SLAC Magnetic Measurements

Planar Insertion Device Analysis

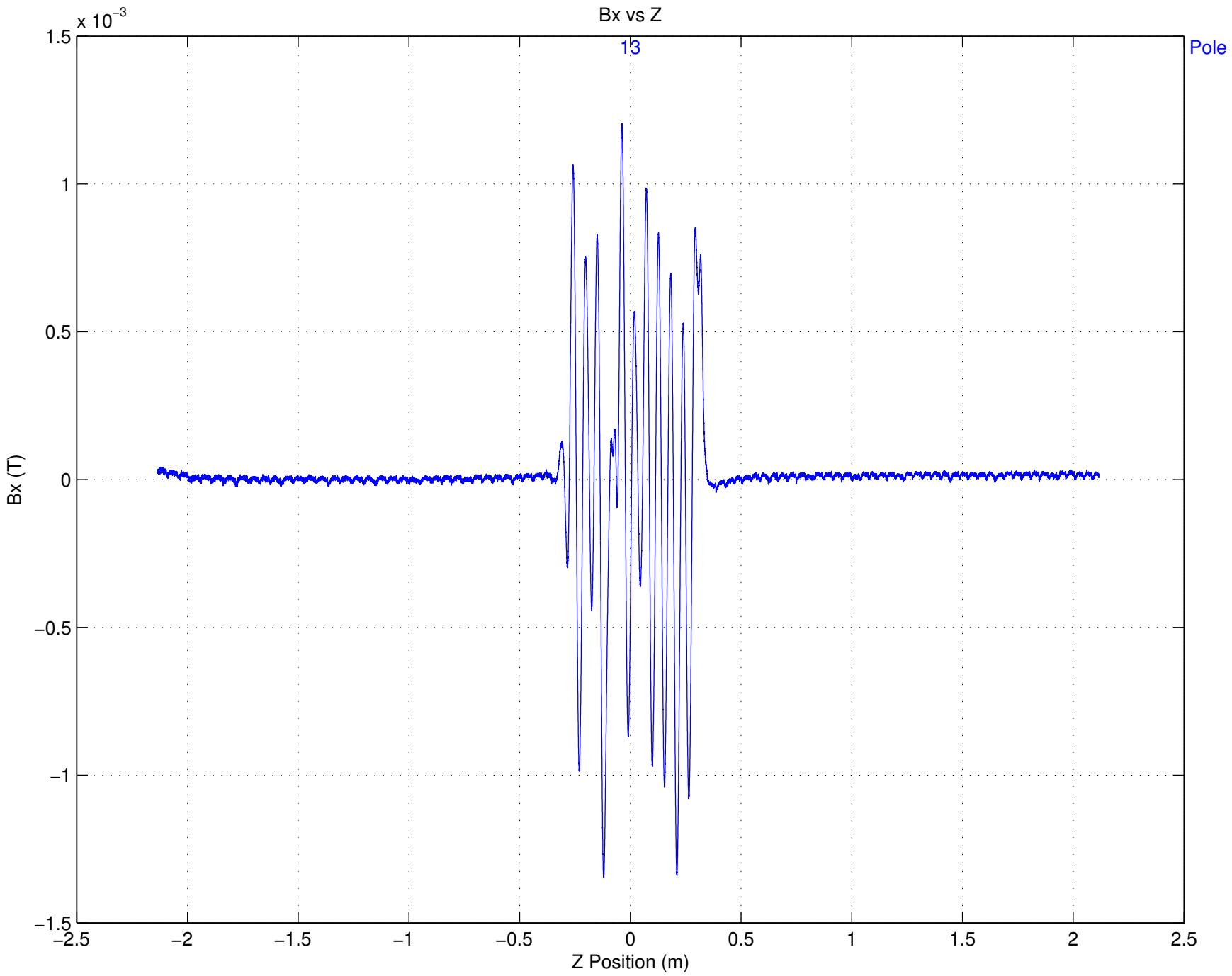
SLAC Magnetic Measurements
Date: 10−08−2012
Time: 10:12:59

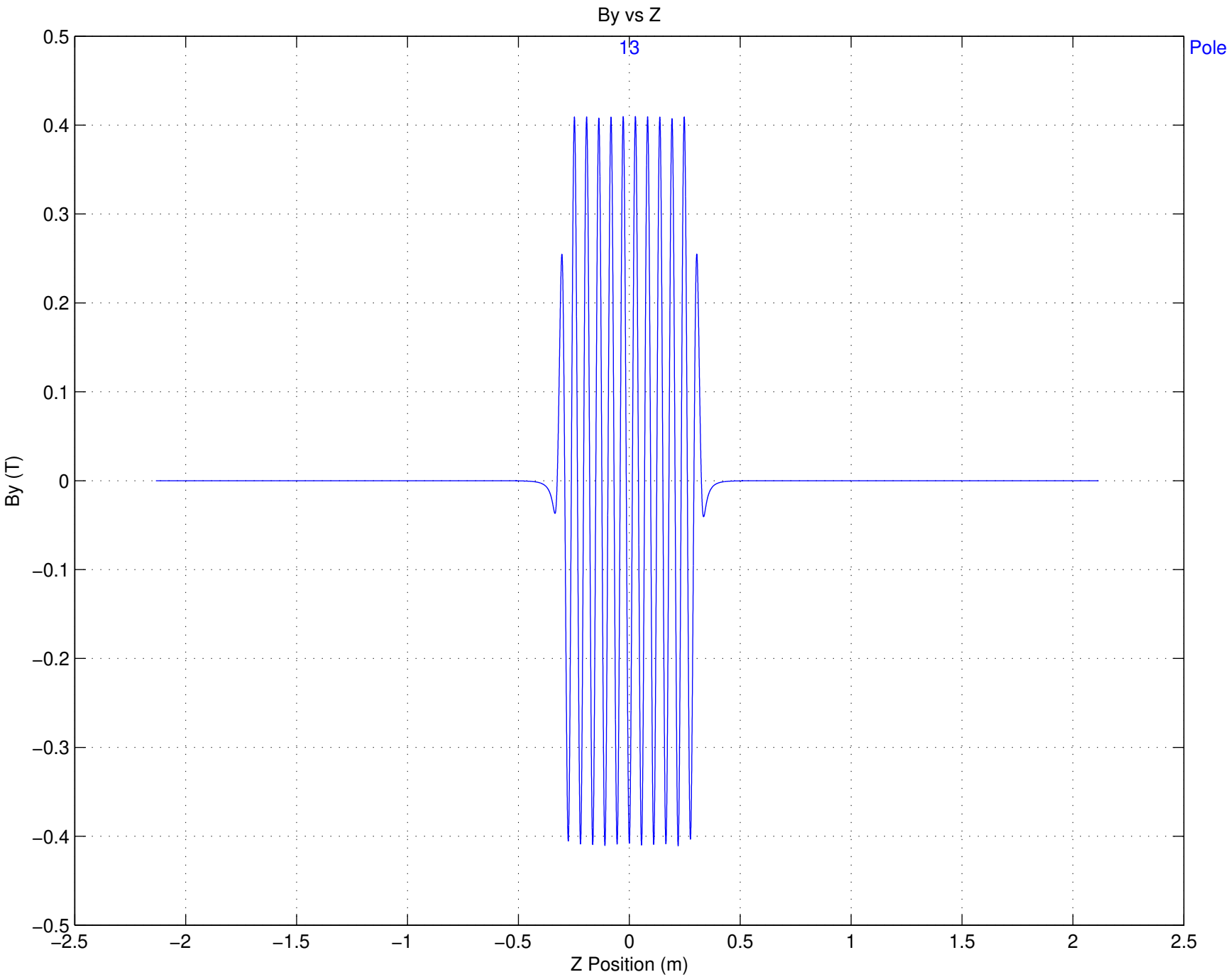
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: ECKO7−55
