SLAC Magnetic Measurements

Planar Insertion Device Analysis

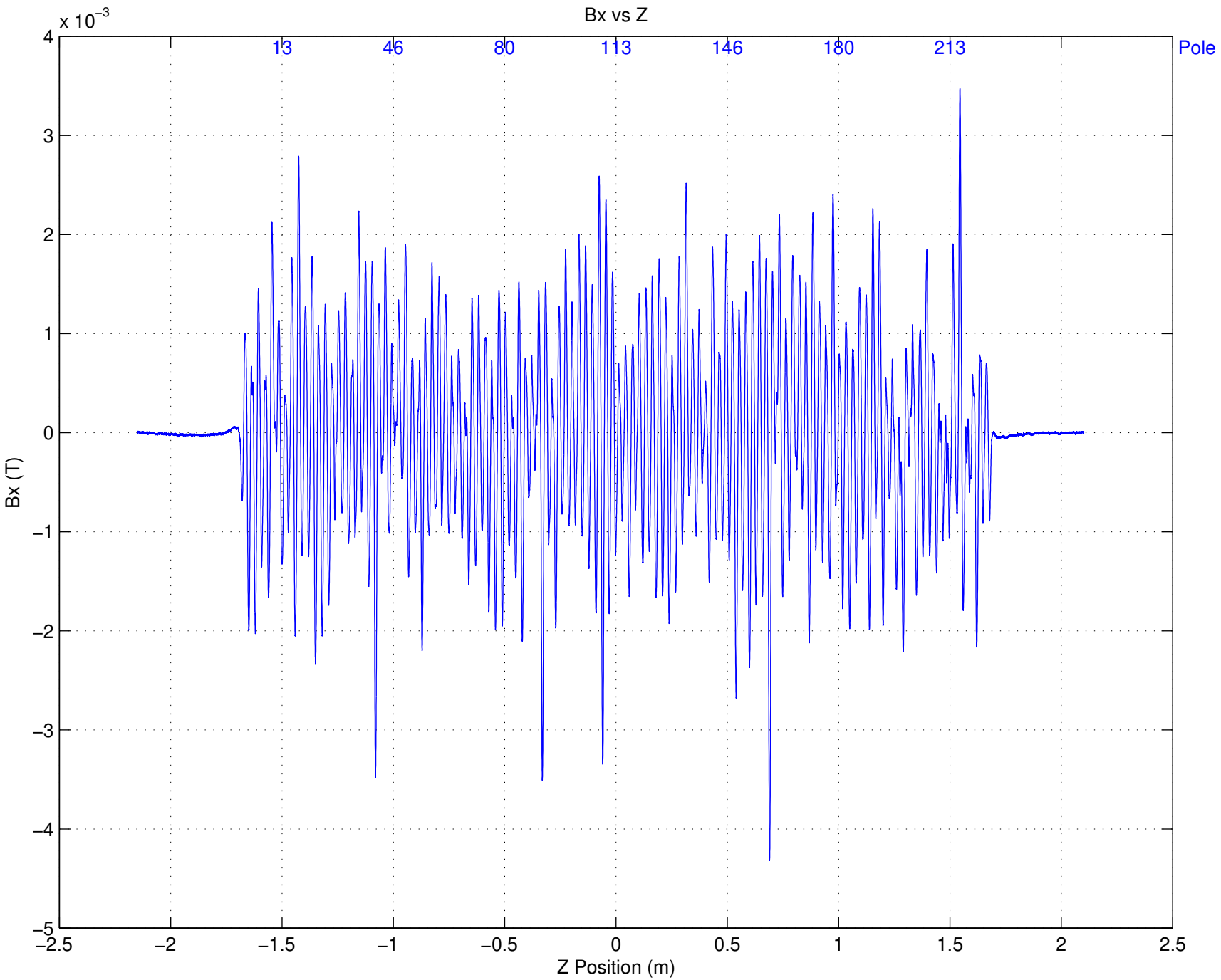
SLAC Magnetic Measurements
Date: 11−29−2012
Time: 09:47:04

