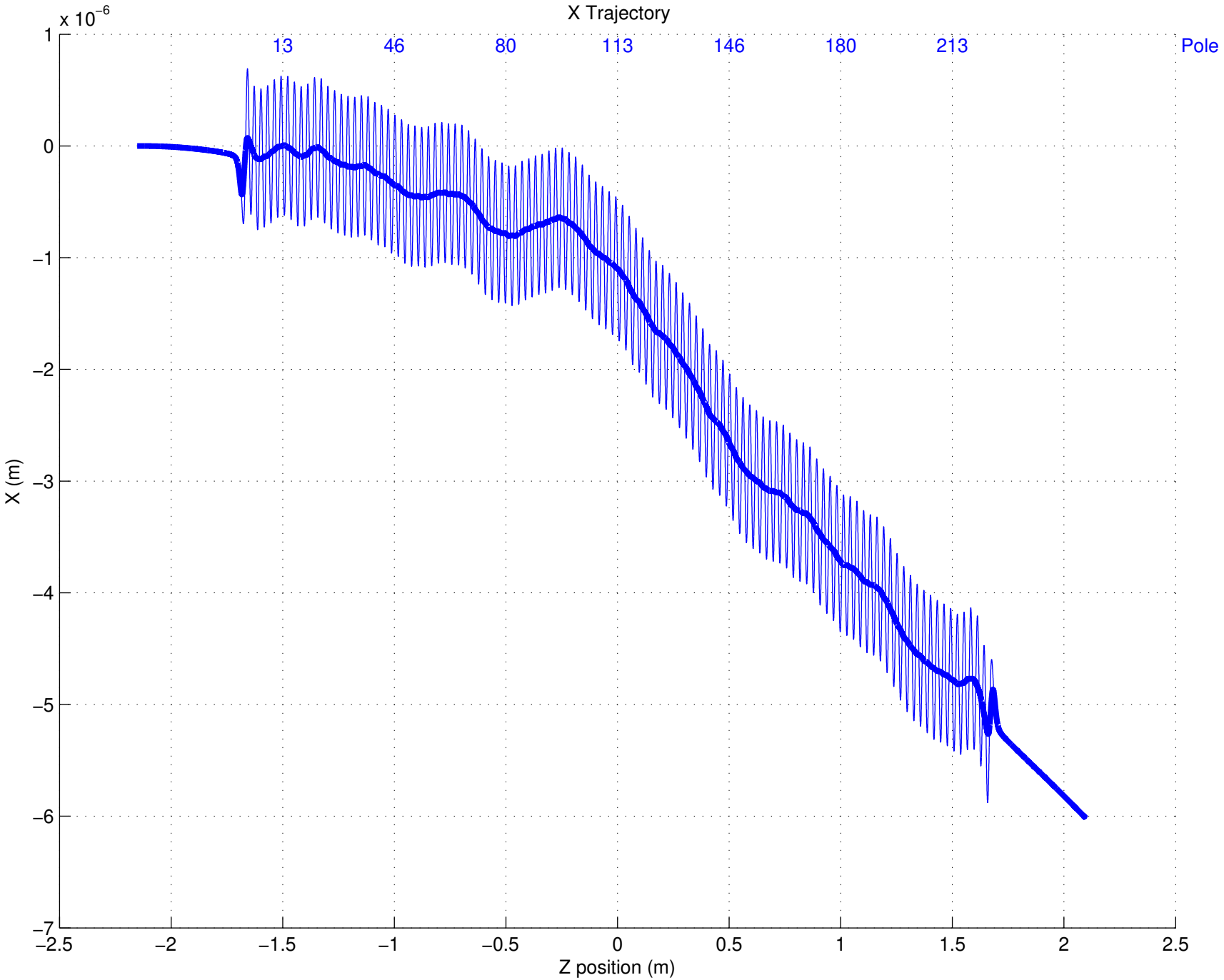
Data File: s:\magdata\LCLS\Undulator\L143−112000−11\DATASET0003\Fine Tuning\Z Scans\Run 014\bscanz.dat

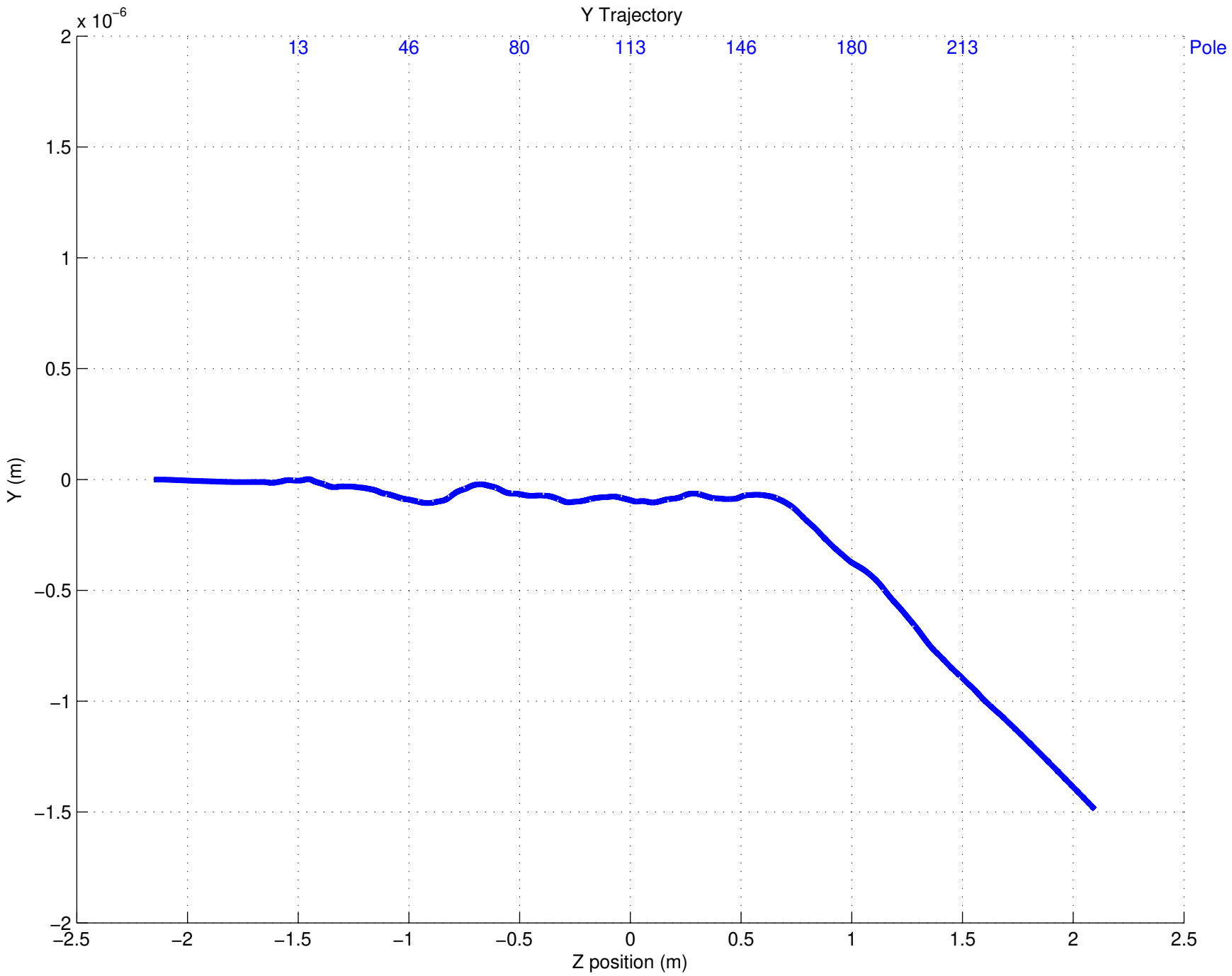
Temperature (C)
L143−112000−11:−−> T1 19.98 −−> T2 19.97 −−> T5 