DATASET Number: 2
Tuning Stage: Fine Tuning
Run Number: 2
Measurement Type: Z Scans
Operator: YL
Comment: check K; before re−tuning
Session first run: 2
Measurement Device x:
Measurement Device y: $SENTRON_4$41

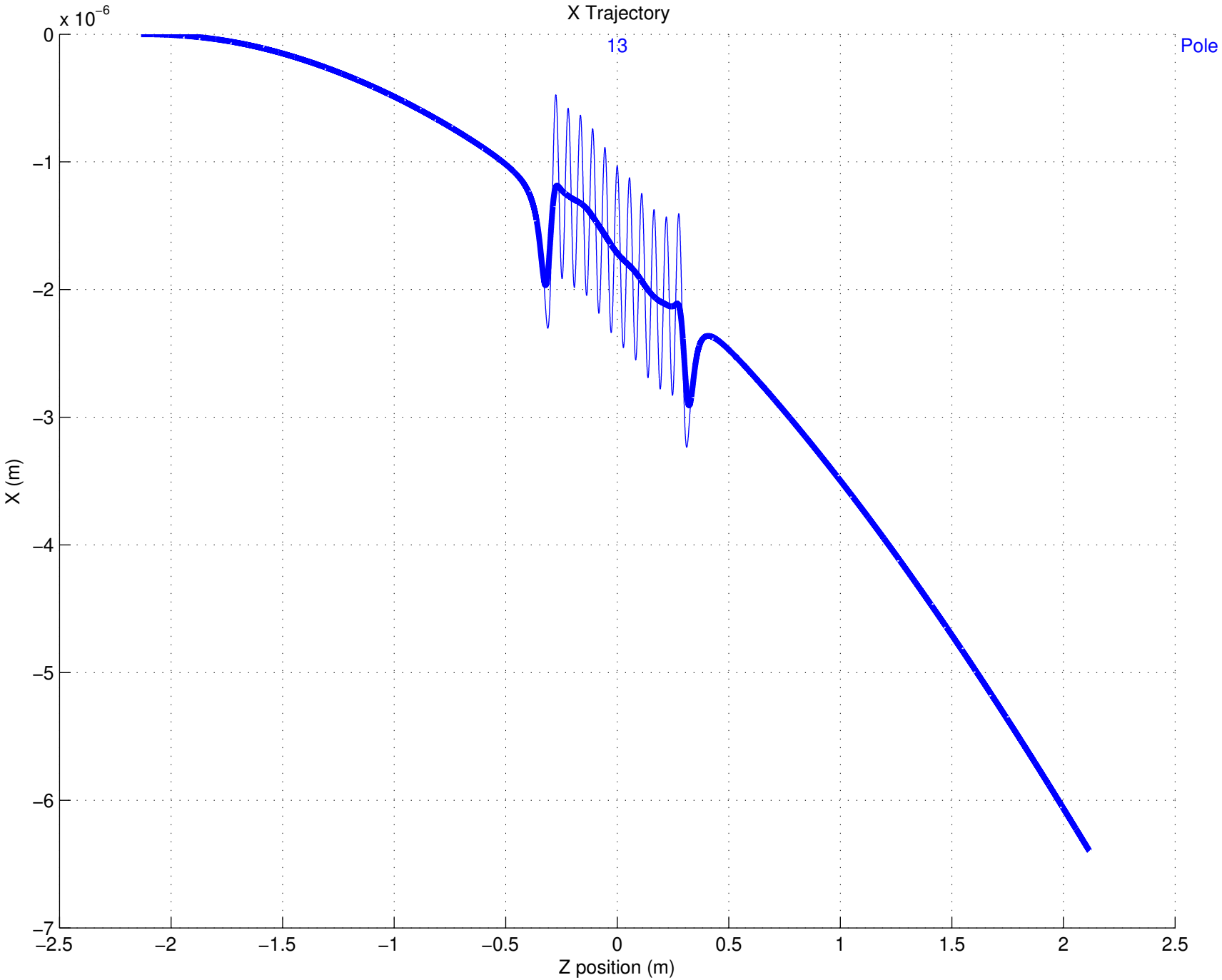
