SLAC Magnetic Measurements

Planar Insertion Device Analysis

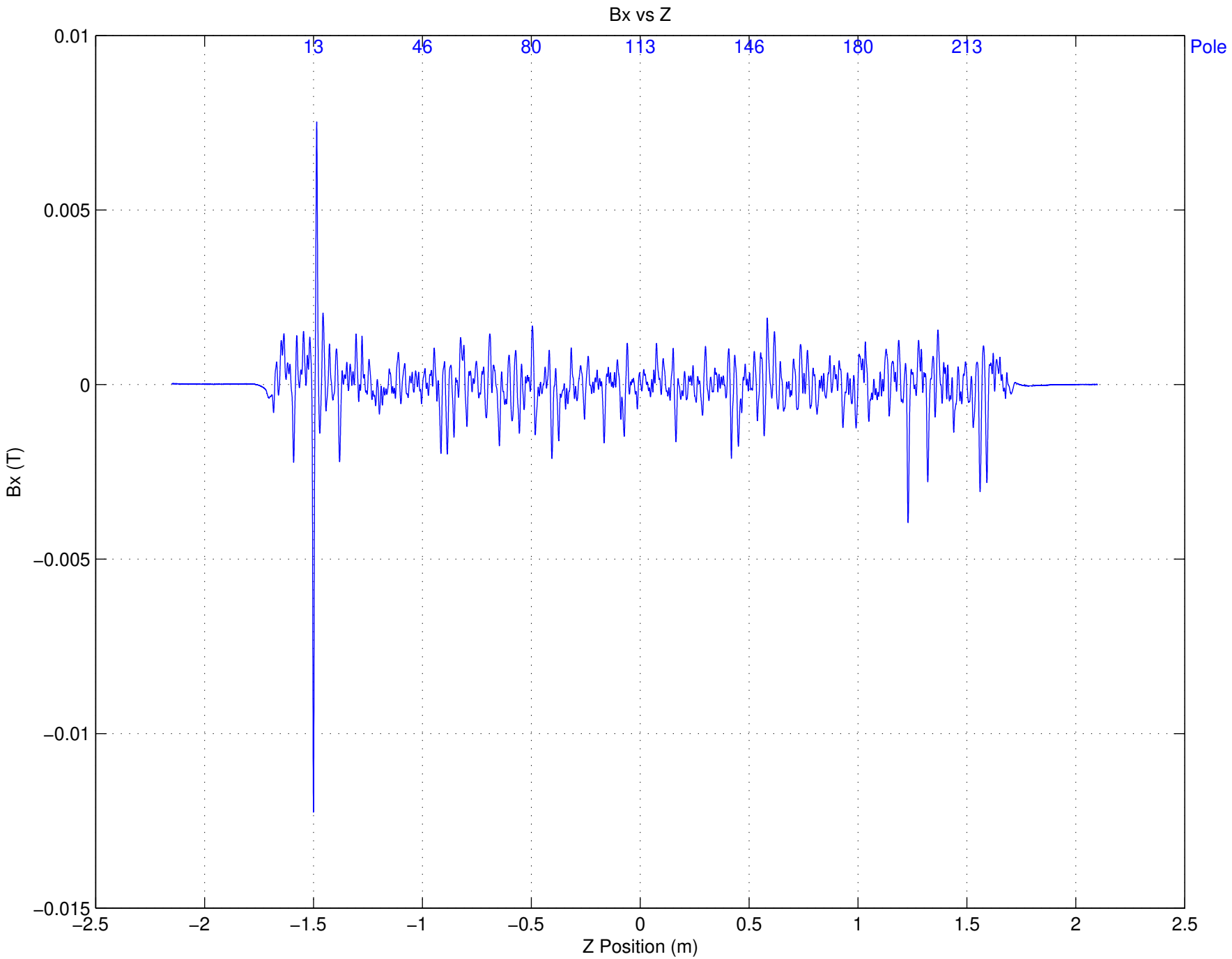
SLAC Magnetic Measurements
Date: 05−12−2014
Time: 14:32:31

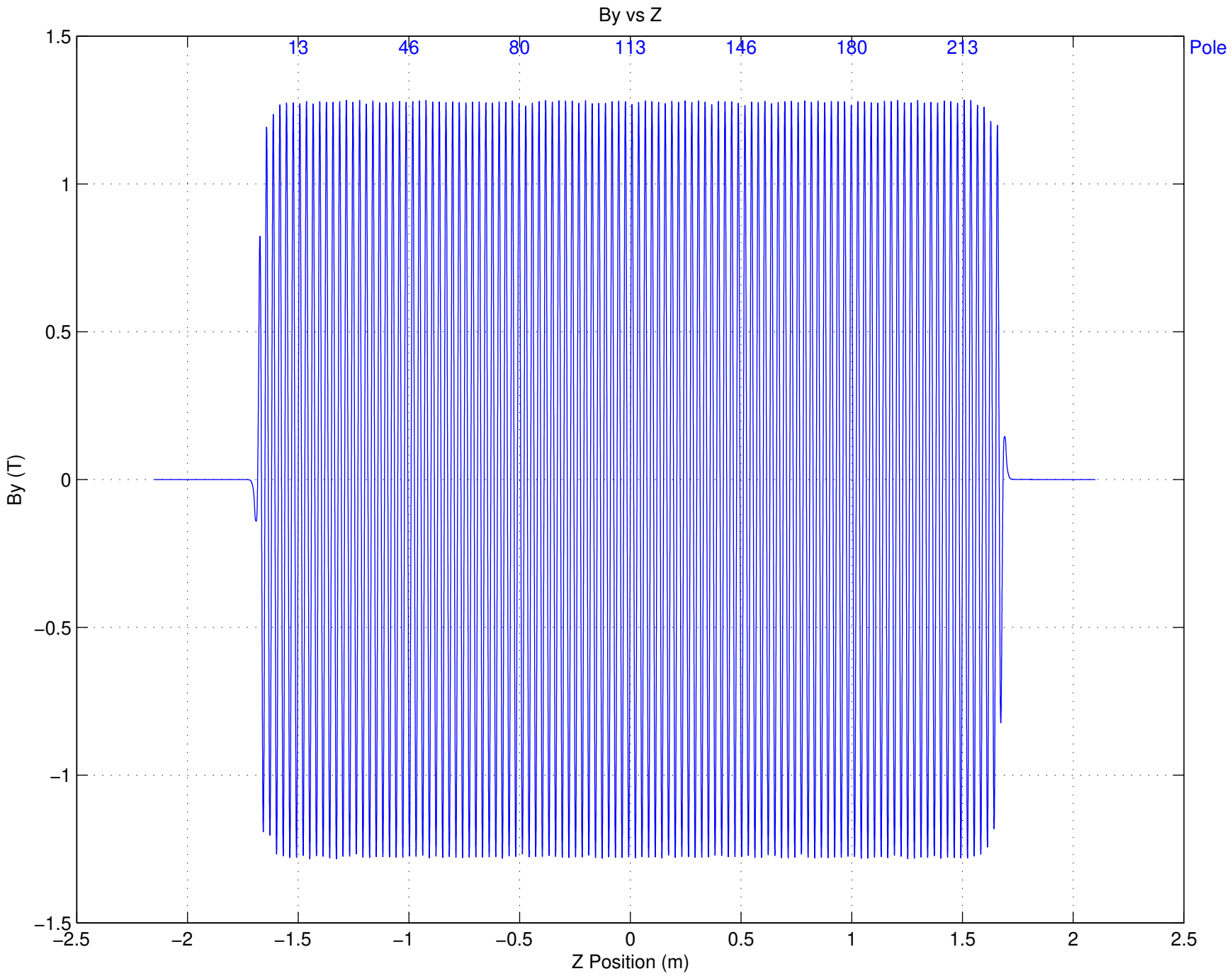
