SLAC Magnetic Measurements

Planar Insertion Device Analysis

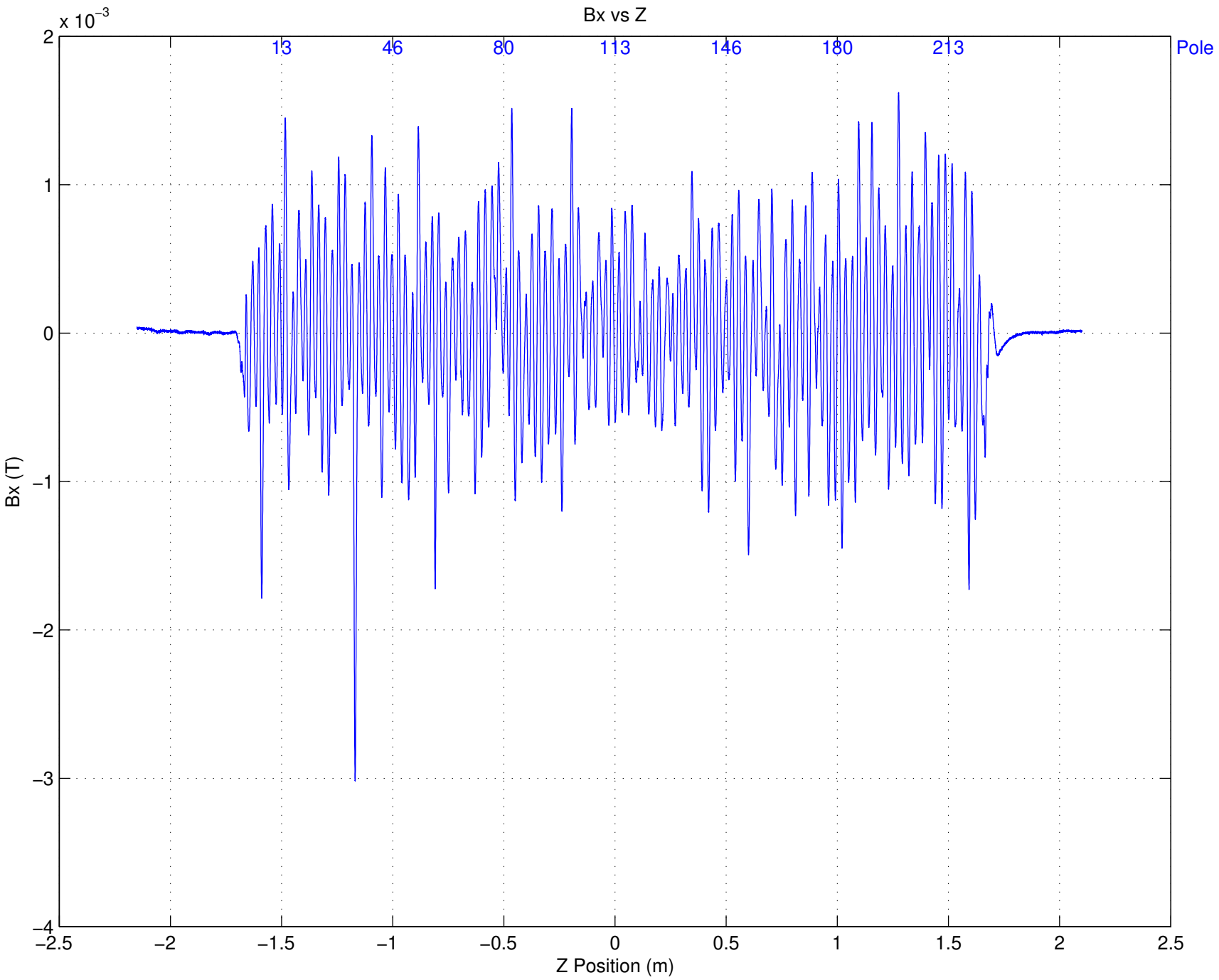
SLAC Magnetic Measurements
Date: 07−07−2010
Time: 15:47:20