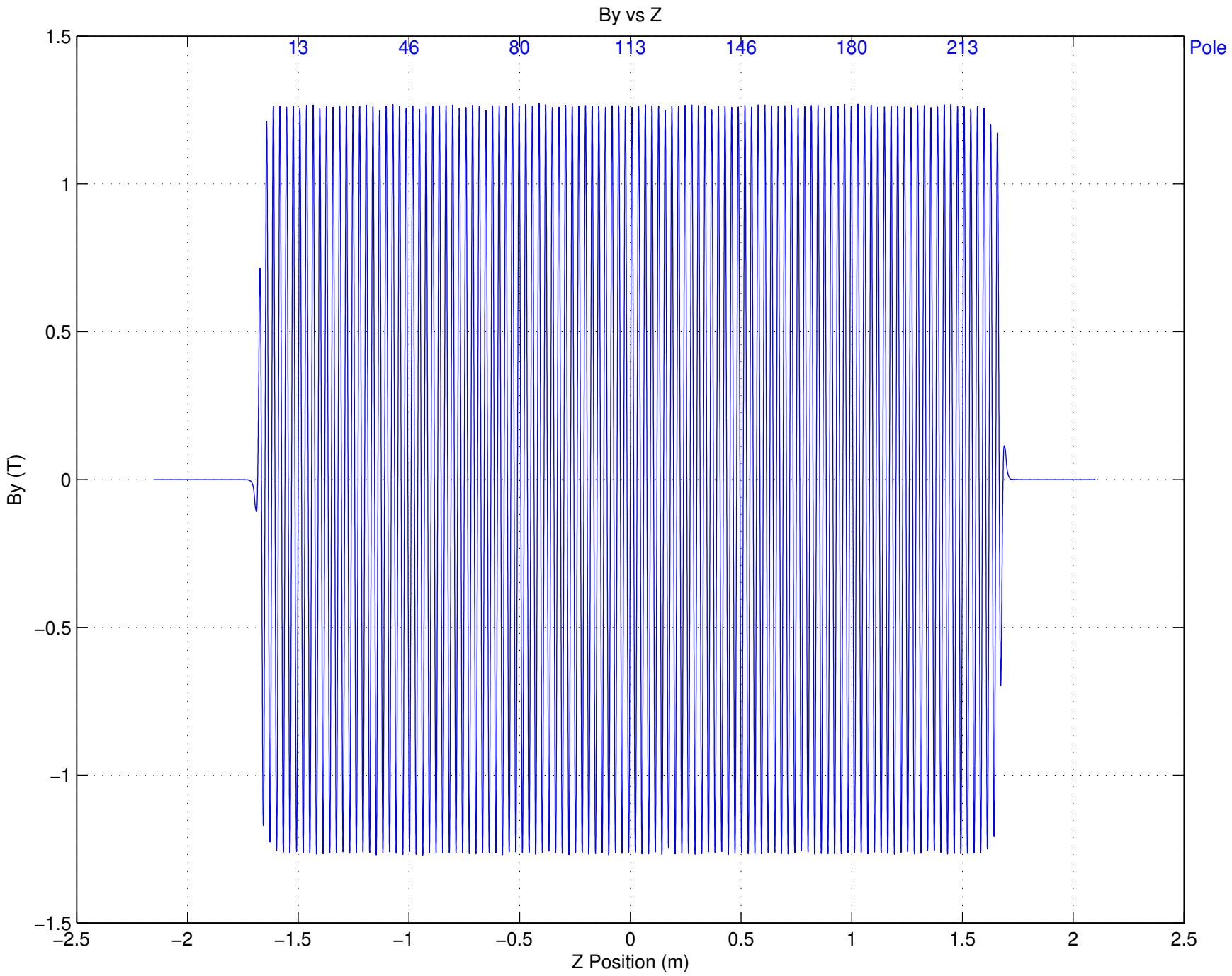
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−27
DATASET Number: 3
Tuning Stage: Fine Tuning
Run Number: 10
Measurement Type: Z Scans
Operator: YL
Comment: find first pole position; after 2−d gap correction
Session first run: 10
Measurement Device x:
Measurement Device y: $SENTRON_4$41