Data File: s:\magdata\LCLS\Undulator\ECKO7−55\DATASET0002\Fine Tuning\Z Scans\Run 002\bscanz.dat

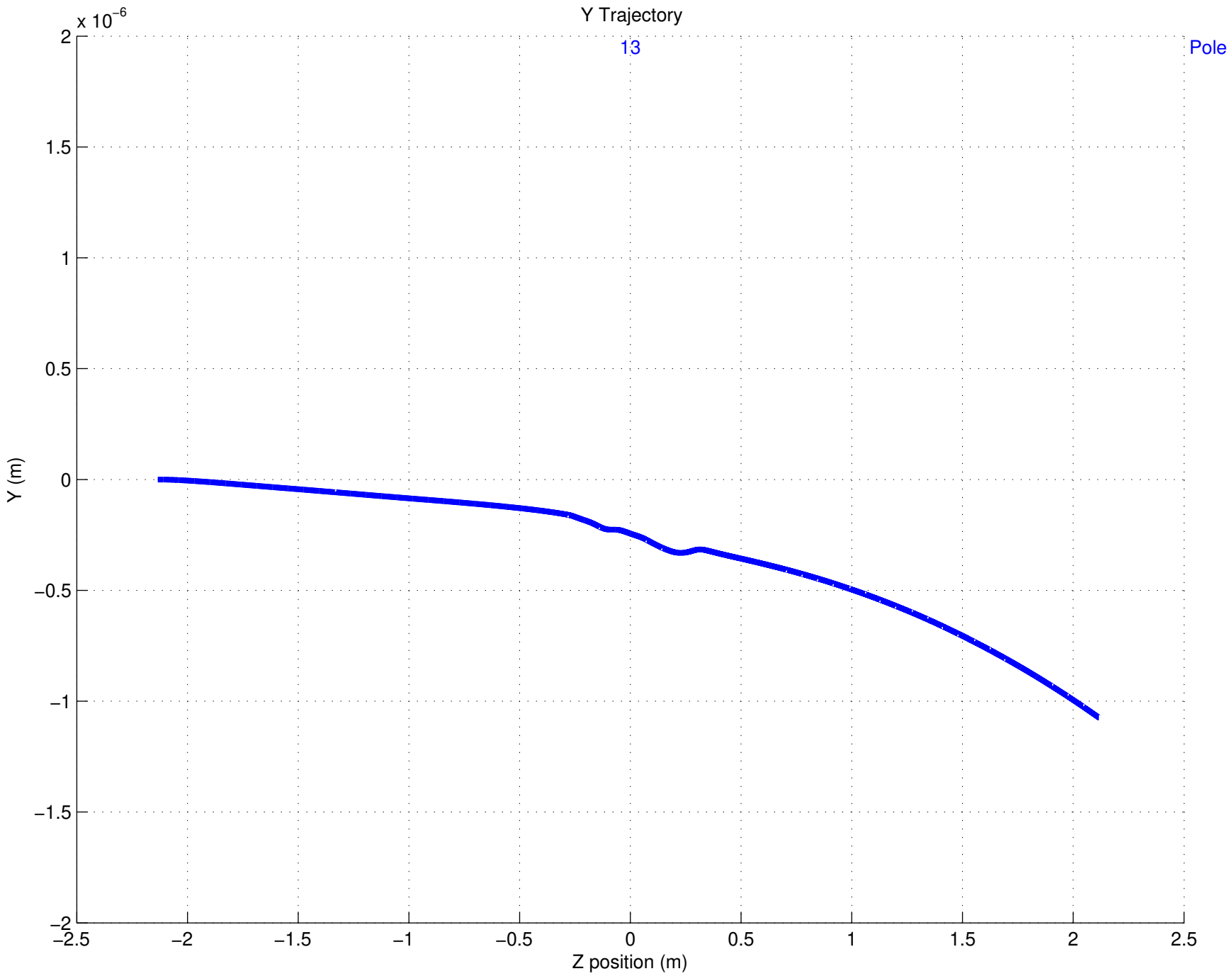
Temperature (C)
ECKO7−55:−−> T1 20.05 −−> T2 20.04 −−> T5 19.98 −−> T3 19.99 −−> Air 20.02 −−> T4 20.05

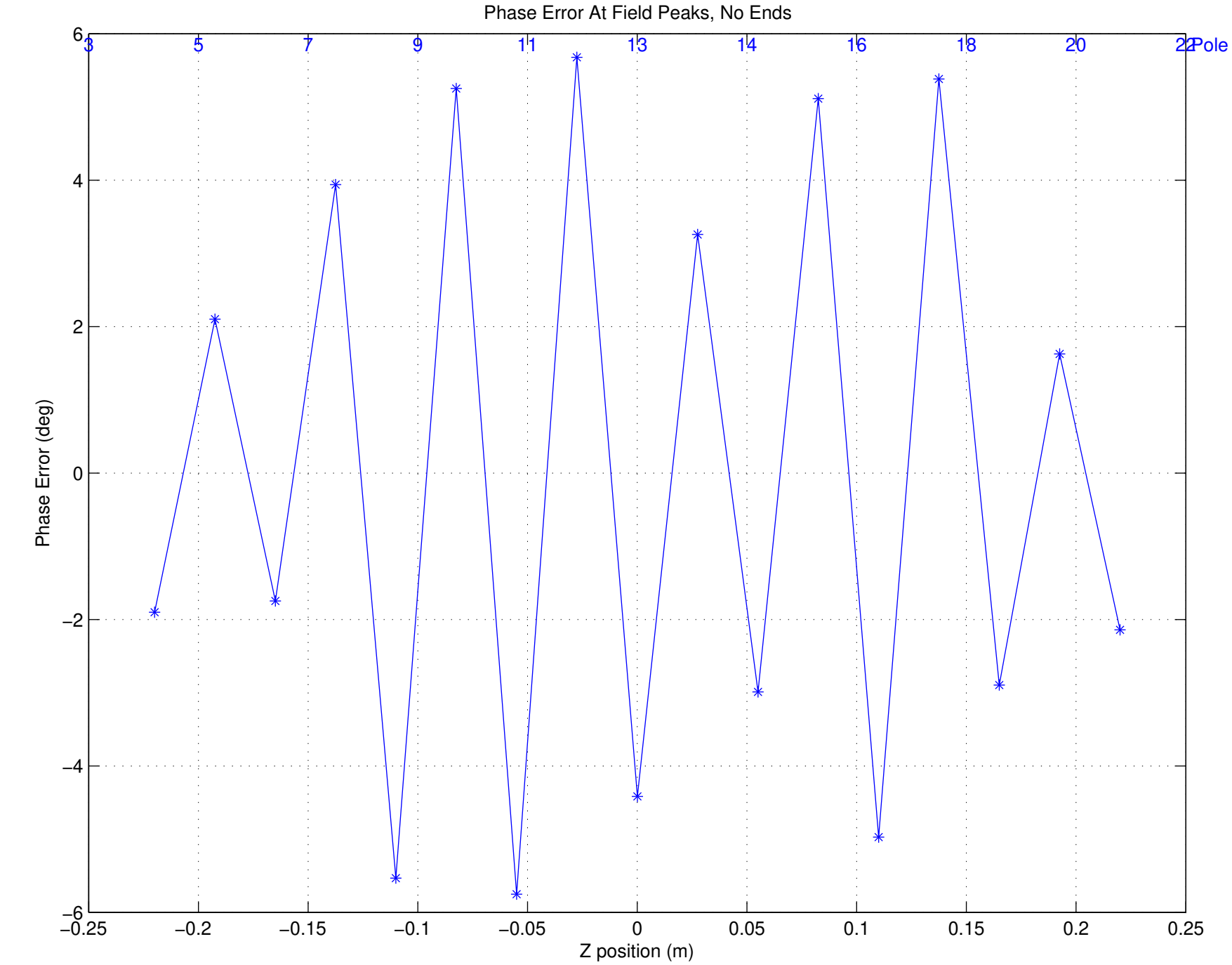
