SLAC Magnetic Measurements

Planar Insertion Device Analysis

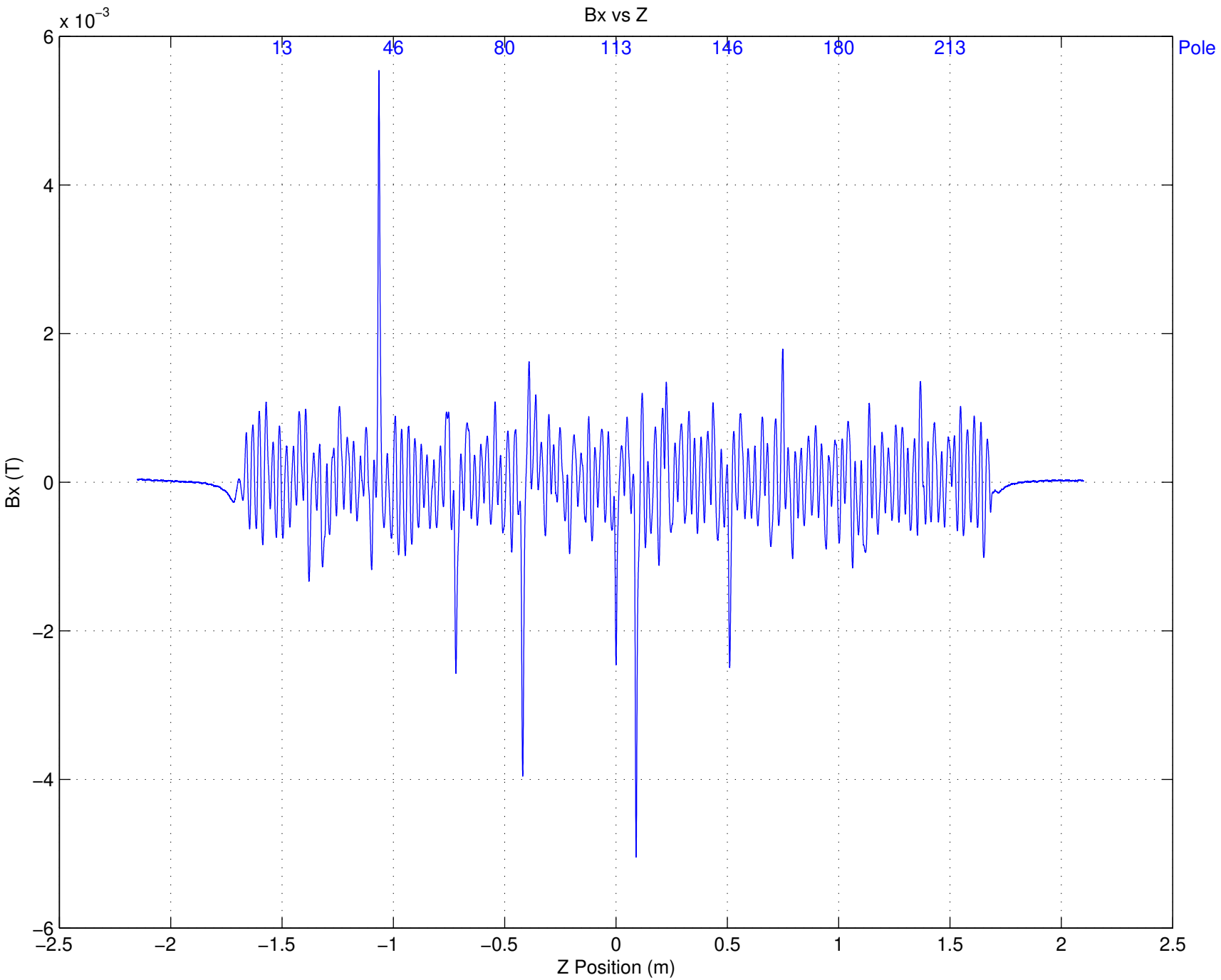
SLAC Magnetic Measurements
Date: 05−17−2010
Time: 14:26:06

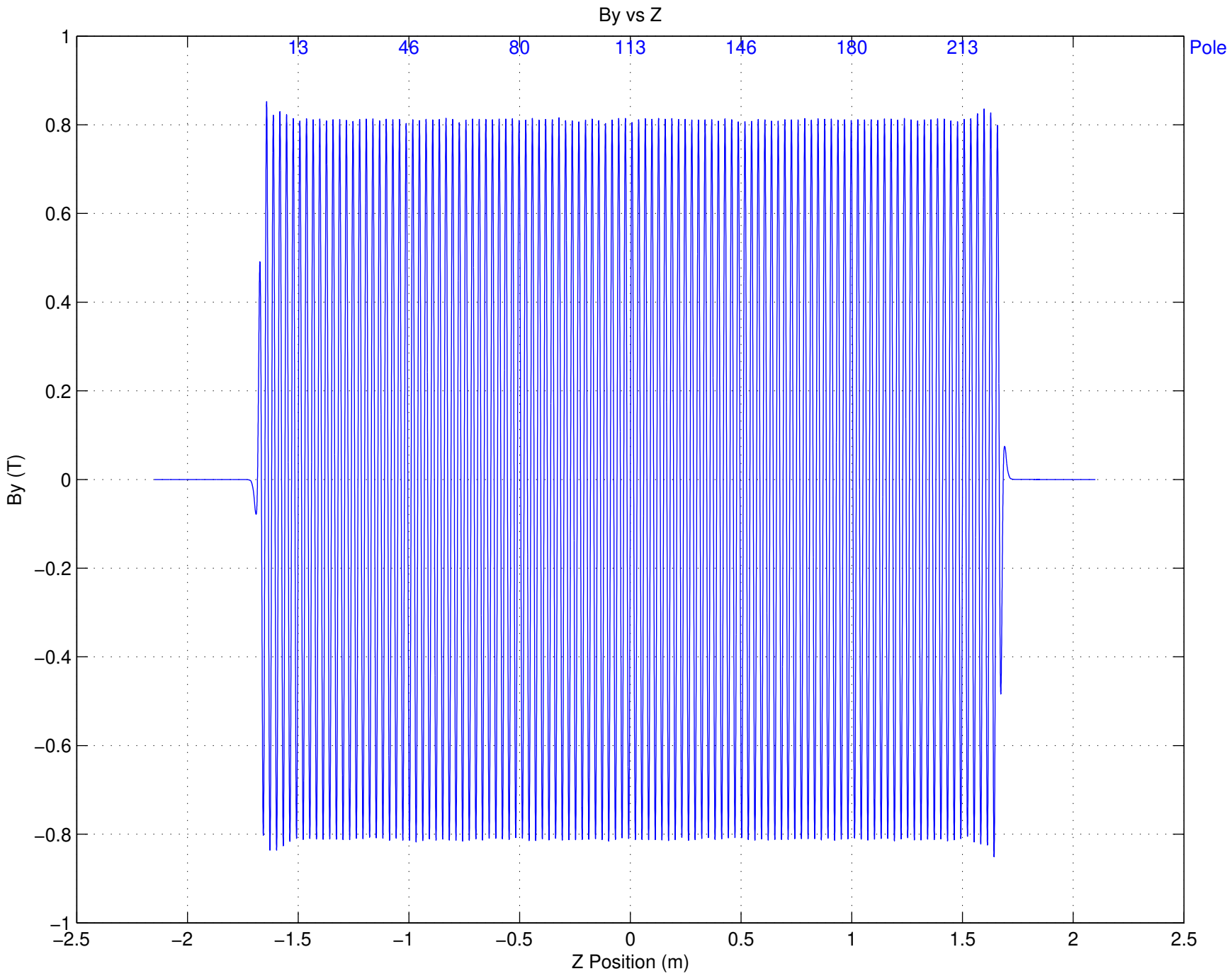