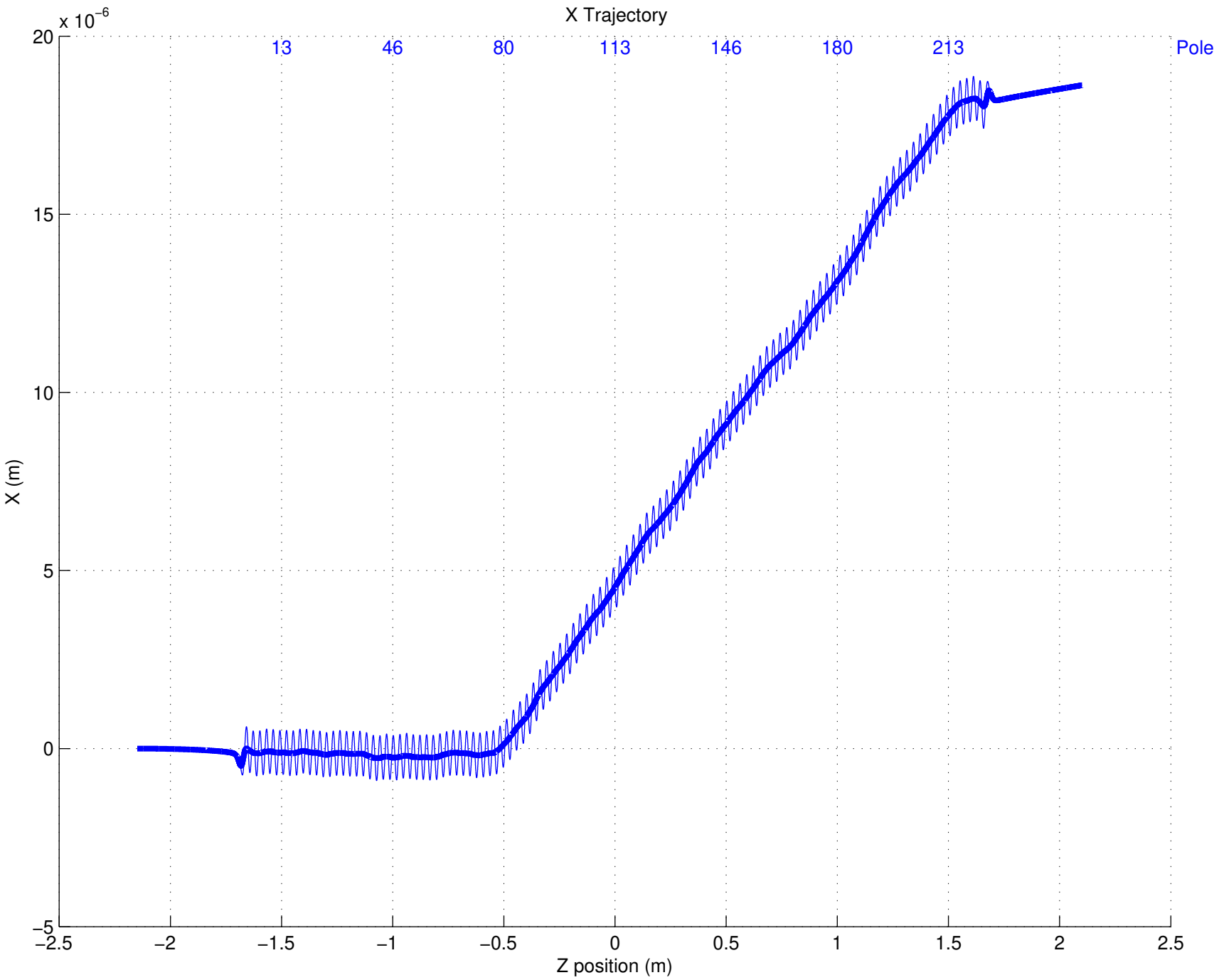
Data File: s:\magdata\LCLS\Undulator\L143−112000−27\DATASET0003\Fine Tuning\Z Scans\Run 010\bscanz.dat