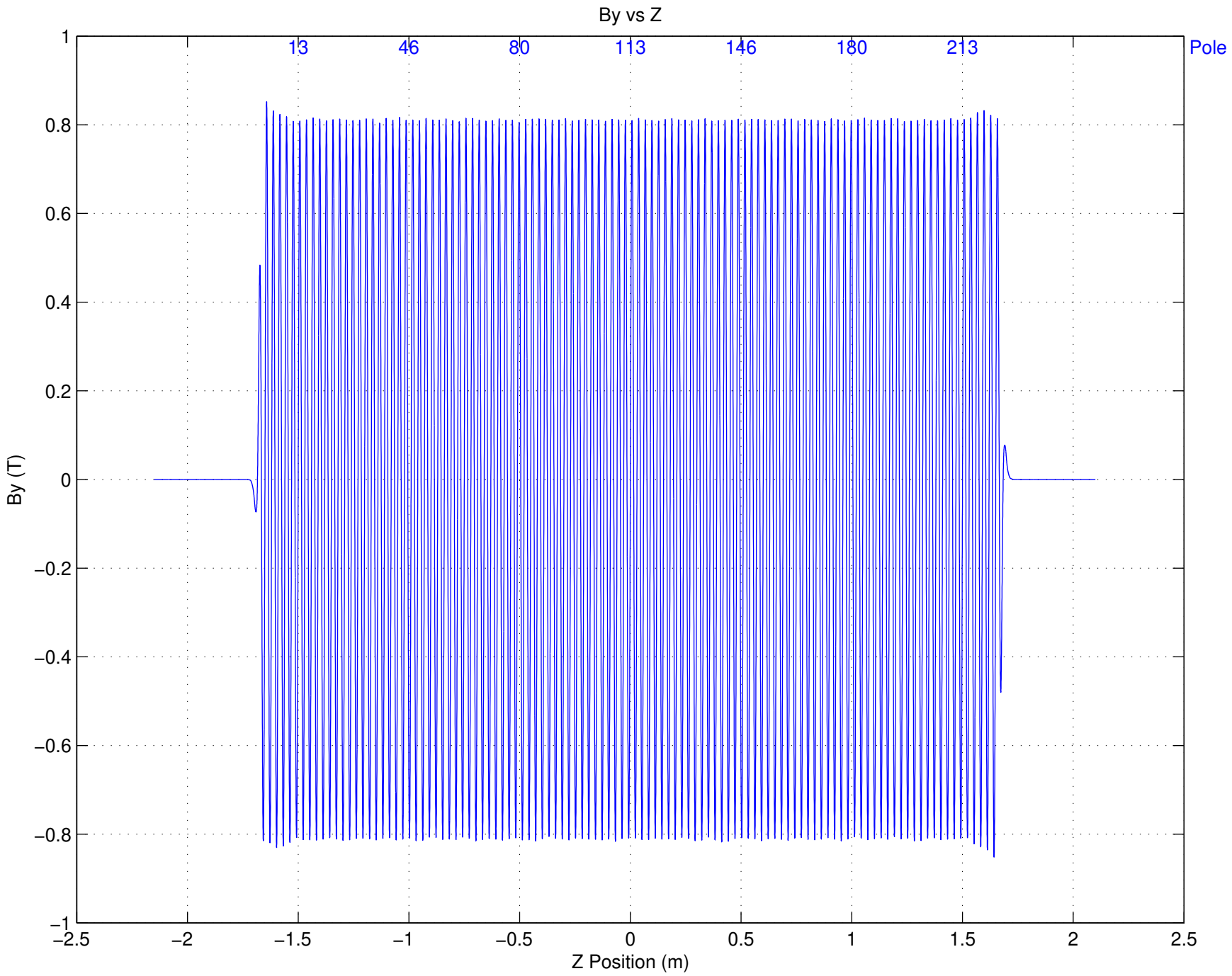
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−01
DATASET Number: 1
Tuning Stage: Fine Tuning
Run Number: 10
Measurement Type: Z Scans
Operator: YL
Comment: check before gluing shims
Session first run: 11
Measurement Device x:
Measurement Device y: $SENTRON_4$41