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−06
DATASET Number: 4
Tuning Stage: Fine Tuning
Run Number: 5
Measurement Type: Z Scans
Operator: YL
Comment: find Y at min K
Session first run: 4
Measurement Device x:
Measurement Device y: $SENTRON_4$41

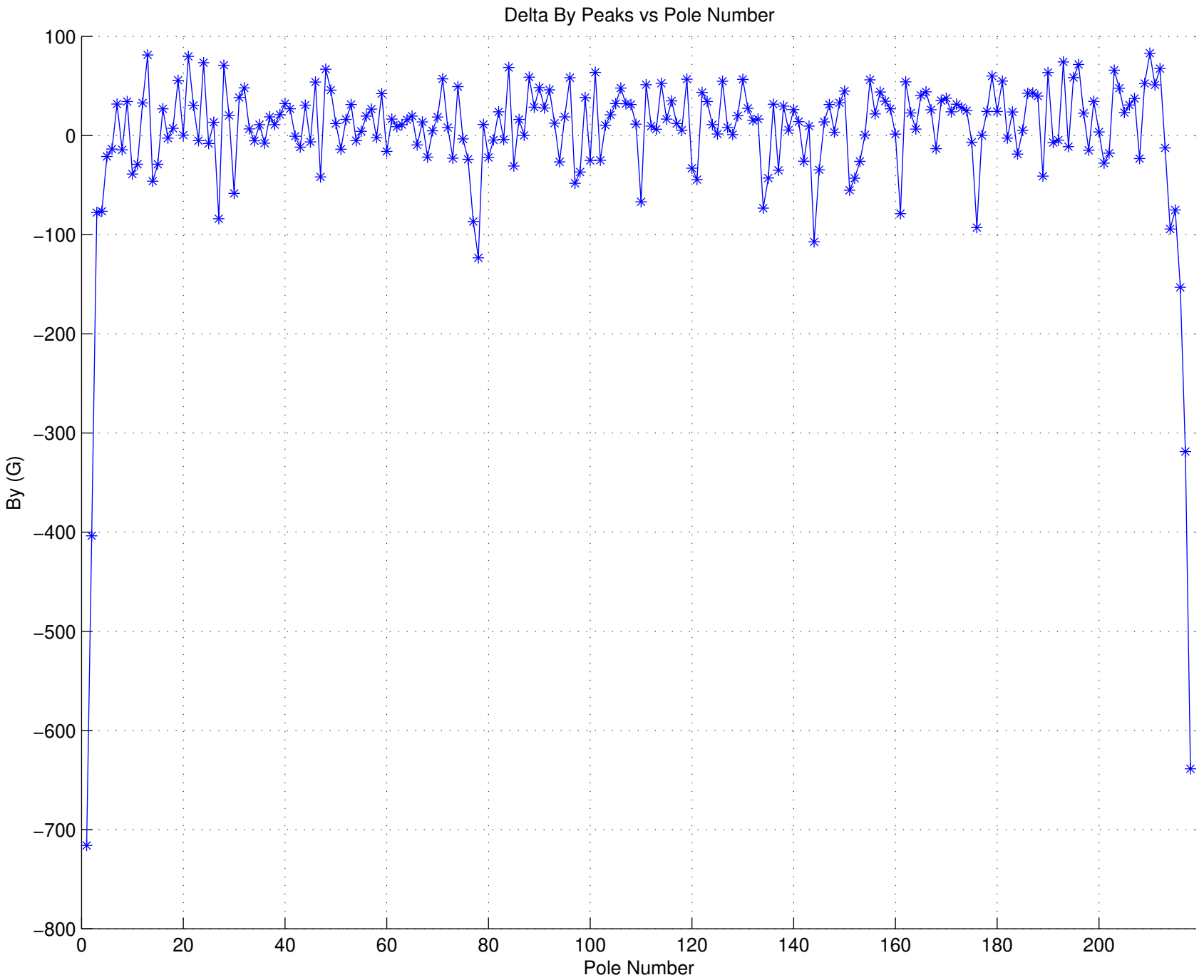
Data File: s:\magdata\LCLS\Undulator\L143−112000−06\DATASET0004\Fine Tuning\Z Scans\Run 005\bscanz.dat

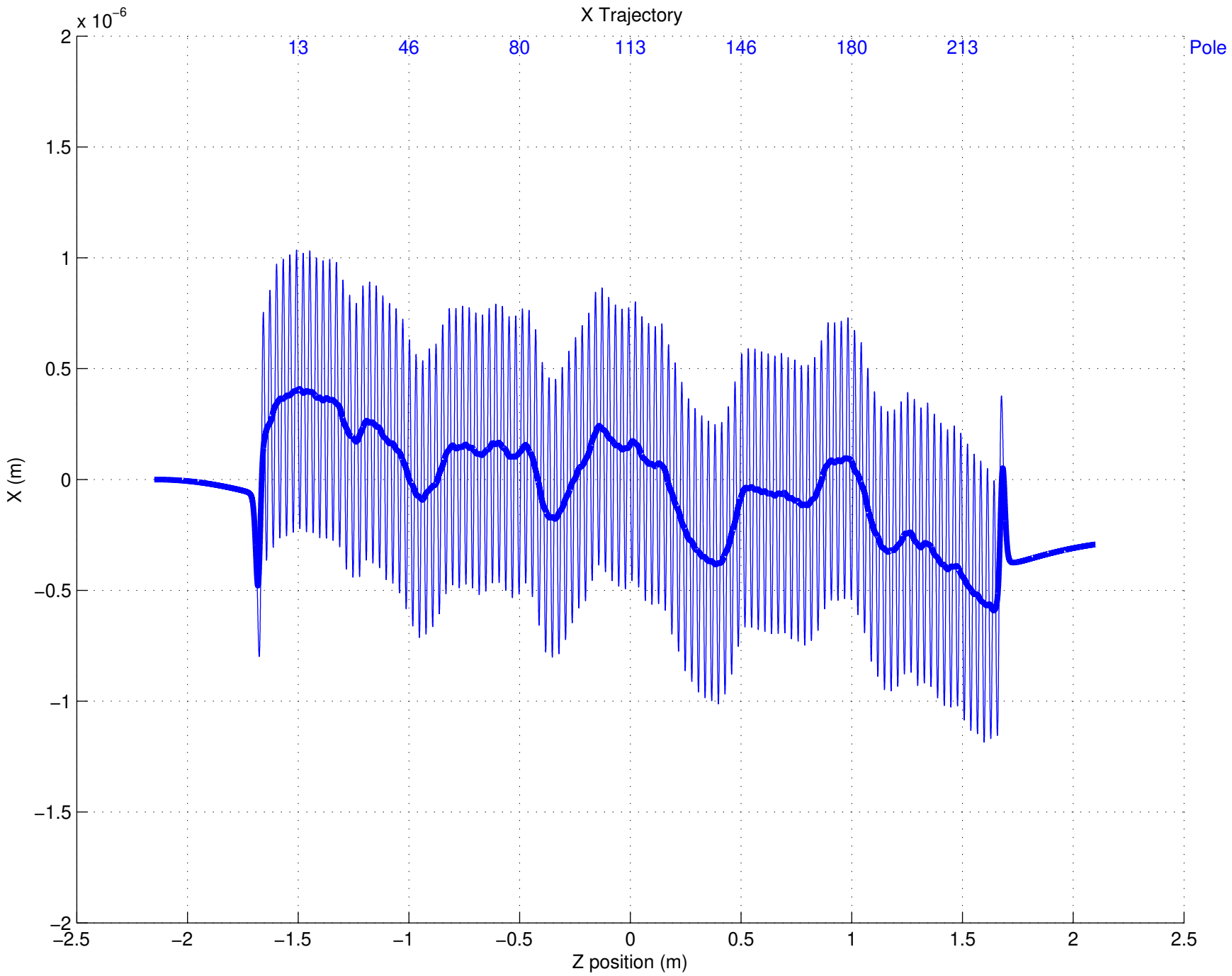
Temperature (C)