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−18
DATASET Number: 3
Tuning Stage: Fine Tuning
Run Number: 9
Measurement Type: Z Scans
Operator: YL
Comment: tuning; large gap
Session first run: 9
Measurement Device x:
Measurement Device y: $SENTRON_4$41

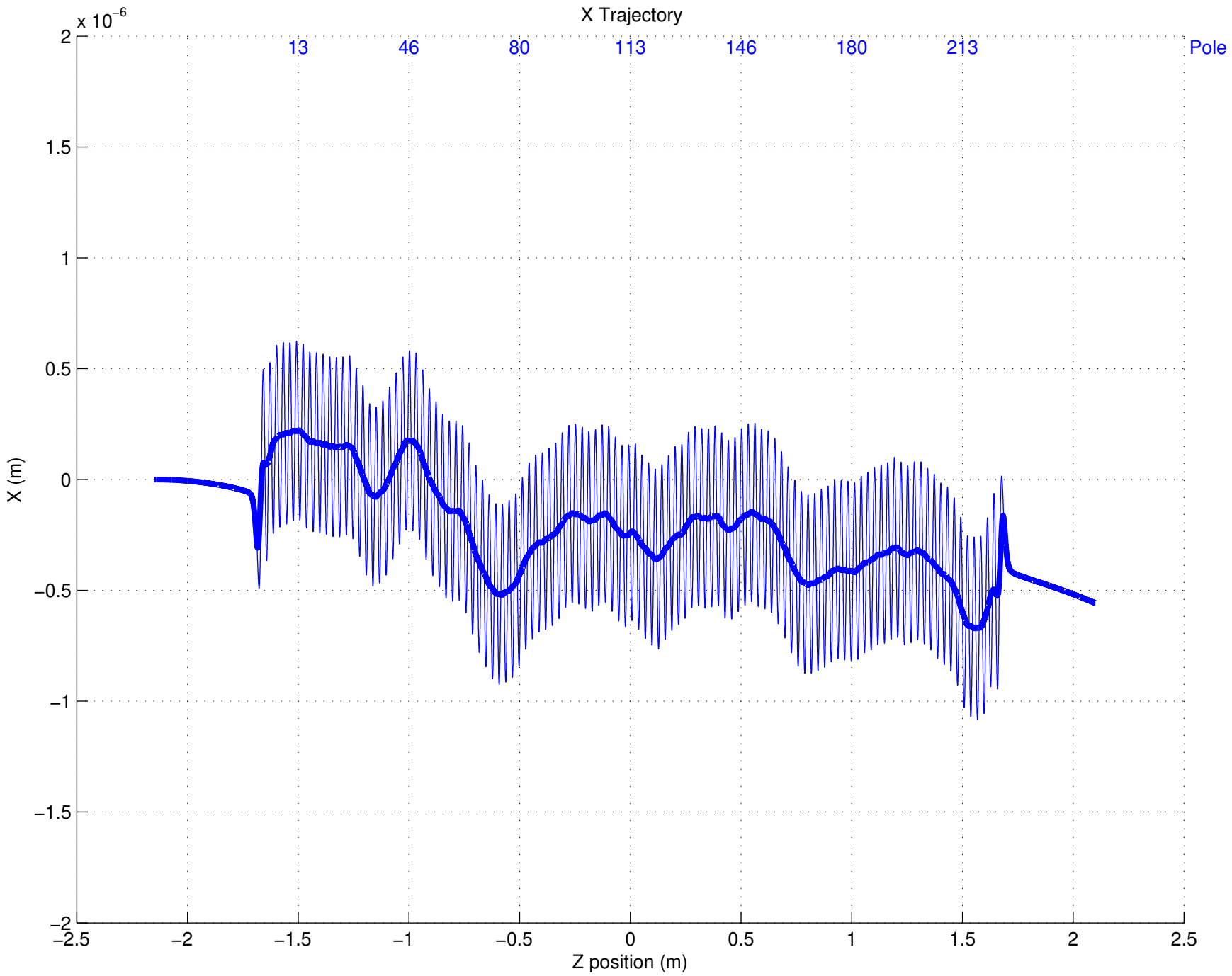
Data File: s:\magdata\LCLS\Undulator\L143−112000−18\DATASET0003\Fine Tuning\Z Scans\Run 009\bscanz.dat

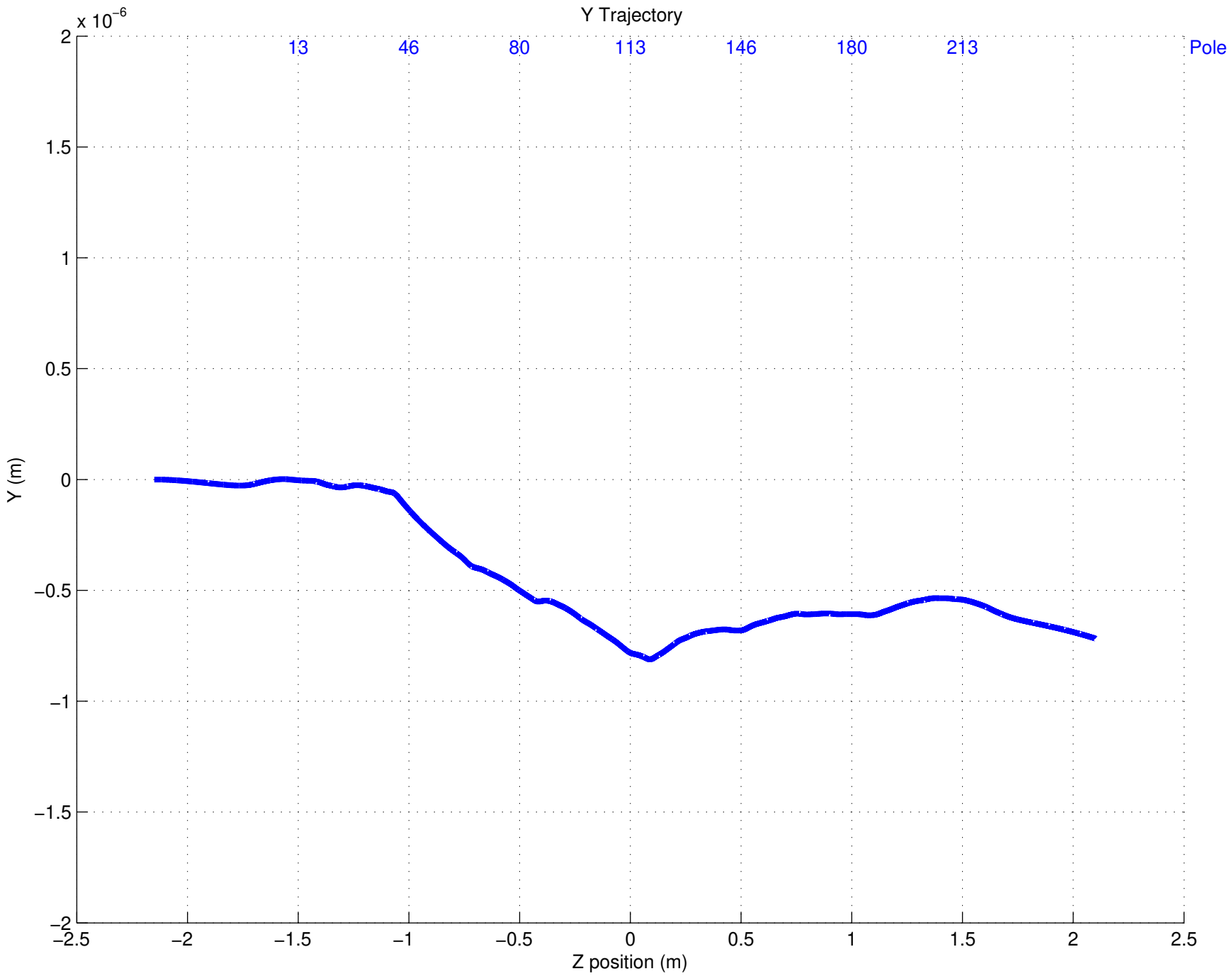
Temperature (C)