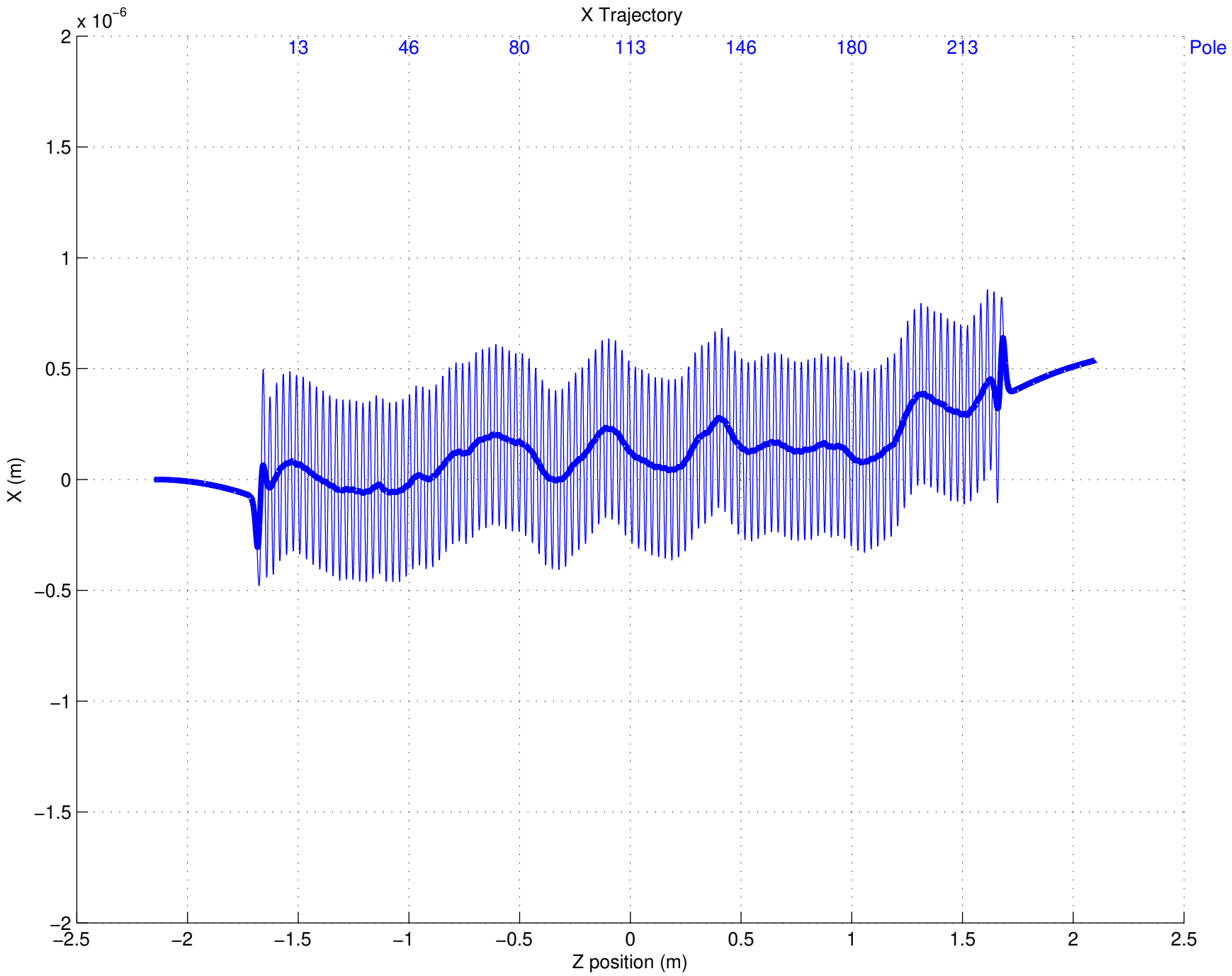
Data File: s:\magdata\LCLS\Undulator\L143−112000−01\DATASET0001\Fine Tuning\Z Scans\Run 010\bscanz.dat

