SLAC Magnetic Measurements

Planar Insertion Device Analysis

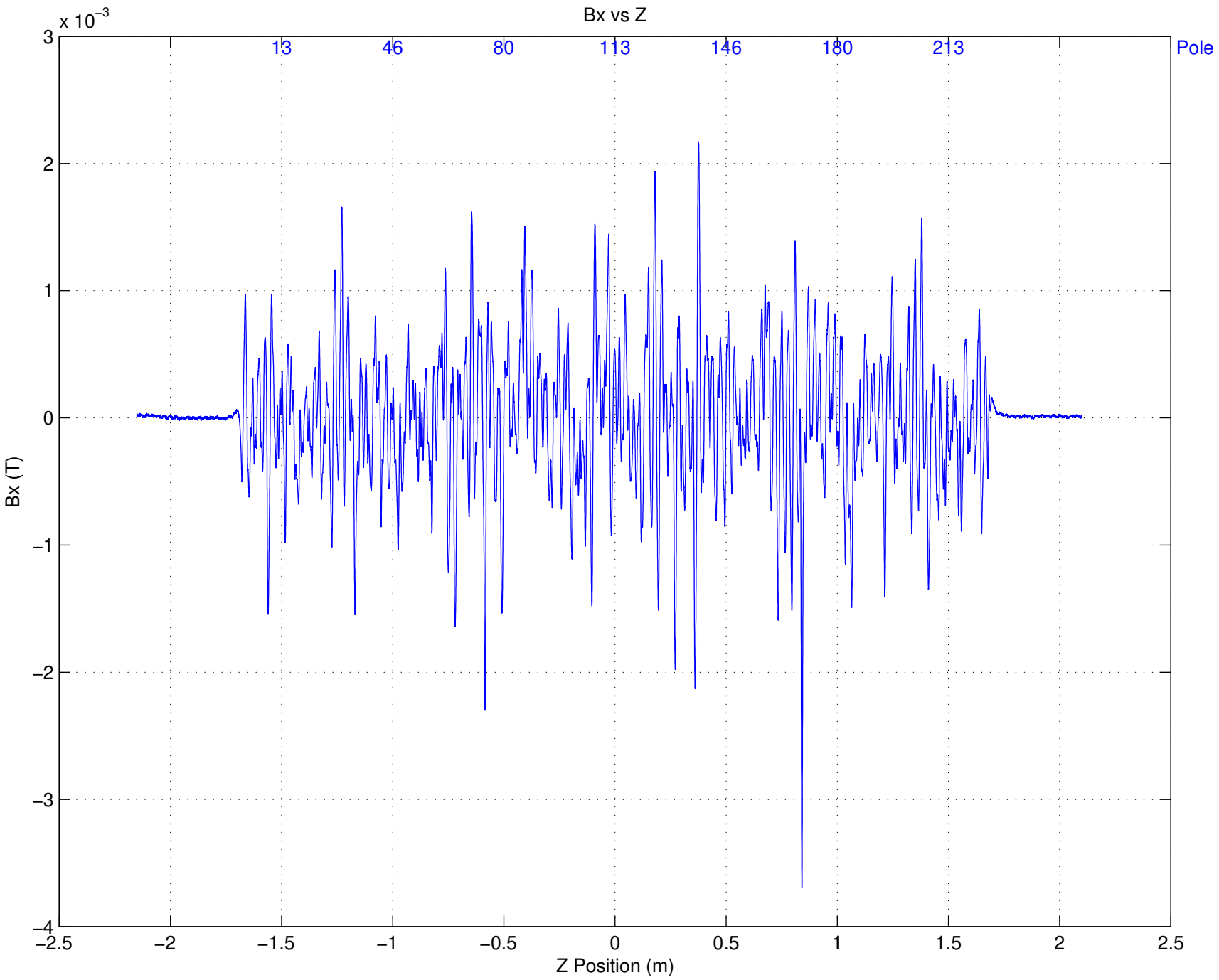
SLAC Magnetic Measurements
Date: 09−18−2012
Time: 10:19:01

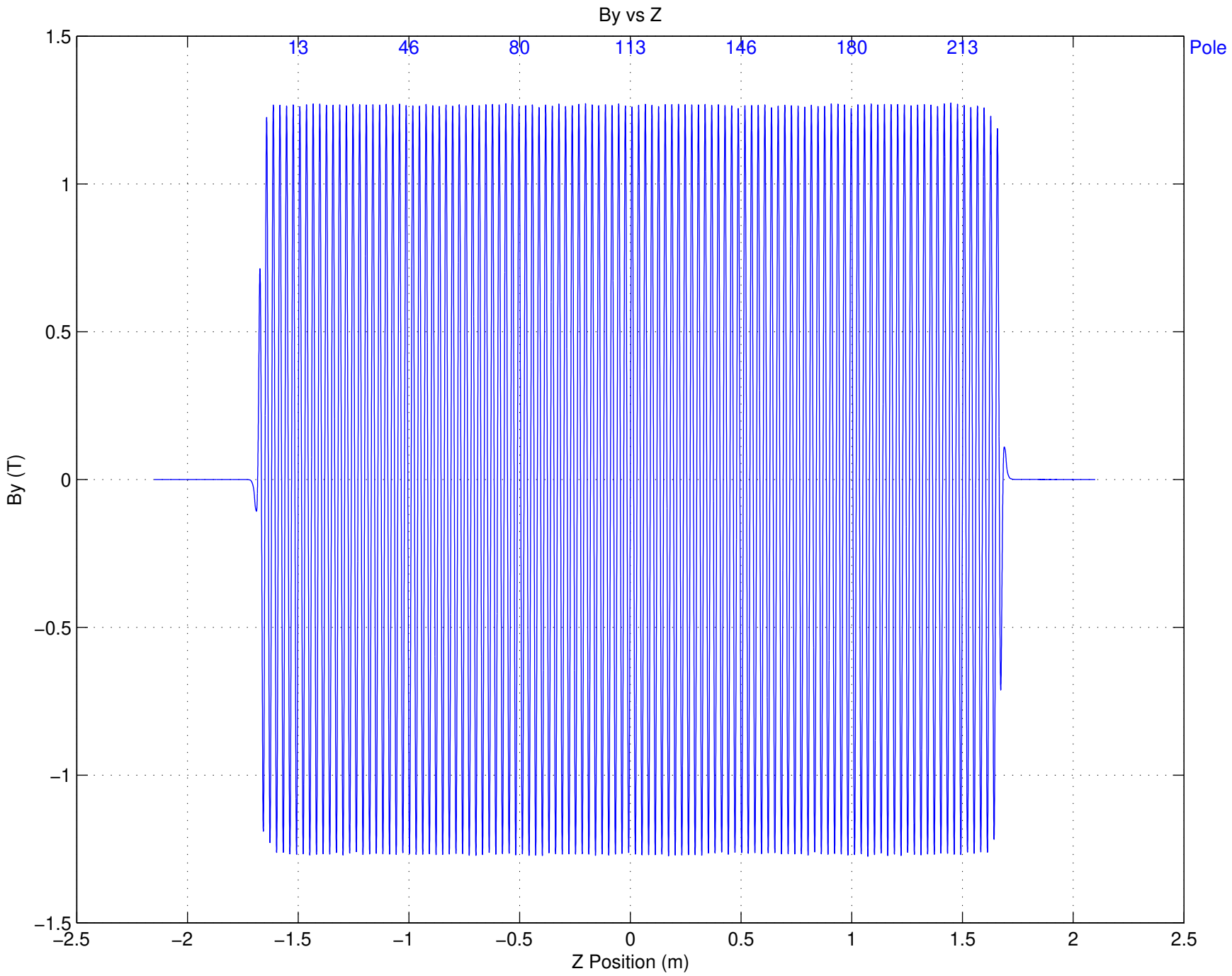
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: L143−112000−20
