SLAC Magnetic Measurements

Planar Insertion Device Analysis

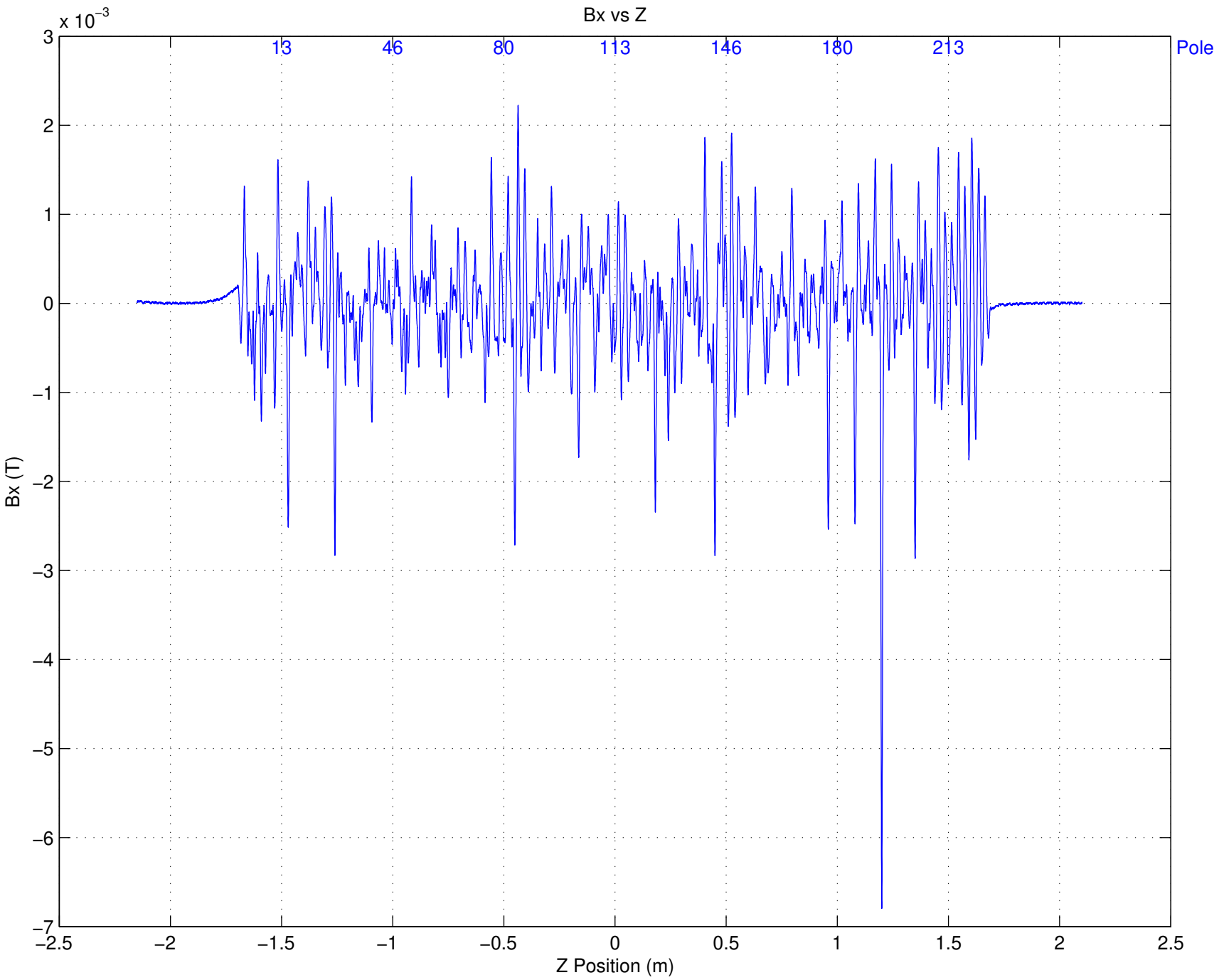
SLAC Magnetic Measurements
Date: 11−07−2012
Time: 13:48:57

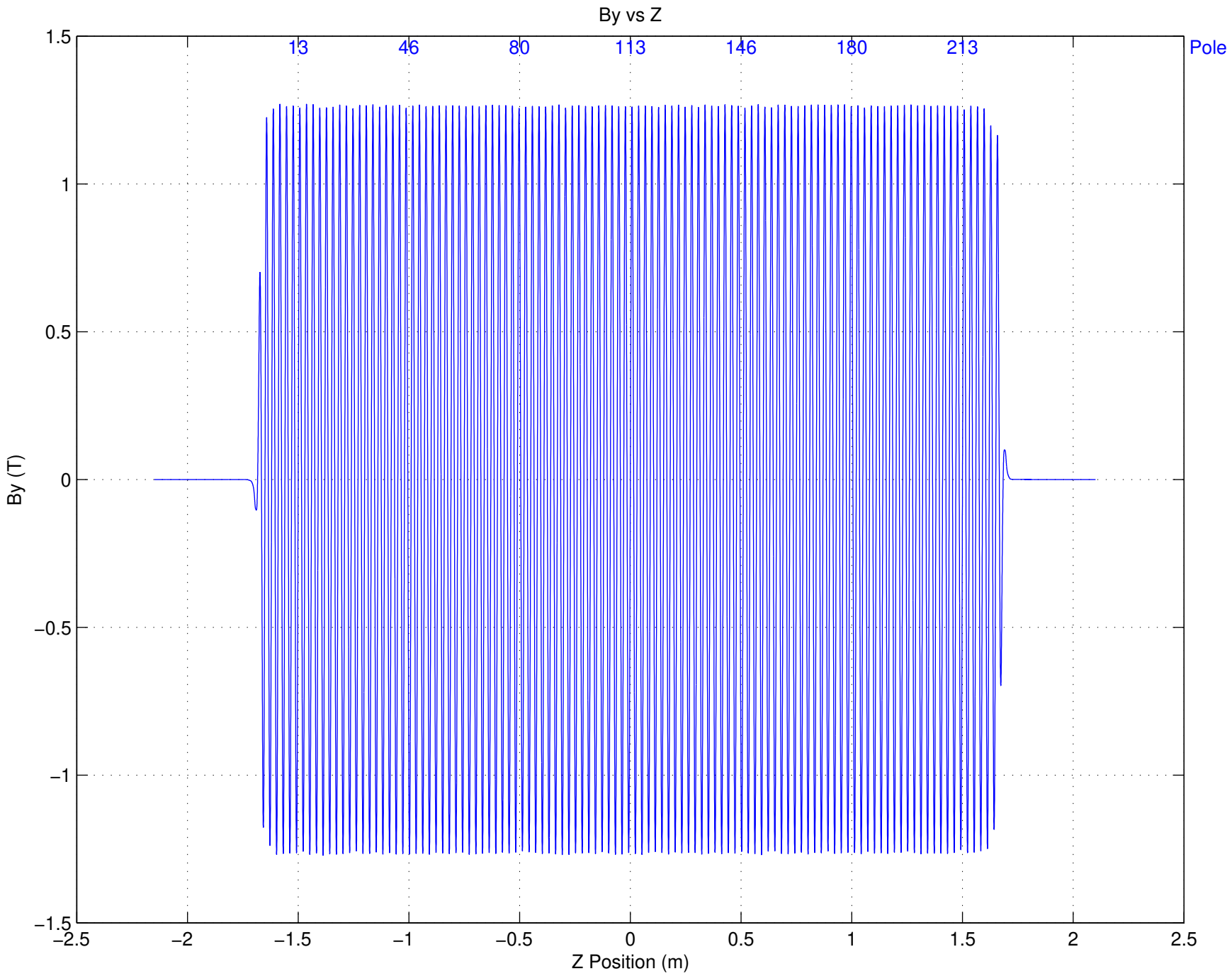
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−04