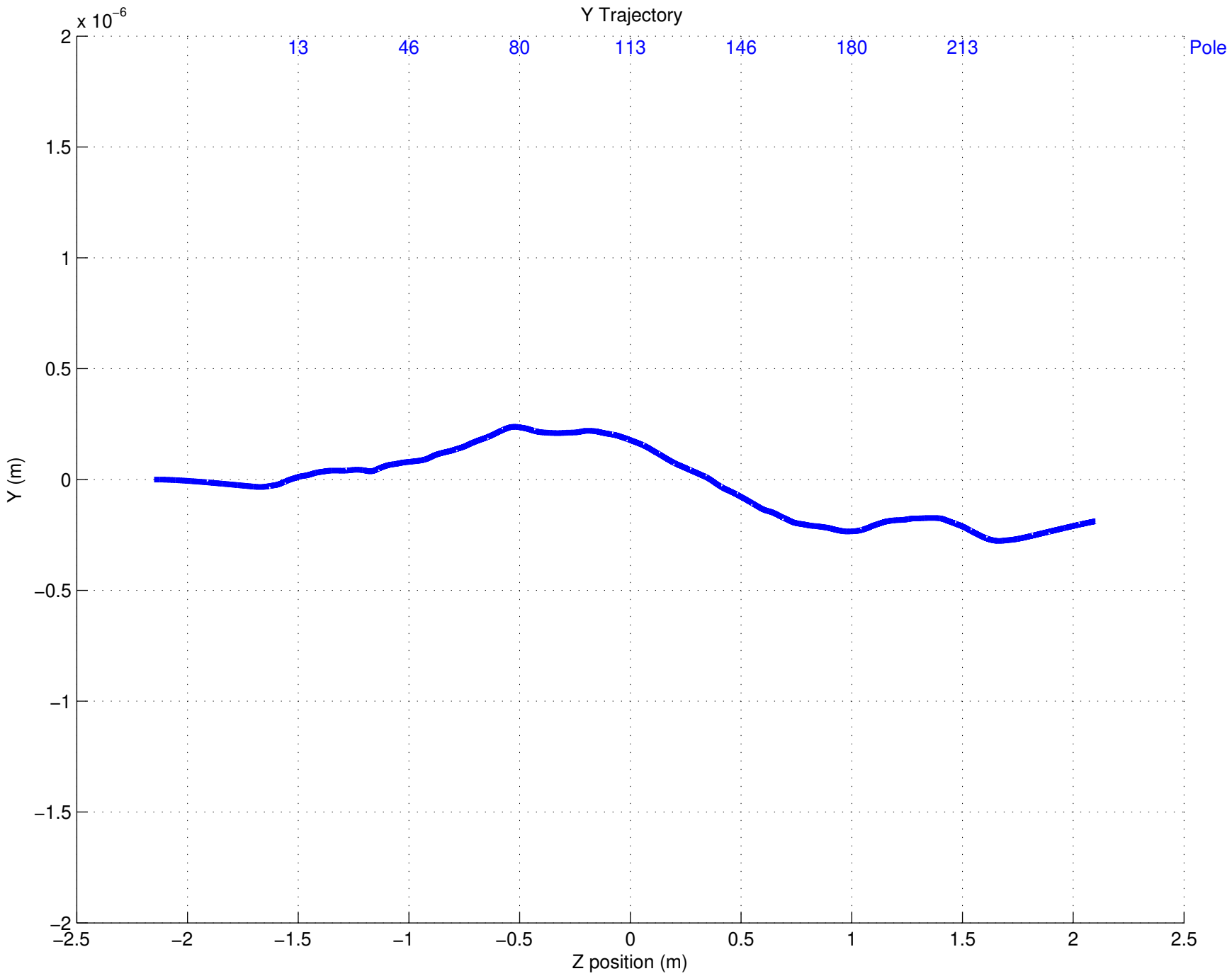
Temperature (C)
L143−112000−01:−−> T5 20.01 −−> T2 20.01 −−> T1 20.06 −−> T3 20.02 −−> Air 20.03 −−> T4 20.02