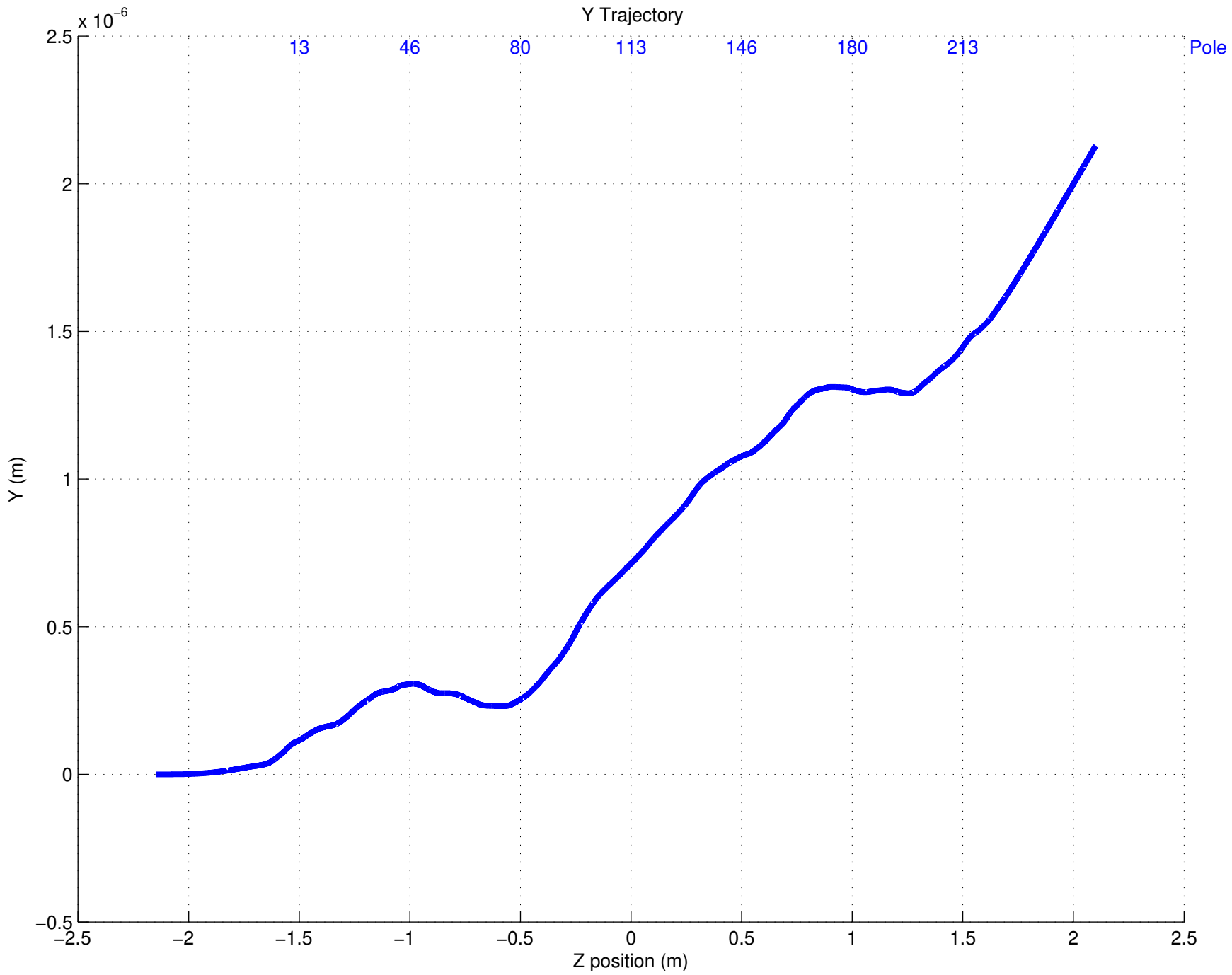
Temperature (C)
L143−112000−27:−−> T1 19.99 −−> T2 19.97 −−> T5 20.00 −−> T3 19.96 −−> Air 20.03 −−> T4 19.99