L143−112000−06:−−> T1 19.98 −−> T2 19.97 −−> T5 19.91 −−> T3 19.97 −−> Air 19.97 −−> T4 19.95

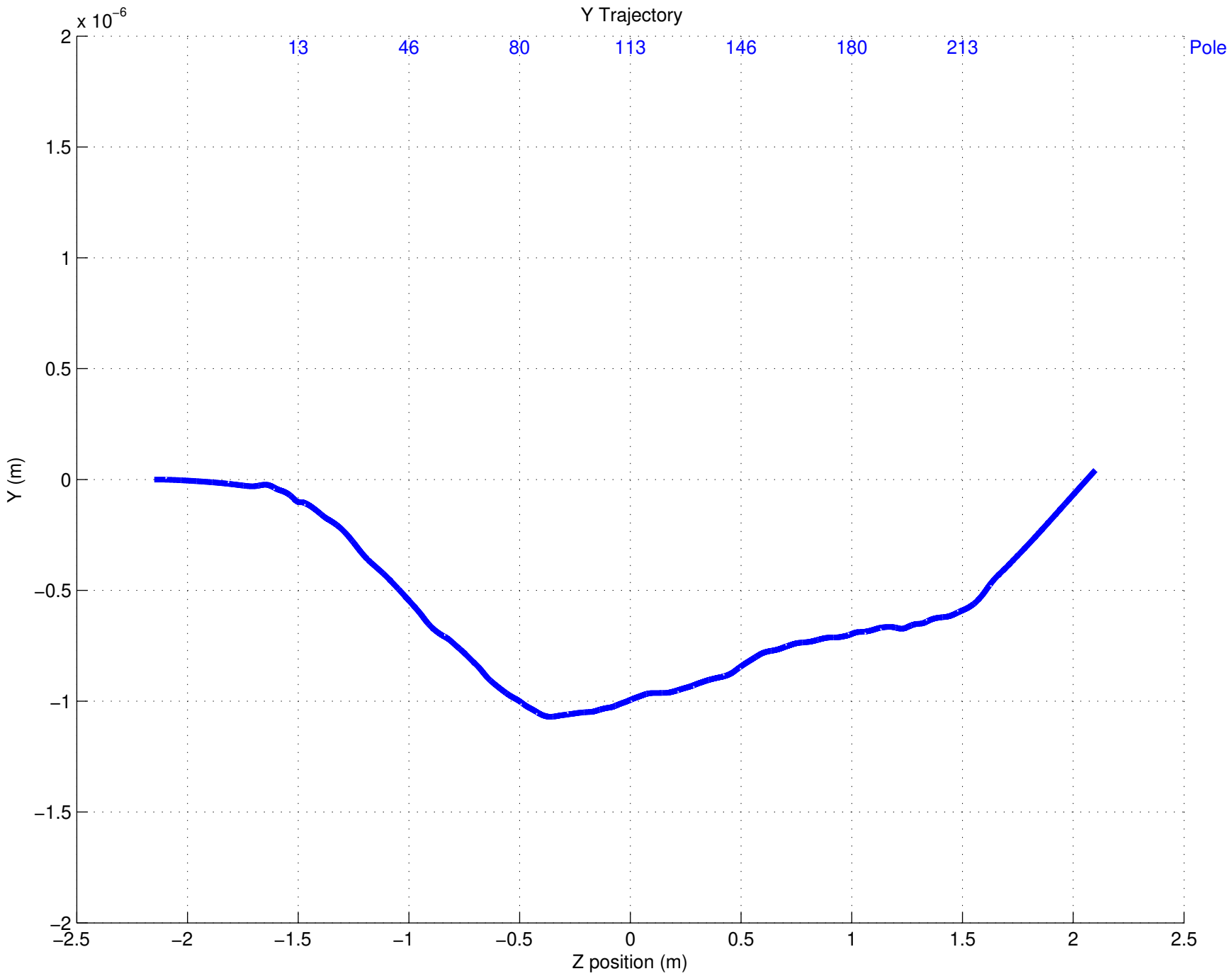
Axes position (m) X:0.029714 Y:0.000121
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001188 V