DATASET Number: 8
Tuning Stage: Fine Tuning
Run Number: 5
Measurement Type: Z Scans
Operator: YL
Comment: find Y at min K
Session first run: 5
Measurement Device x:
Measurement Device y: $SENTRON_4$41

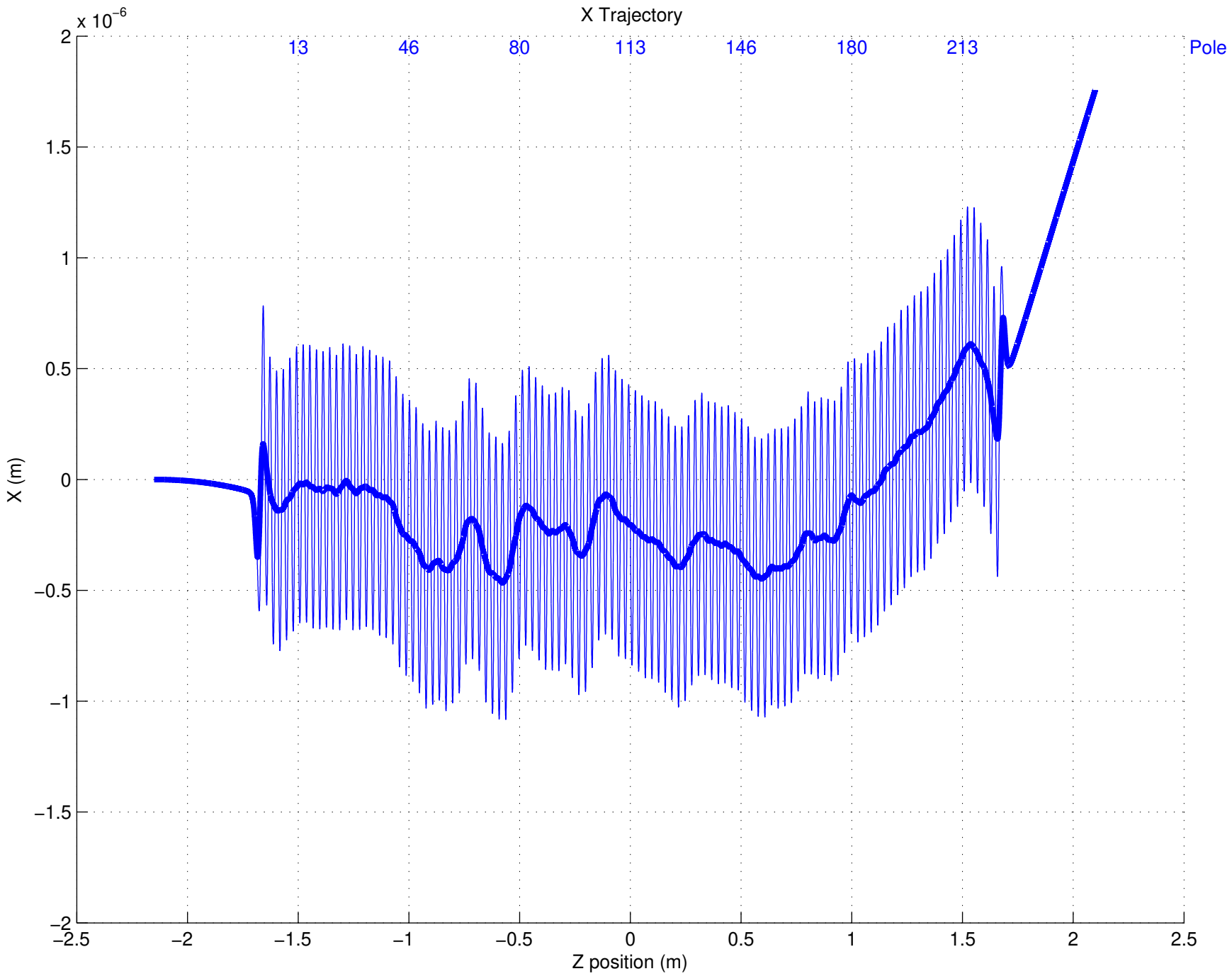