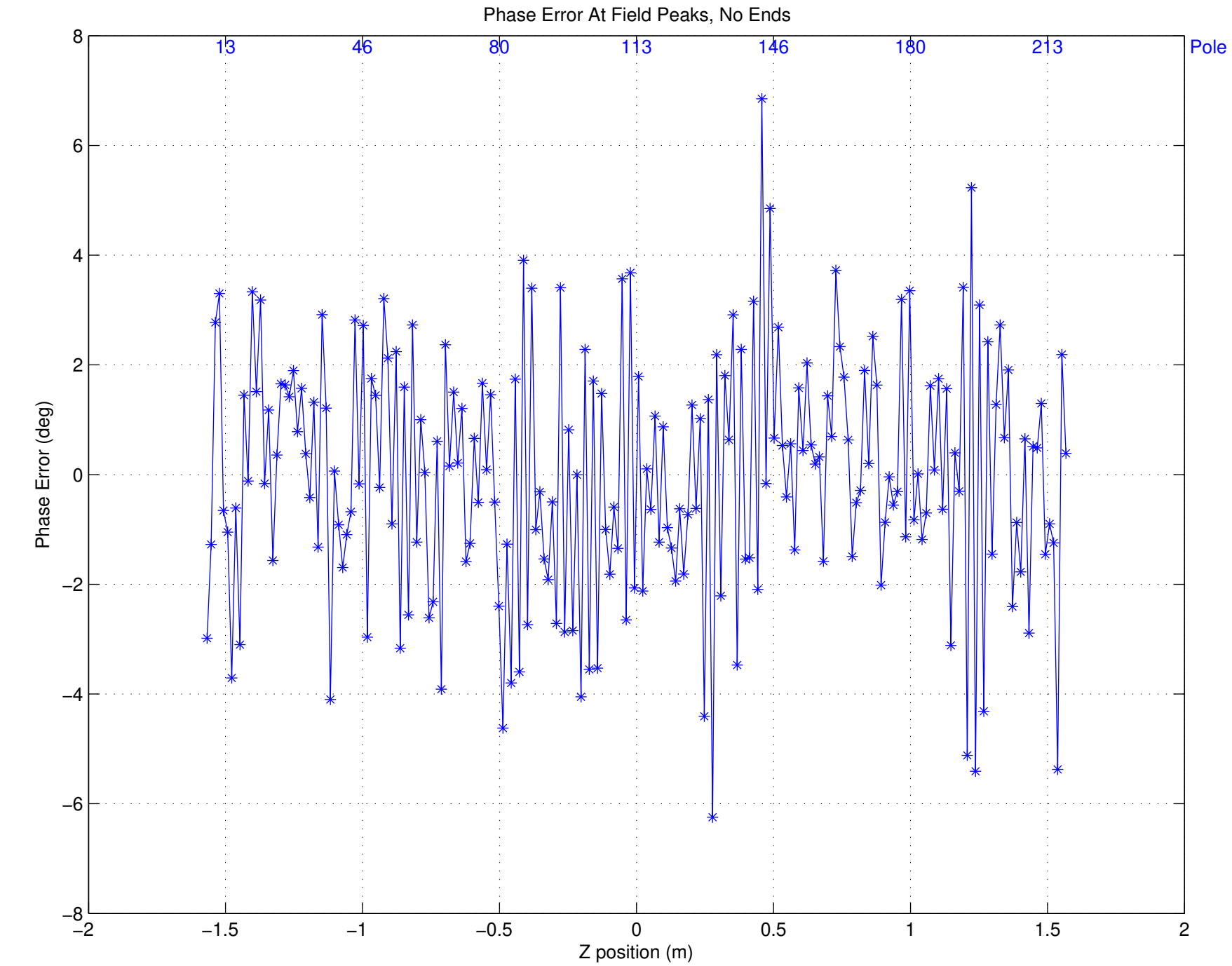
Axes position (m) X:0.038706 Y:0.000286
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001246 V
Vy_0i = −0.002790 V