DATASET Number: 3
Tuning Stage: Fine Tuning
Run Number: 15
Measurement Type: Z Scans
Operator: YL
Comment: at min K
Session first run: 15
Measurement Device x:
Measurement Device y: $SENTRON_4$41

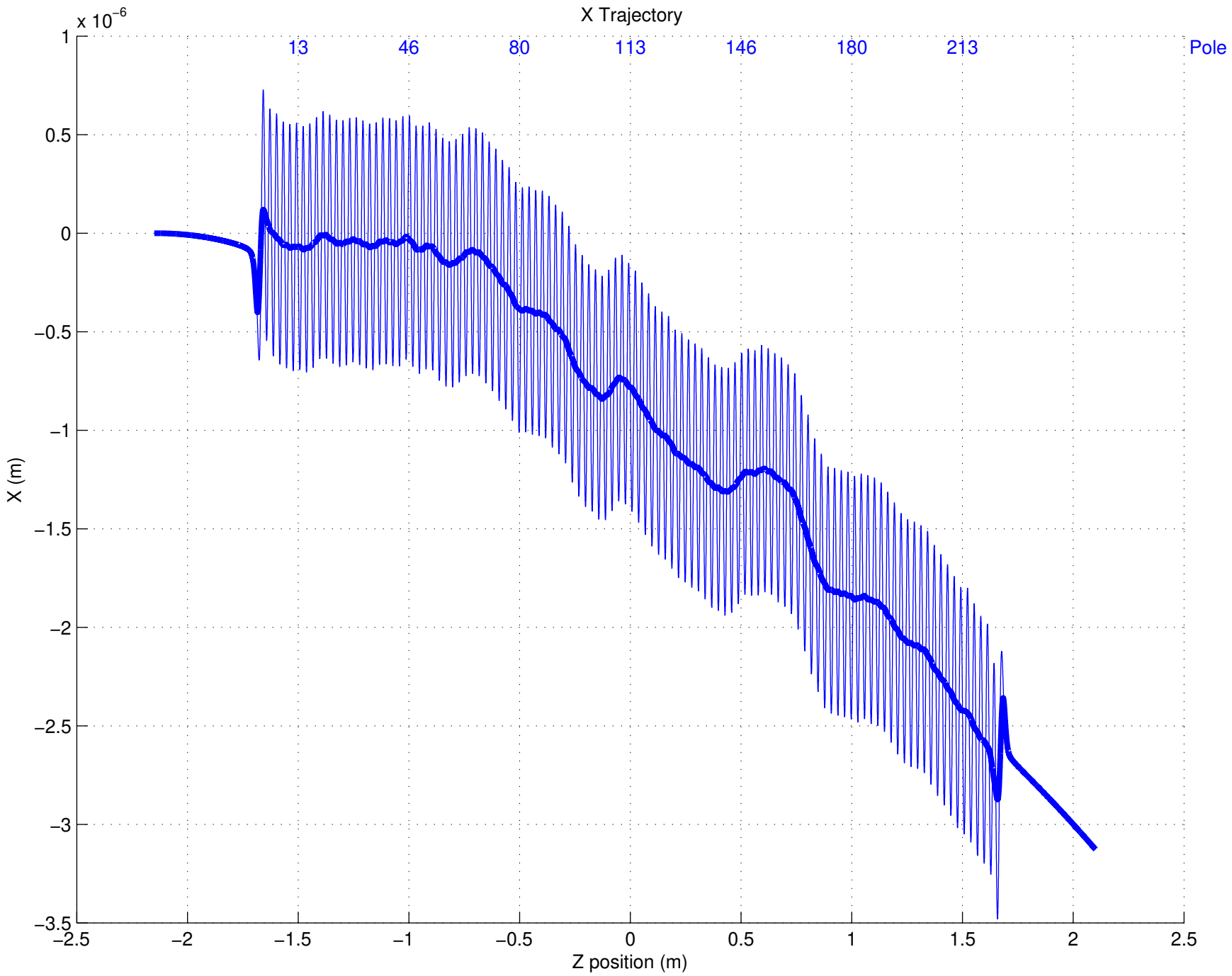
