SLAC Magnetic Measurements

Planar Insertion Device Analysis

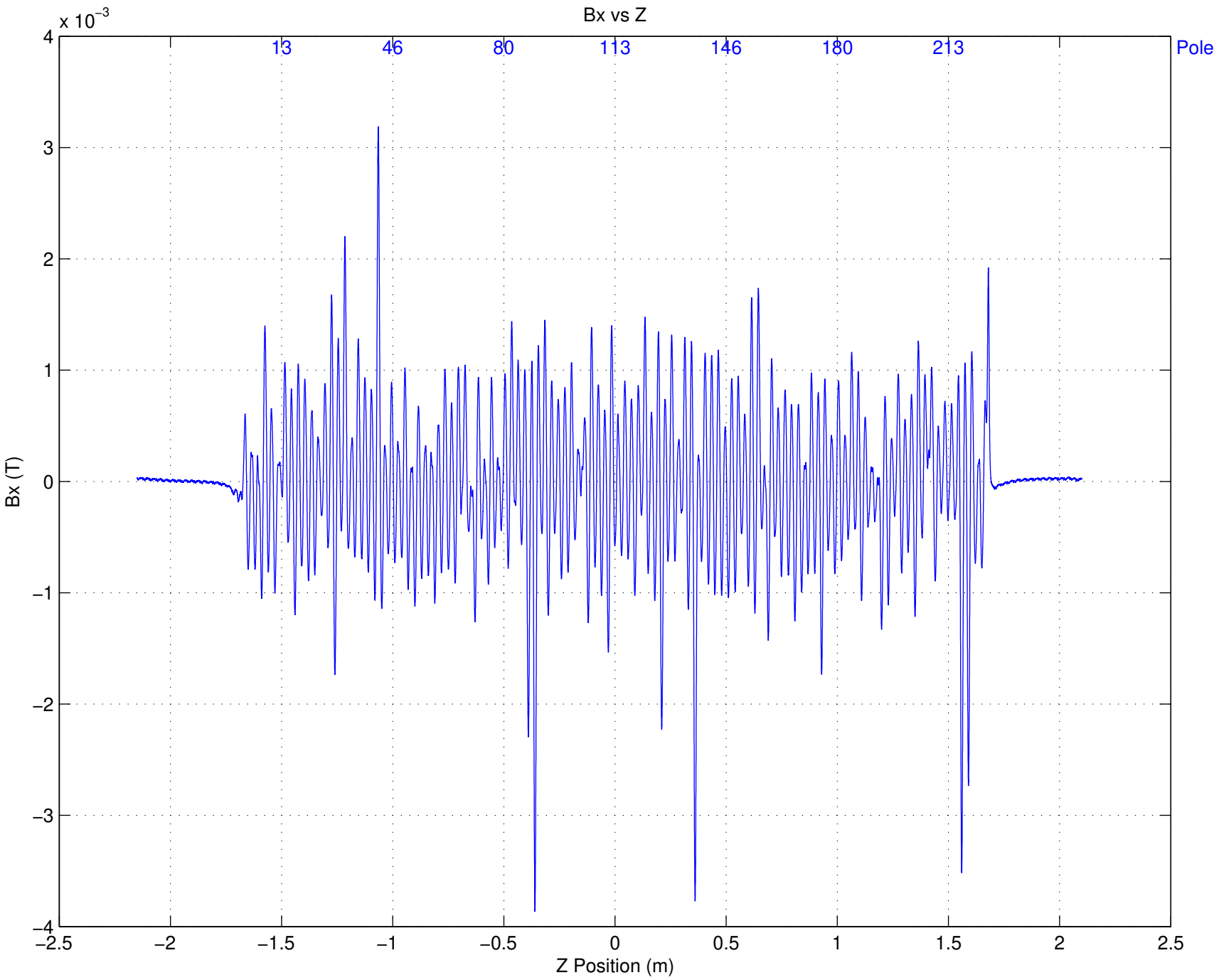
SLAC Magnetic Measurements
Date: 05−27−2010
Time: 08:48:47

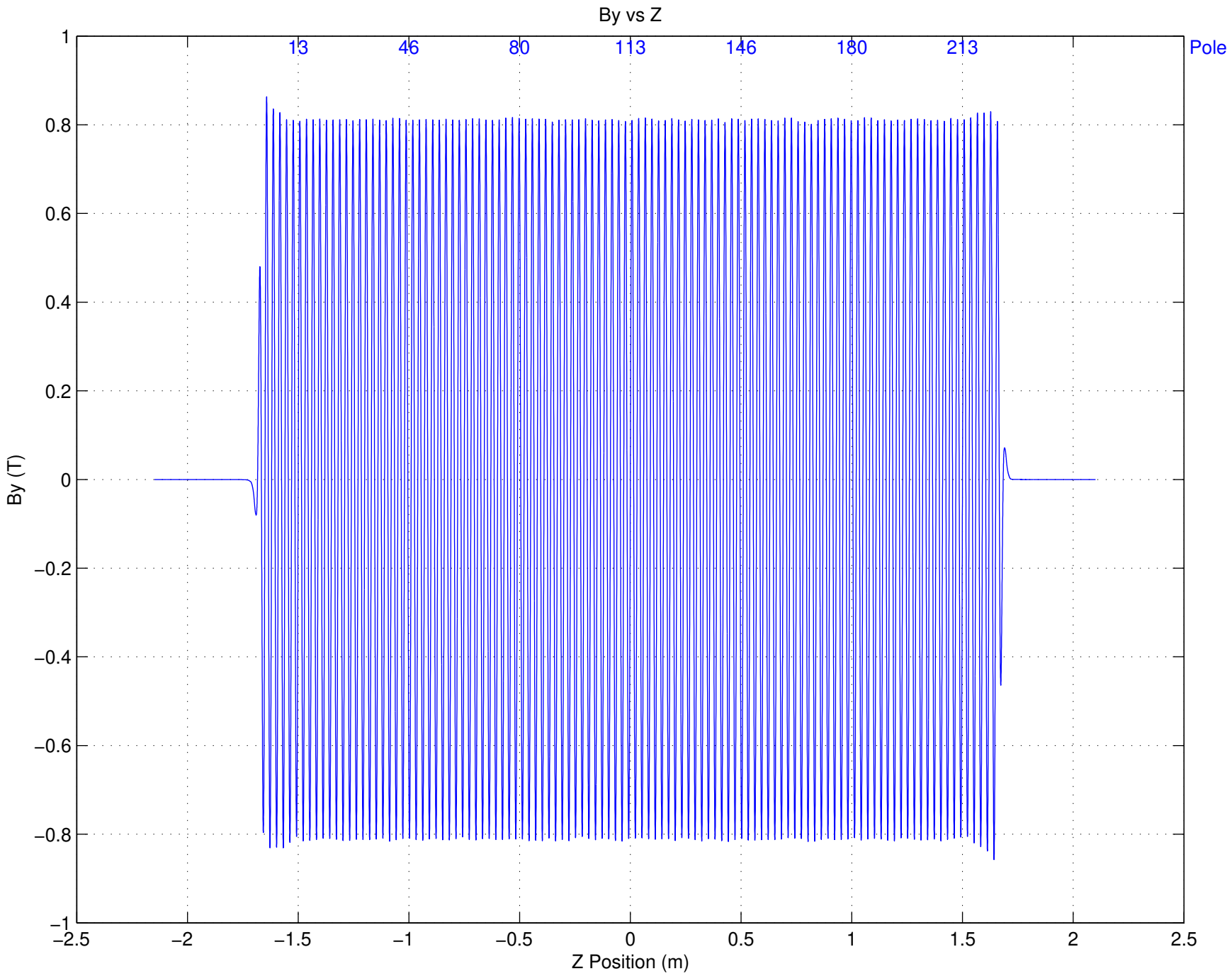
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−32