L143−112000−18:−−> T5 19.87 −−> T2 19.83 −−> T1 19.87 −−> T3 19.84 −−> Air 20.05 −−> T4 19.84

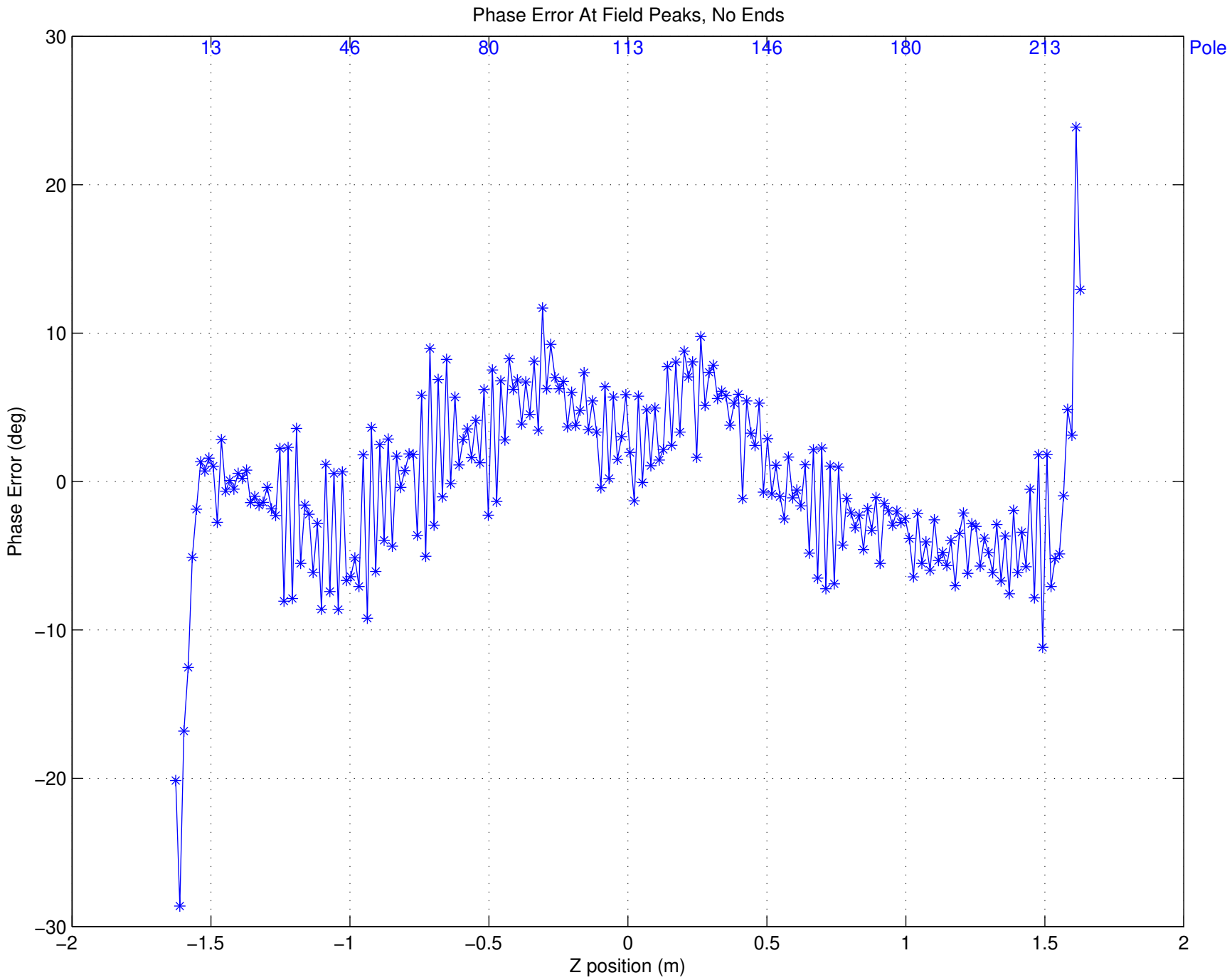
Axes position (m) X:0.026017 Y:0.000321
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001383 V