Axes position (m) X:0.029917 Y:0.000132
Initial Hall Probe Zero Measurements:
Vx_0i = 0.000937 V
Vy_0i = −0.003275 V


Bx vs Z
x 10^-3
1.5
1
0.5
0
−0.5
−1
−1.5
Bx (T)
13
Pole
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)

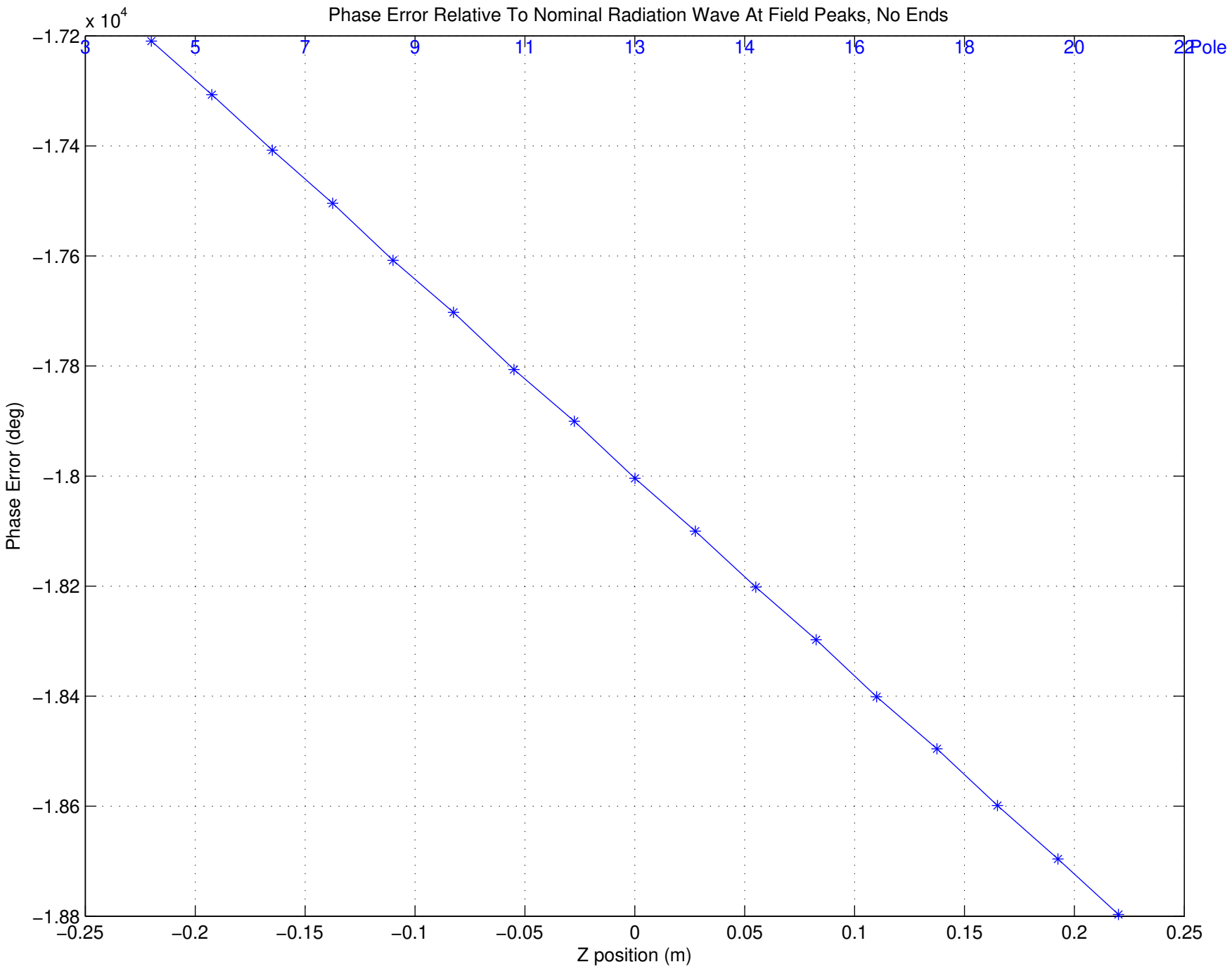

By vs Z
13
Pole
0.5
0.4
0.3
0.2
0.1
0
−0.1
−0.2
−0.3
−0.4
−0.5
By (T)
−2.5
−2
−1.5
−1
−0.5
0
0.5
1
1.5
2
2.5
Z Position (m)


X Trajectory
x 10^-6
13
Pole
0
−1
−2
−3
−4
−5
−6
−7
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
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 = 4.217873 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
x 10^4
−1.72
−1.74
−1.76
−1.78
−1.8
−1.82
−1.84
−1.86
−1.88
Phase Error (deg)
3
5
7
9
11
13
14
16
18
20
22
Pole
−0.25
−0.2
−0.15
−0.1
−0.05
0
0.05
0.1
0.15
0.2
0.25
Z position (m)