Data File: s:\magdata\LCLS\Undulator\L143−112000−04\DATASET0003\Fine Tuning\Z Scans\Run 015\bscanz.dat

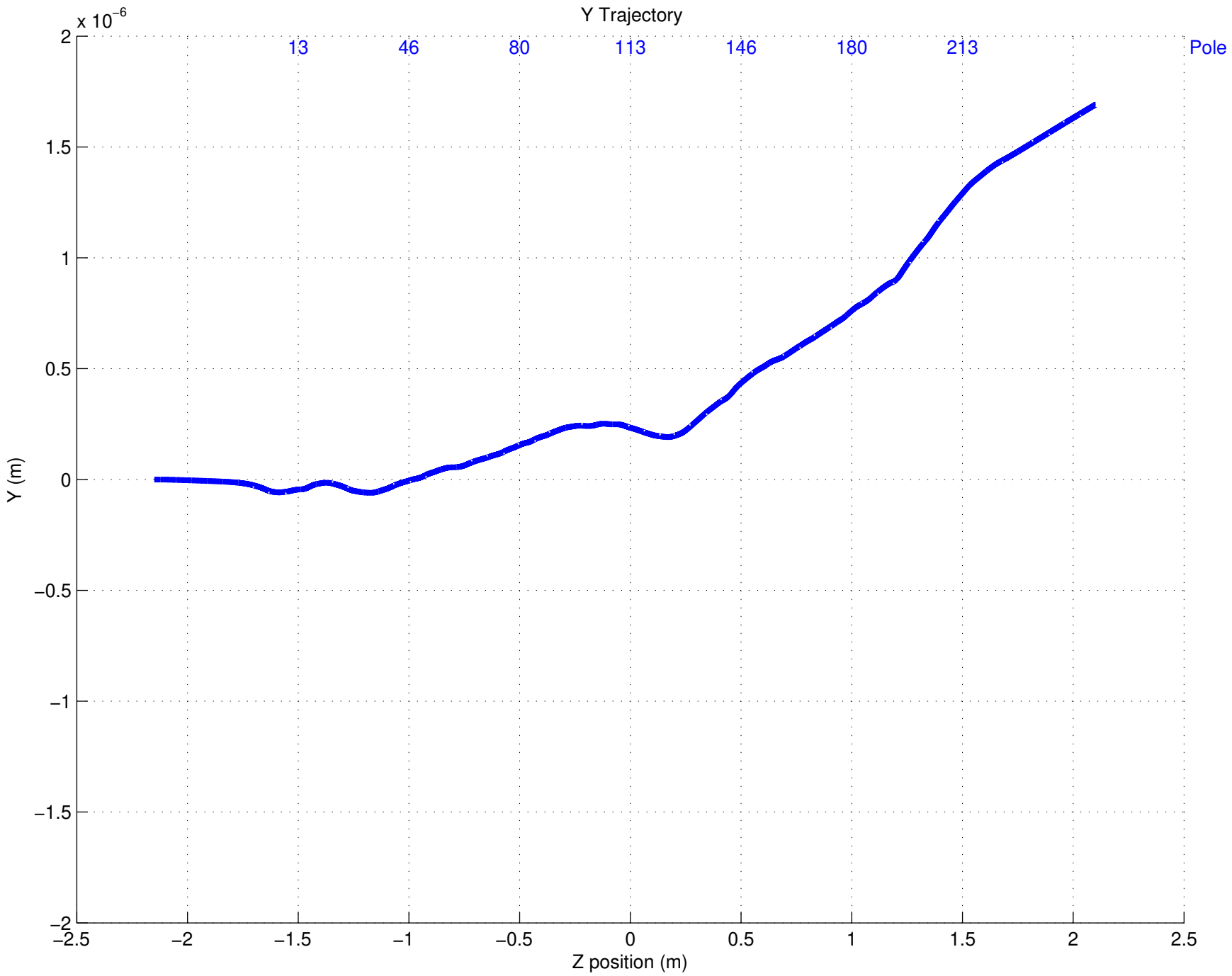
Temperature (C)
L143−112000−04:−−> T1 19.98 −−> T2 19.95 −−> T5 19.93 −−> T3 19.93 −−> Air 19.96 −−> T4 19.92