Vy_0i = −0.003213 V

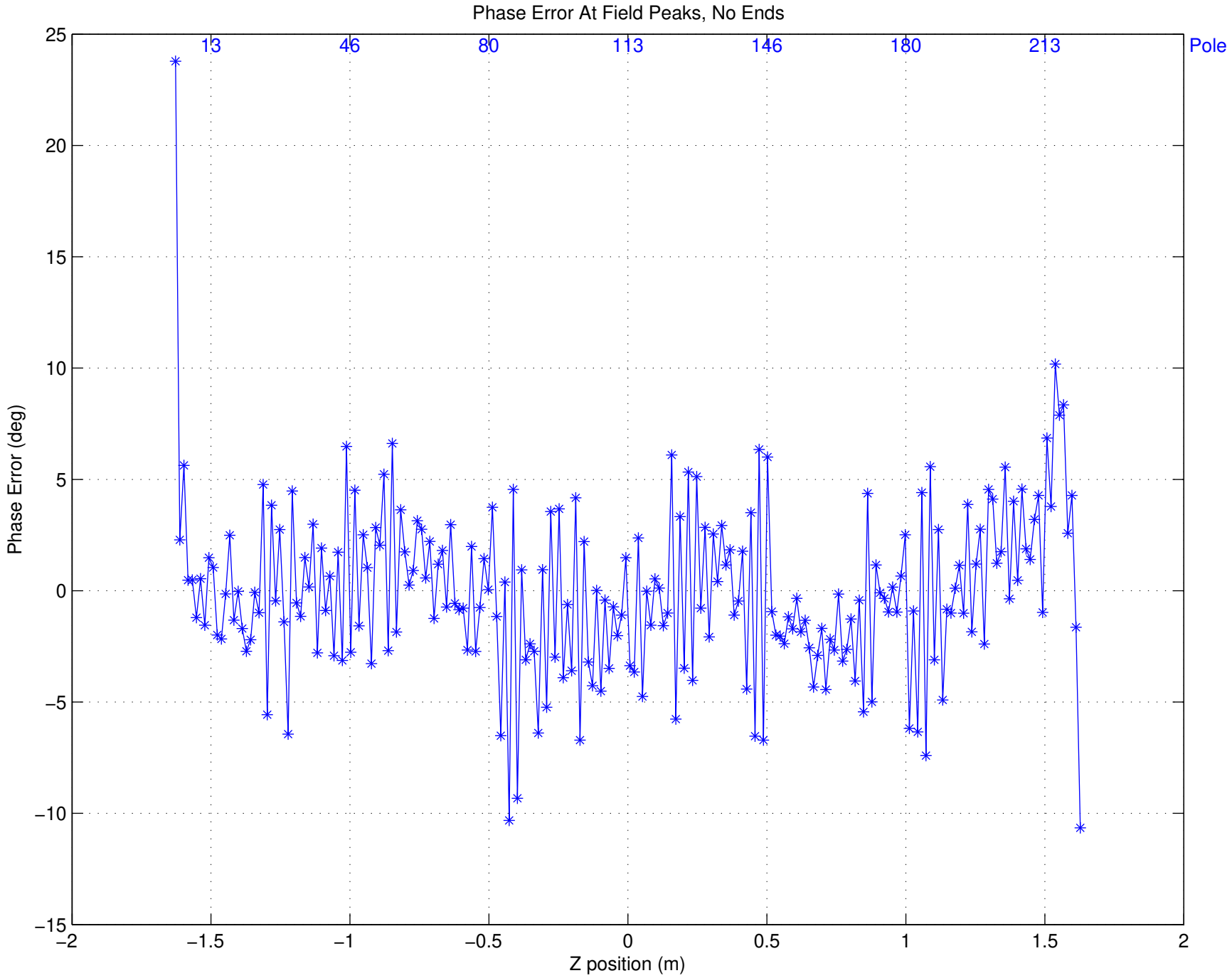

Bx vs Z
13
46
80
113
146
180
213
Pole
0.01
0.005
0
−0.005
−0.01
−0.015
Bx (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