Data File: s:\magdata\LCLS\Undulator\L143−112000−20\DATASET0008\Fine Tuning\Z Scans\Run 005\bscanz.dat

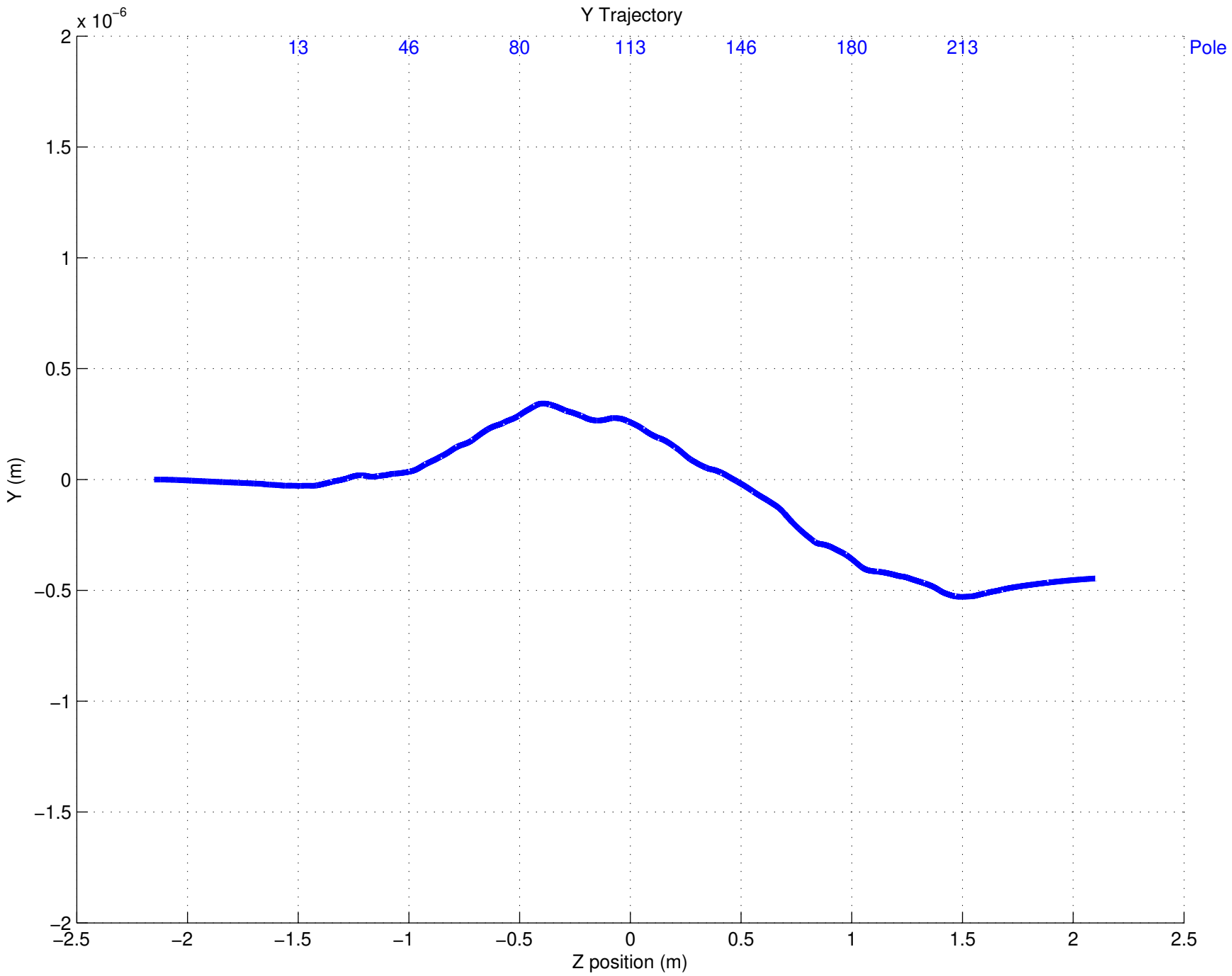
Temperature (C)
L143−112000−20:−−> T1 20.05 −−> T2 20.05 −−> T5 20.01 −−> T3 20.05 −−> Air 19.98 −−> T4 20.04