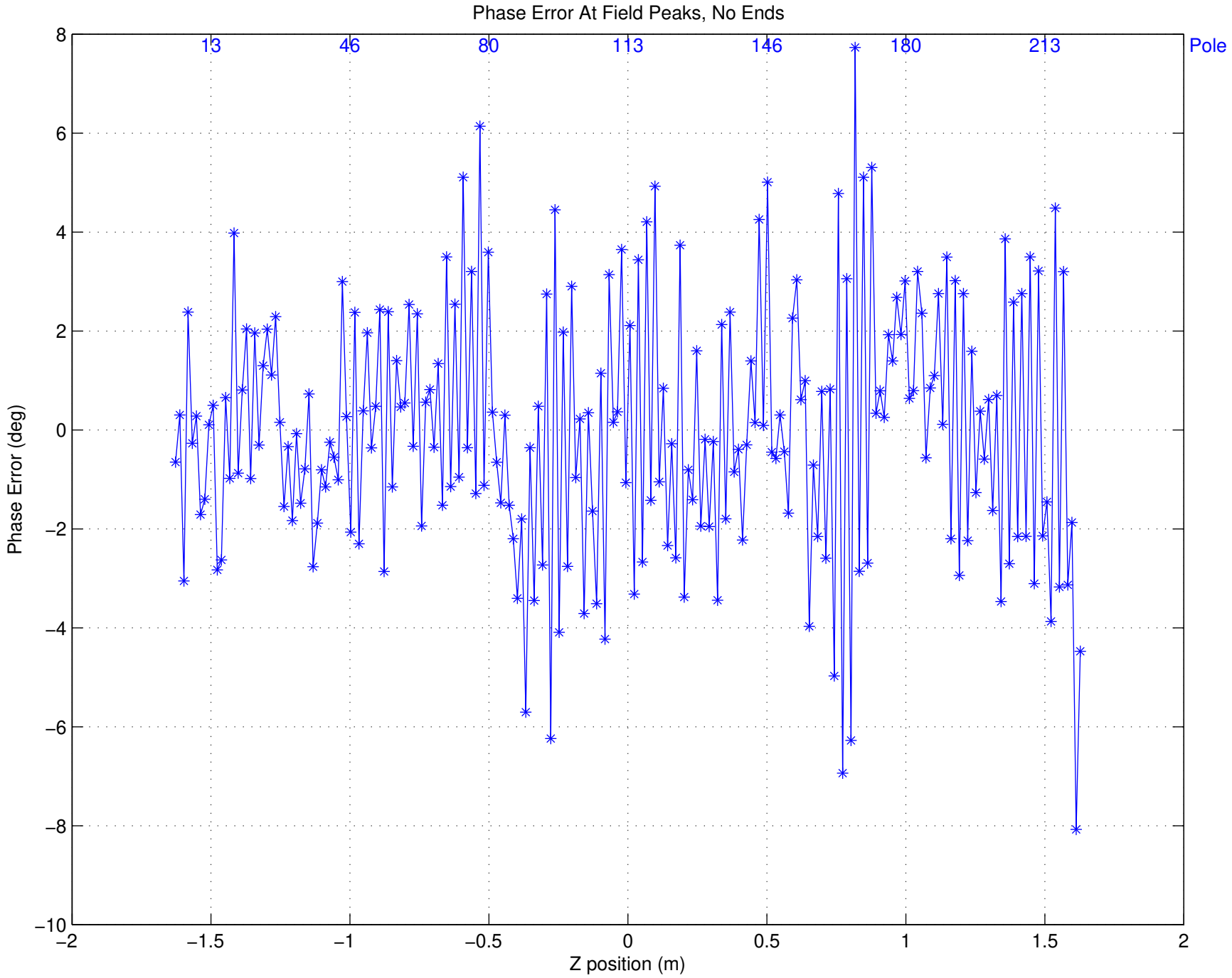
Axes position (m) X:0.029928 Y:0.000239
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001006 V
Vy_0i = −0.003149 V


Bx vs Z
x 10^-3
3
2
1
0
−1
−2
−3
−4
−5
−6
−7
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)