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)

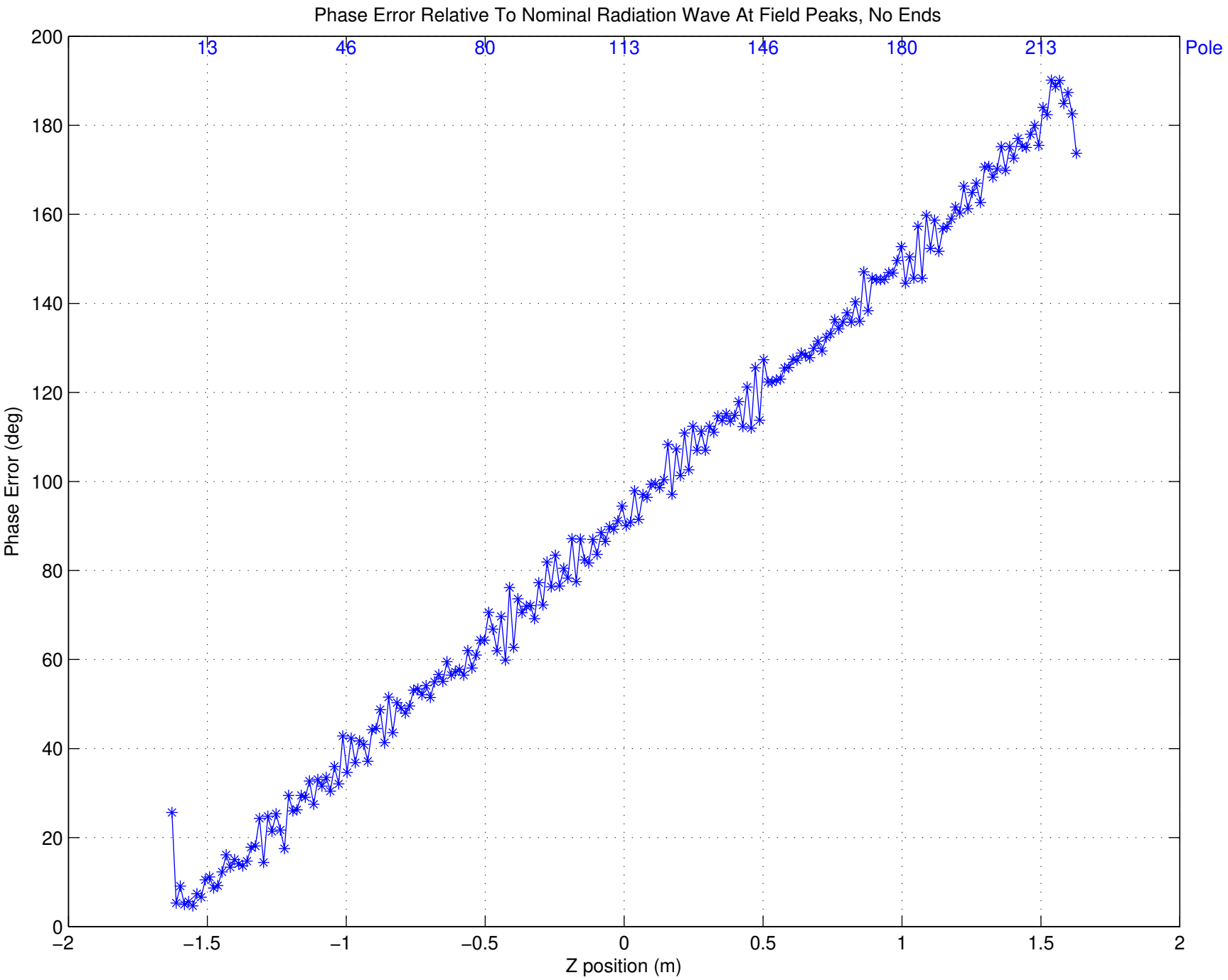

Delta By Peaks vs Pole Number
By (G)
Pole Number
100
0
−100
−200
−300
−400
−500
−600
−700
−800
0
20
40
60
80
100
120
140
160
180
200


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 = 3.823527 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
13
46
80
113
146
180
213
Pole
200
180
160
140
120
100
80
60
40
20
0
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)