Vy_0i = −0.002861 V


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)

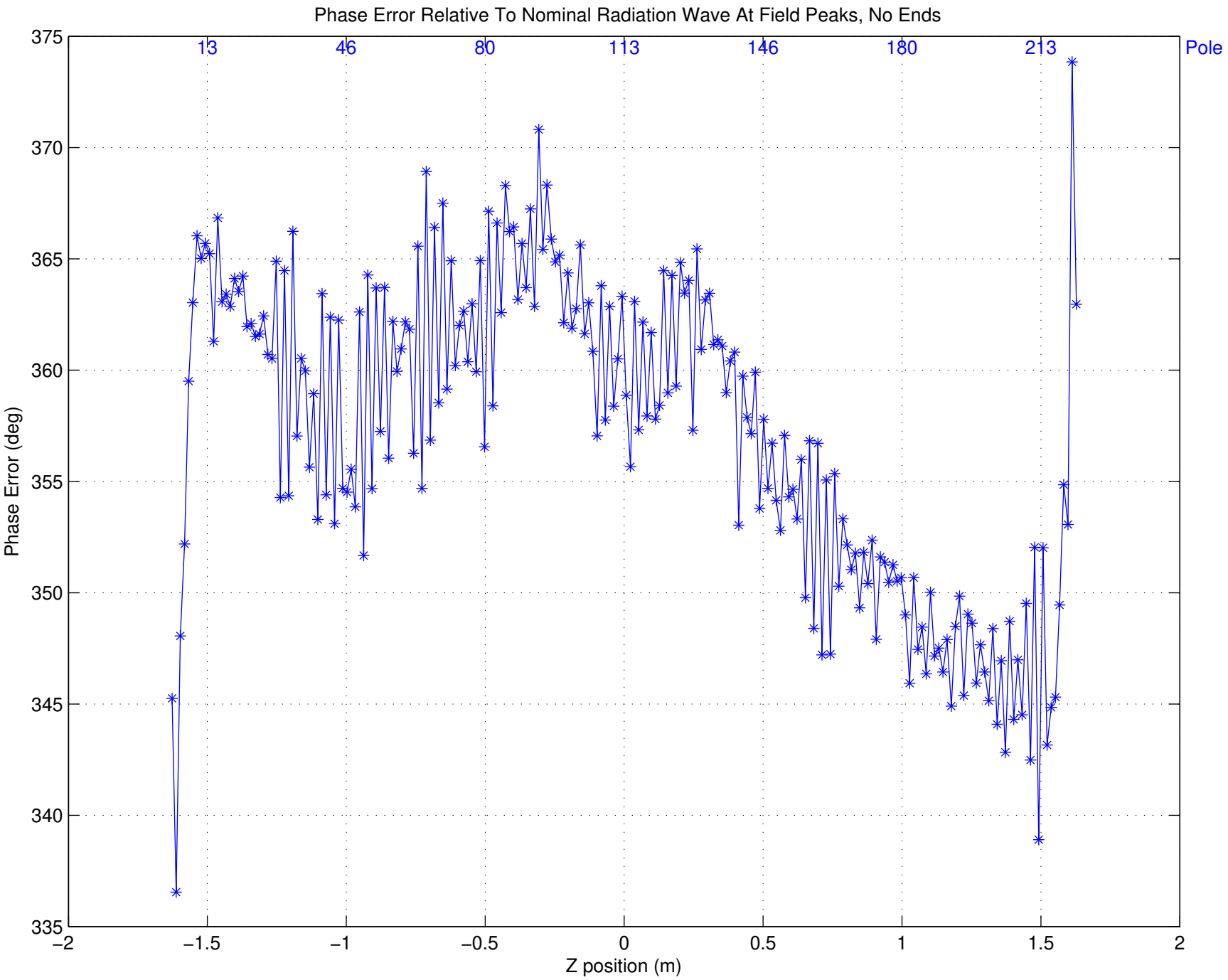

By vs Z
13
46
80
113
146
180
213
Pole
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


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 = 5.710178 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
13
46
80
113
146
180
213
Pole
375
370
365
360
355
350
345
340
335
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)