DATASET Number: 4
Tuning Stage: Fine Tuning
Run Number: 18
Measurement Type: Z Scans
Operator: YL
Comment: find first pole position; large gap
Session first run: 18
Measurement Device x:
Measurement Device y: $SENTRON_4$41

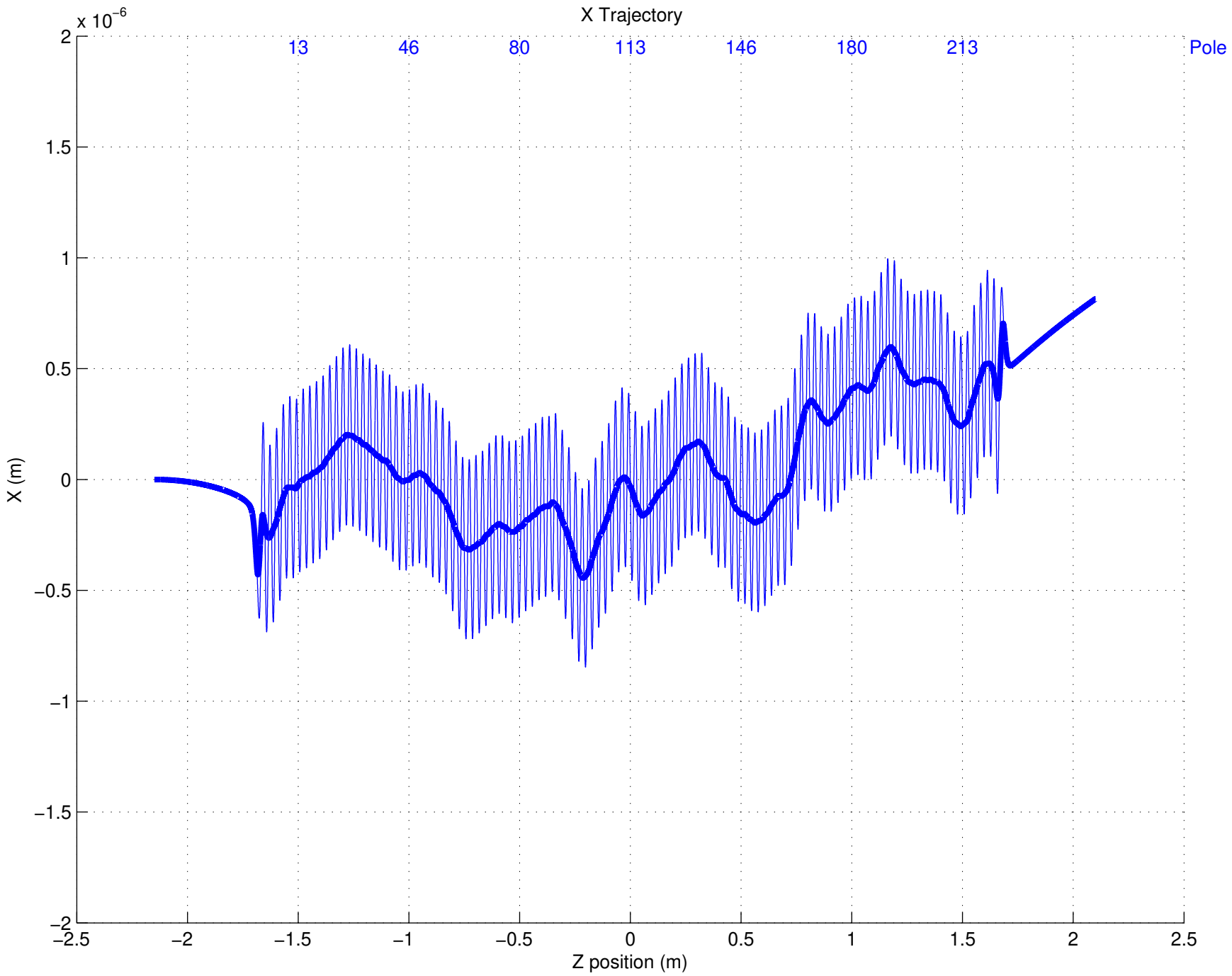
Data File: s:\magdata\LCLS\Undulator\L143−112000−32\DATASET0004\Fine Tuning\Z Scans\Run 018\bscanz.dat

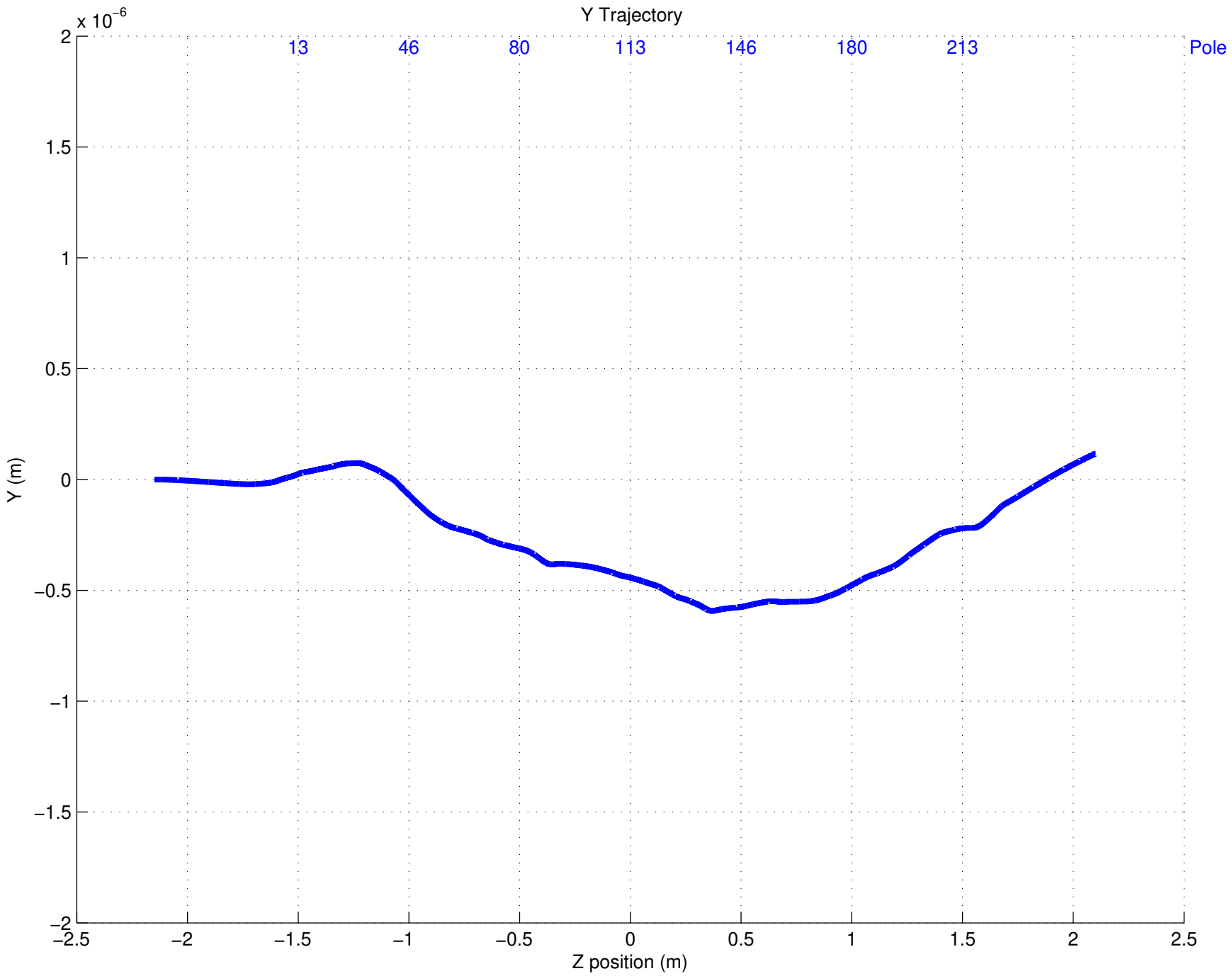
Temperature (C)