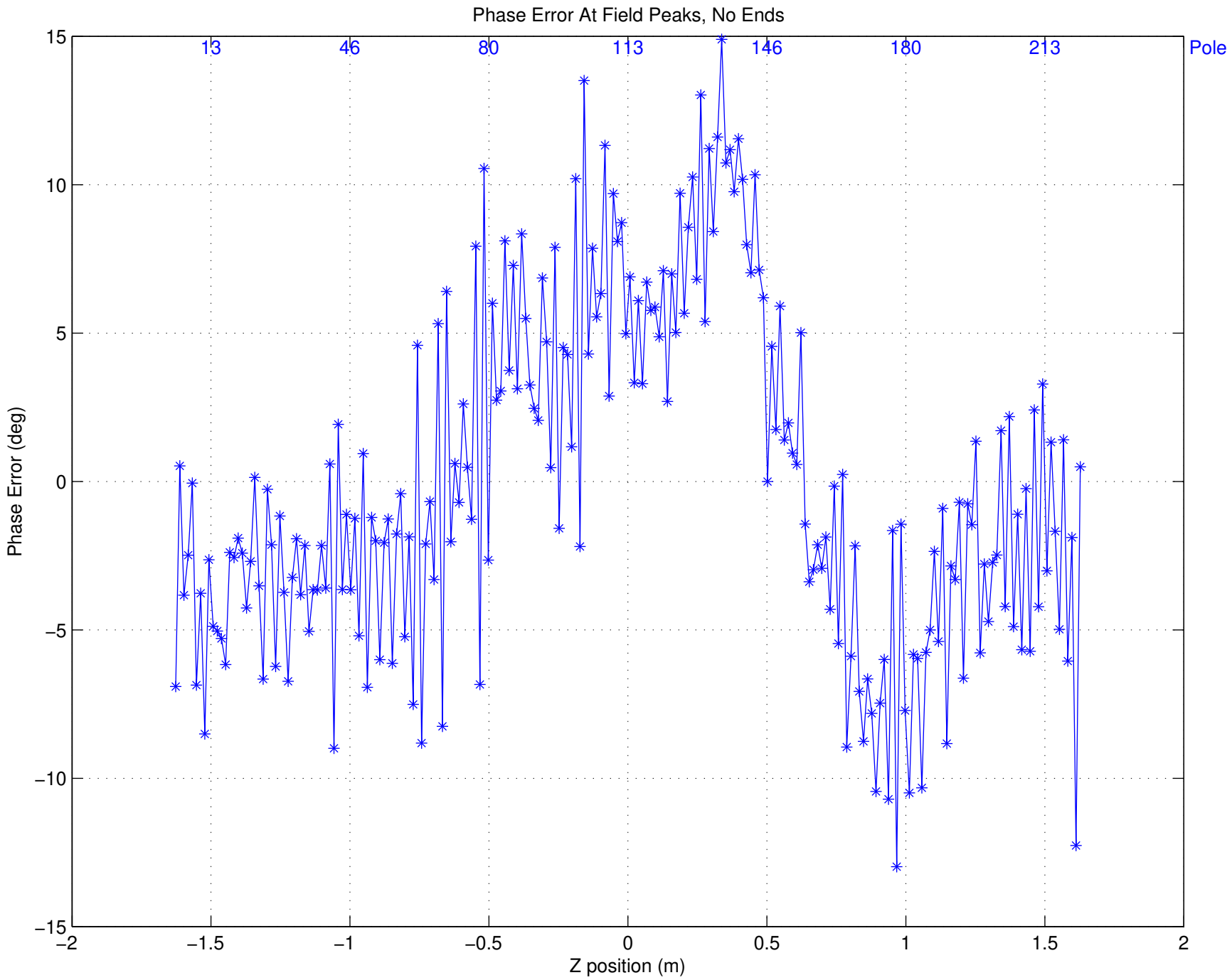
Axes position (m) X:0.029870 Y:0.000295
Initial Hall Probe Zero Measurements:
Vx_0i = 0.000958 V
Vy_0i = −0.003143 V


Bx vs Z
x 10^-3
13
46
80
113
146
180
213
Pole
Bx (T)
Z Position (m)