Bx vs Z
x 10^-3
2
1
0
−1
−2
−3
−4
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)

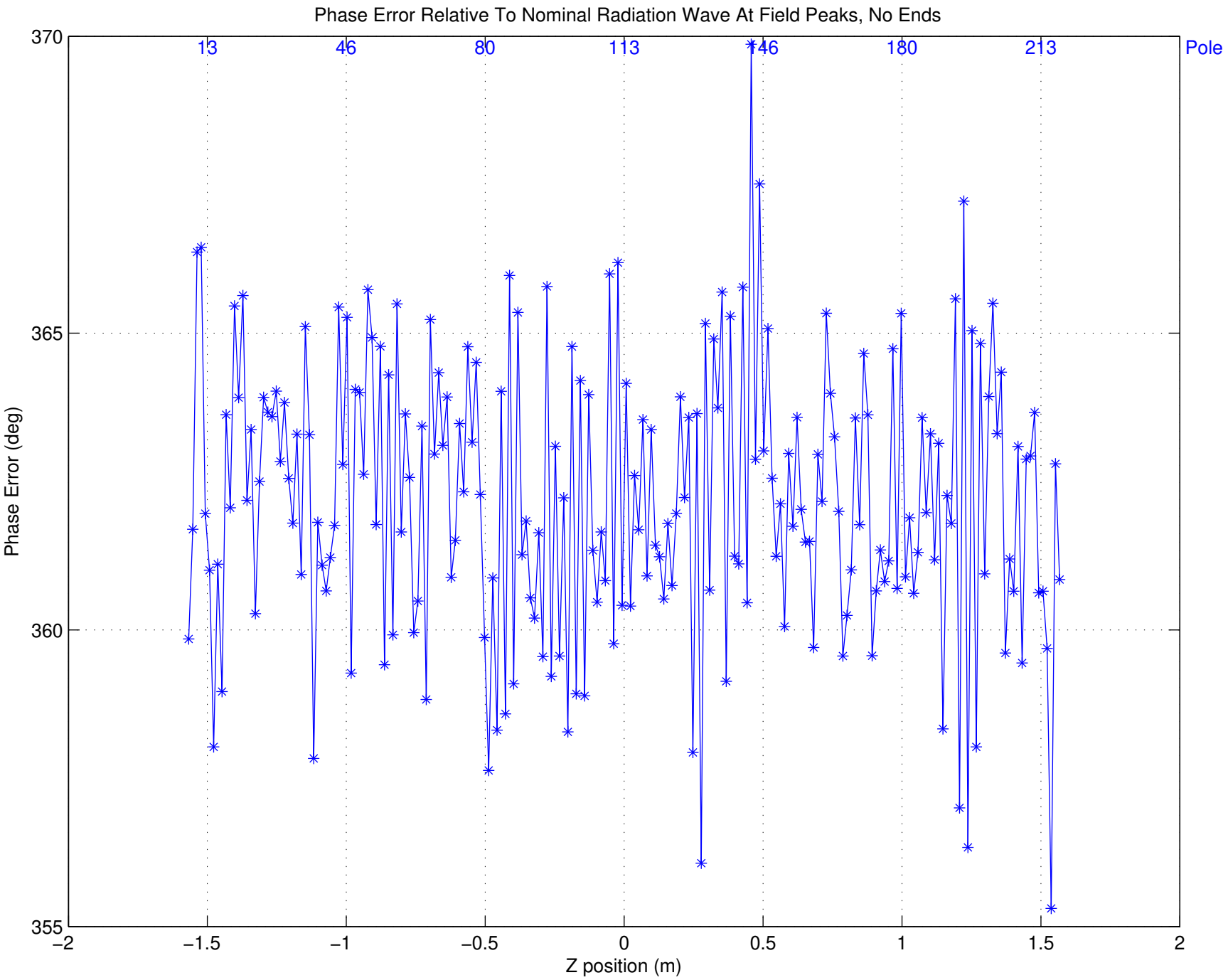

By vs Z
13
46
80
113
146
180
213
Pole
1
0.8
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


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 = 2.208483 deg


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