L143−112000−32:−−> T5 20.10 −−> T2 20.03 −−> T1 20.08 −−> T3 20.02 −−> Air 20.09 −−> T4 20.03

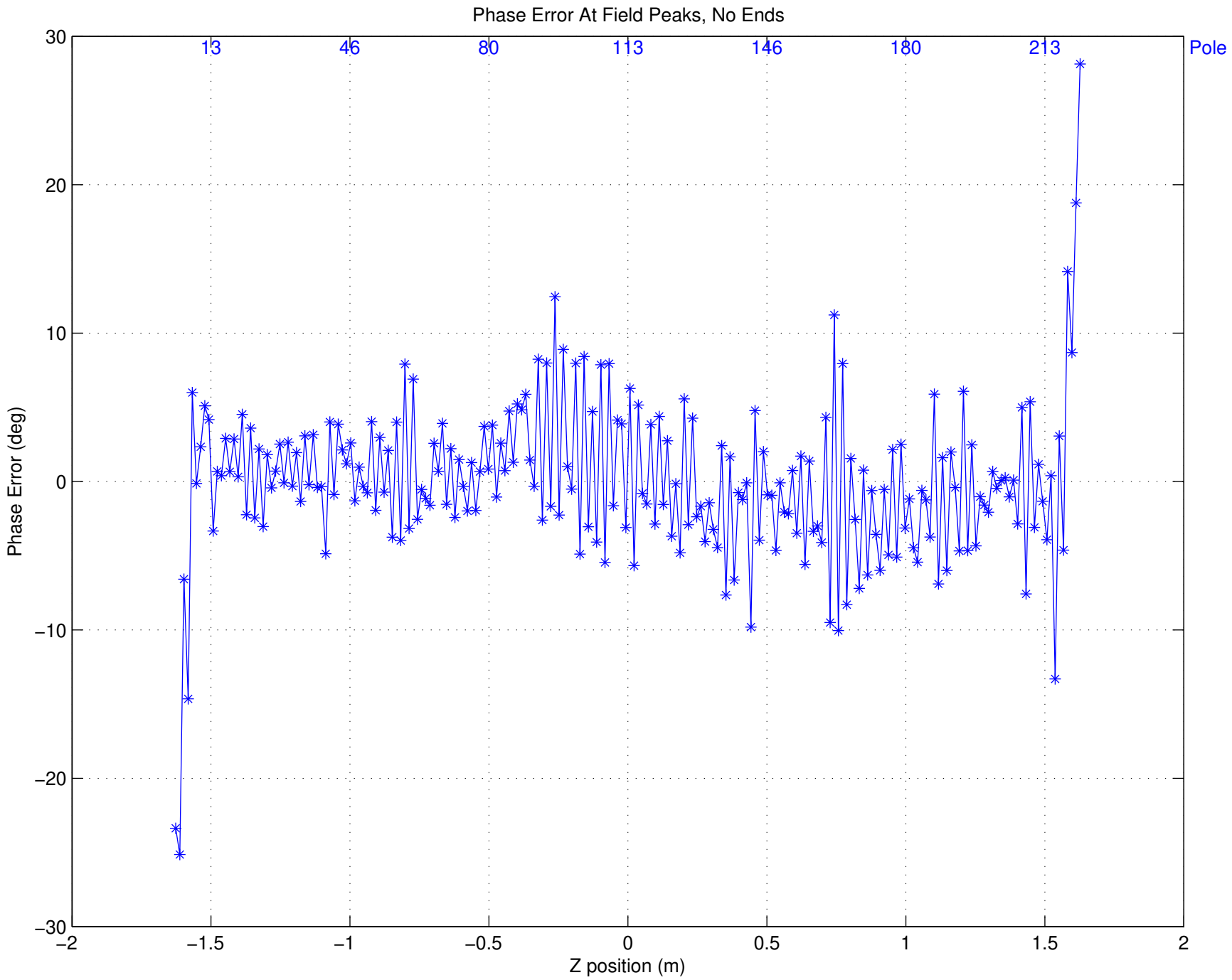
Axes position (m) X:0.026327 Y:0.000335
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001282 V
Vy_0i = −0.003029 V