19.96 −−> T3 19.97 −−> Air 20.05 −−> T4 19.96

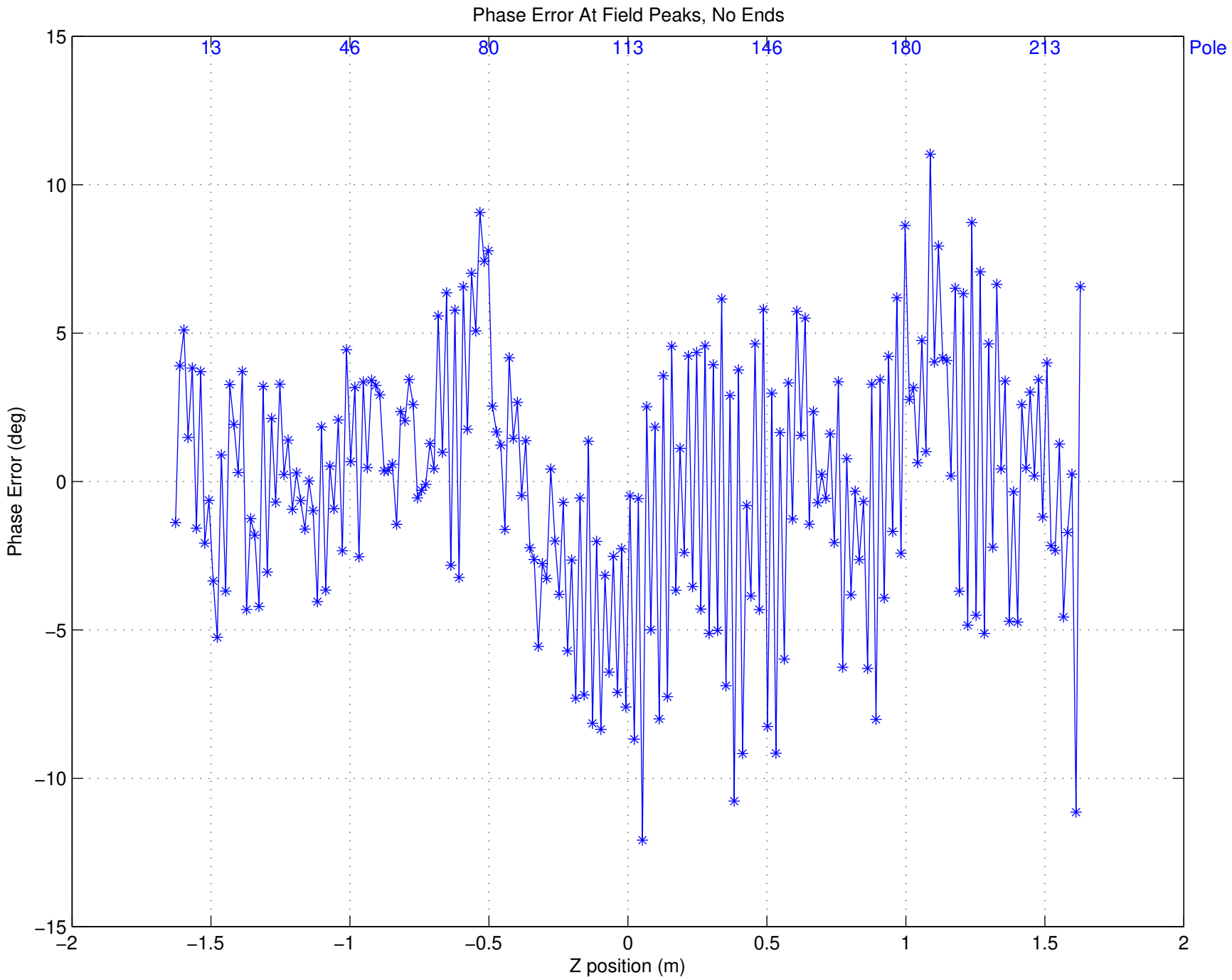
Axes position (m) X:0.027750 Y:0.000312
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001050 V
Vy_0i = −0.003045 V


Bx vs Z
x 10^-3
8