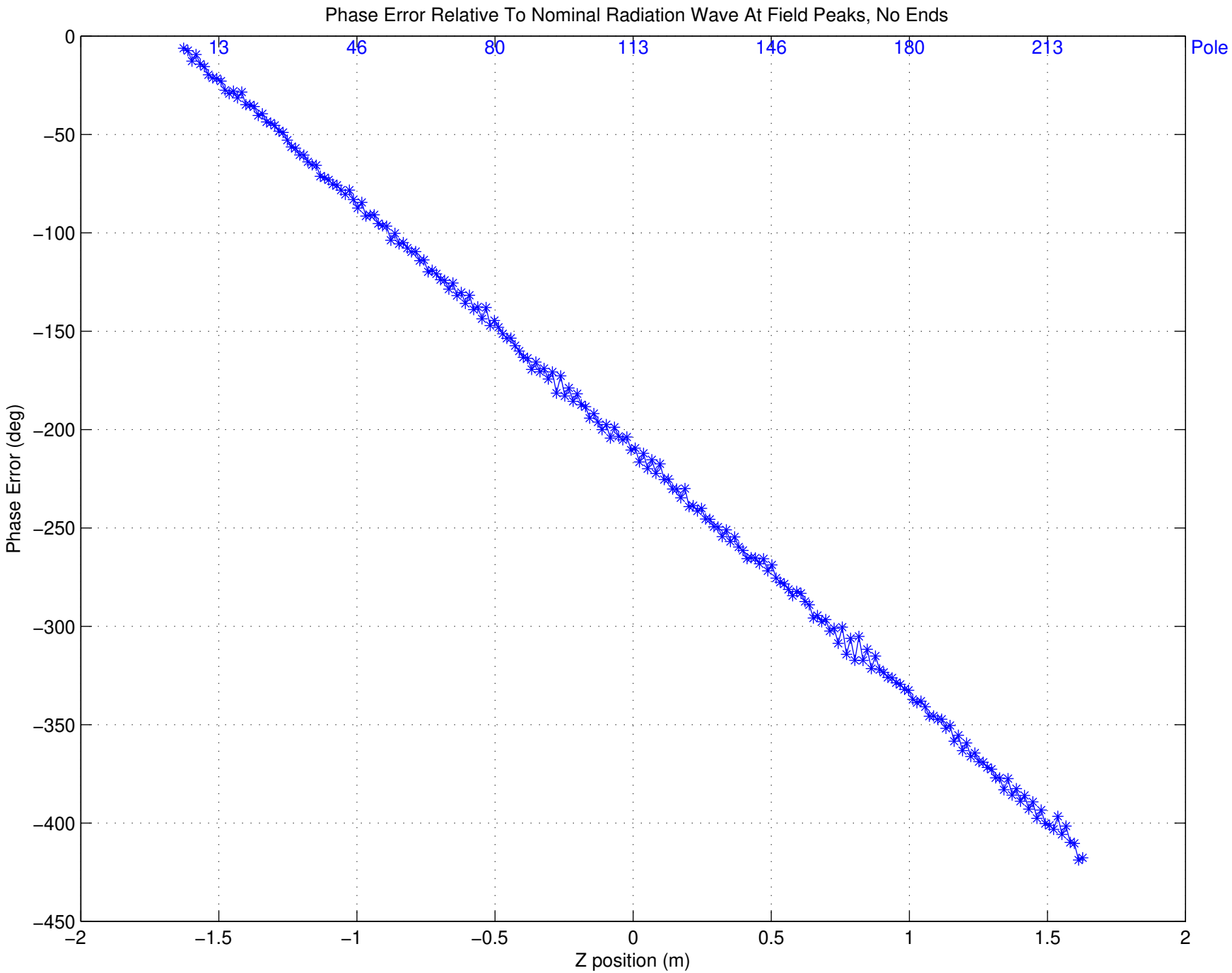

By vs Z
13
46
80
113
146
180
213
Pole
1.5
1
0.5
0
−0.5
−1
−1.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


X Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
−3
−3.5
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 = 2.563006 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
13
46
80
113
146
180
213
Pole
0
−50
−100
−150
−200
−250
−300
−350
−400
−450
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)