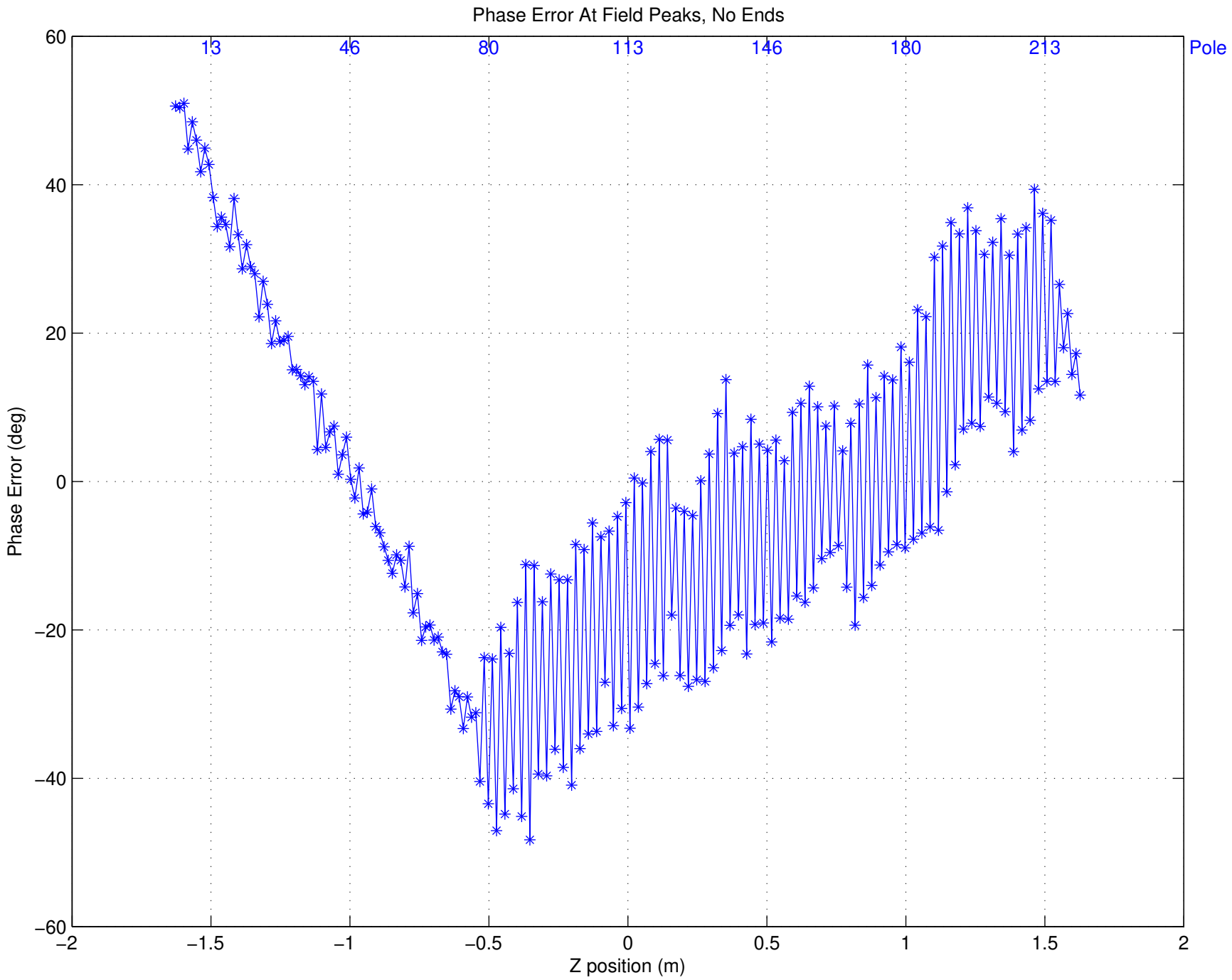
Axes position (m) X:0.030172 Y:0.000216
Initial Hall Probe Zero Measurements:
Vx_0i = 0.000958 V
Vy_0i = −0.003410 V


Bx vs Z
x 10^-3
13
46
80
113
146
180
213
Pole
Bx (T)
Z Position (m)
4
3
2
1
0
−1
−2
−3
−4
−5
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5