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)

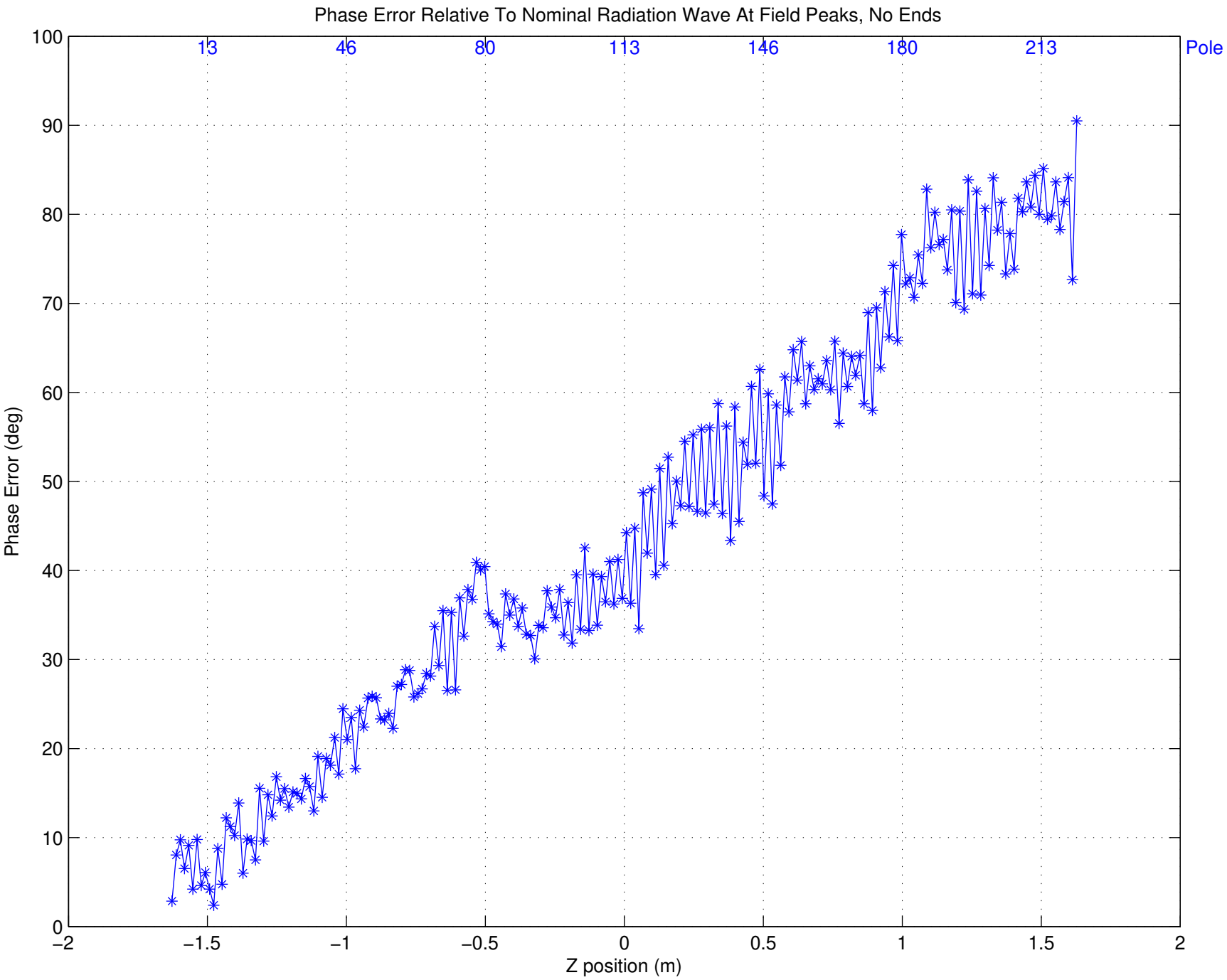

By vs Z
13
46
80
113
146
180
213
Pole
1.5
1
0.5
0
−0.5
−1
−1.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


X Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
1
0
−1
−2
−3
−4
−5
−6
−7
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 = 4.290554 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
13
46
80
113
146
180
213
Pole
100
90
80
70
60
50
40
30
20
10
0
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)