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

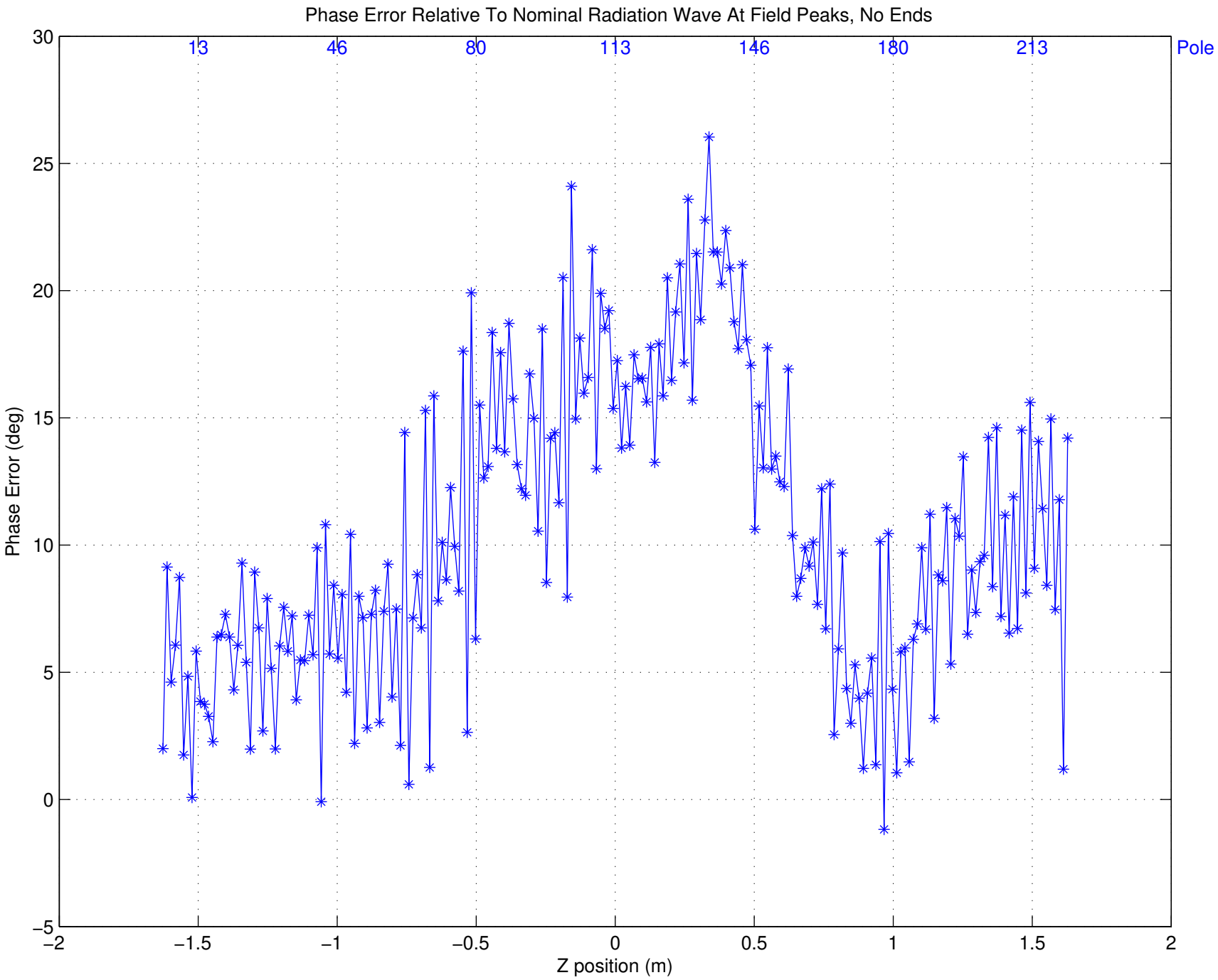

By vs Z
13
46
80
113
146
180
213
Pole
1.5
1
0.5
0
−0.5
−1
−1.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


X Trajectory
x 10^-6
13
46
80
113
146
180
213
Pole
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 = 5.778487 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
13
46
80
113
146
180
213
Pole
30
25
20
15
10
5
0
−5
Phase Error (deg)
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
Z position (m)