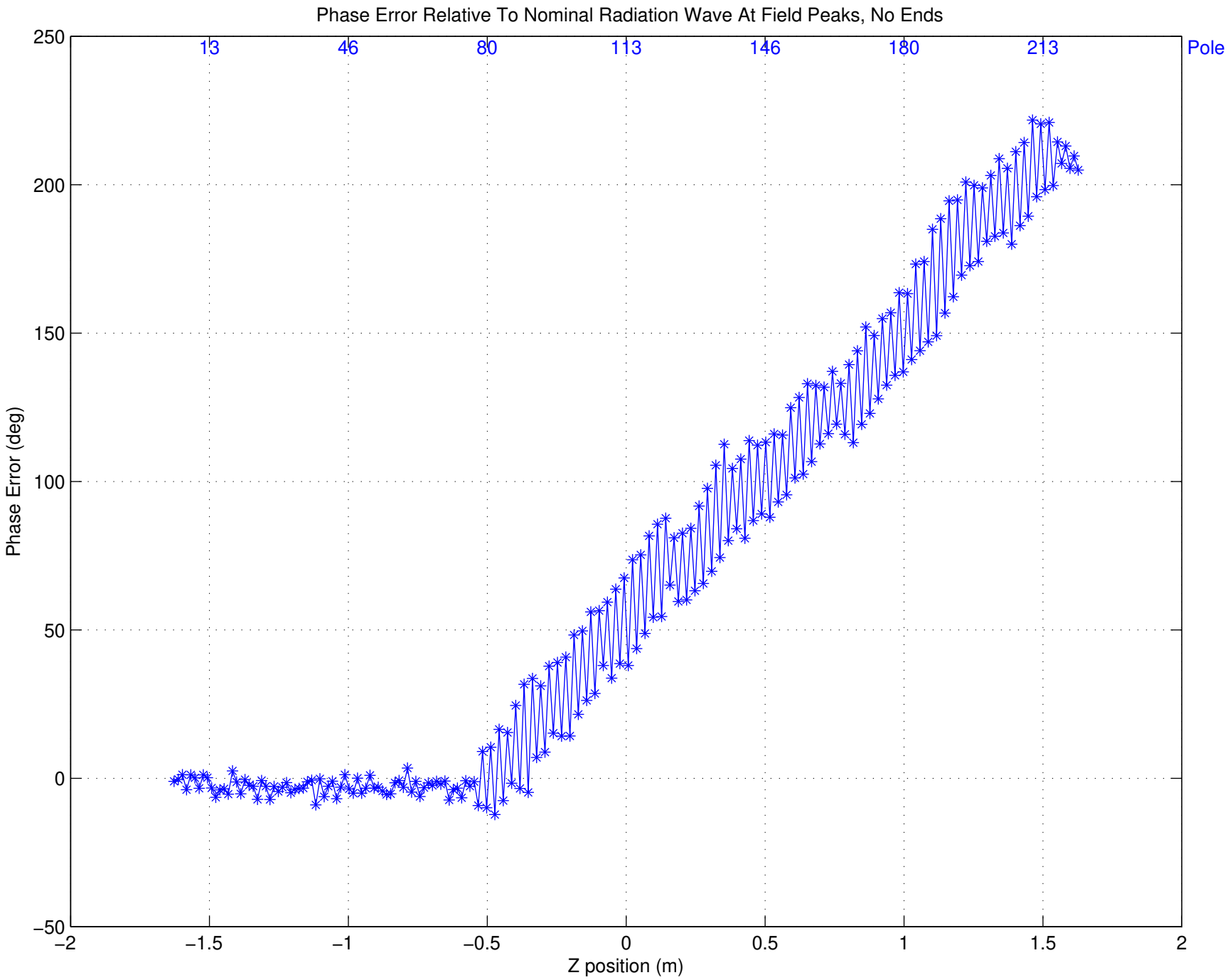

By vs Z
13
46
80
113
146
180
213
Pole
1.5
1
0.5
0
−0.5
−1
−1.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


X Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
20
15
10
5
0
−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
2.5
2
1.5
1
0.5
0
−0.5
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 = 23.347541 deg


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