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
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5

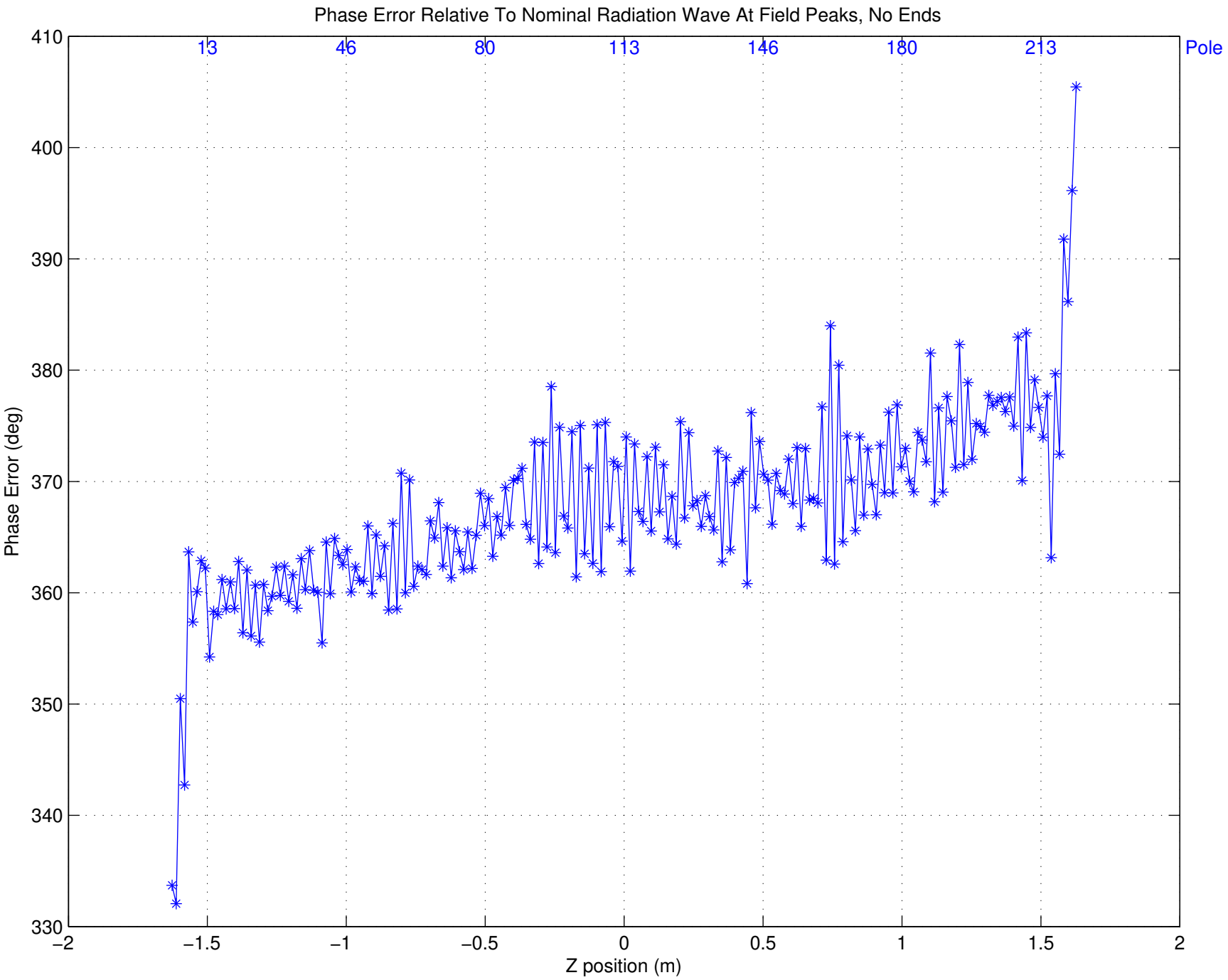

By vs Z
13
46
80
113
146
180
213
Pole
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


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 = 5.414560 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
13
46
80
113
146
180
213
Pole
410
400
390
380
370
360
350
340
330
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)