SLAC Magnetic Measurements

Planar Insertion Device Analysis

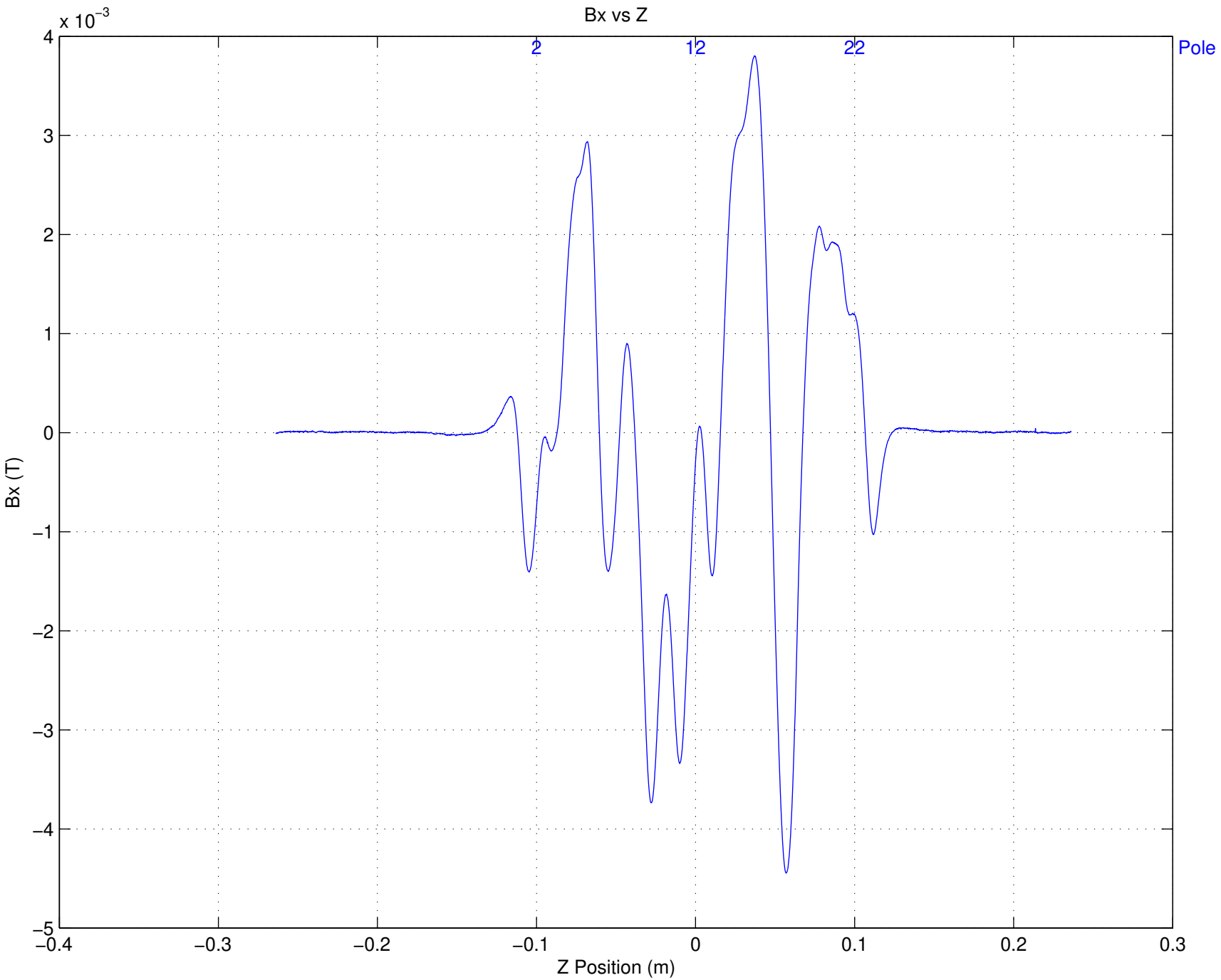
SLAC Magnetic Measurements
Date: 10−12−2010
Time: 11:31:30

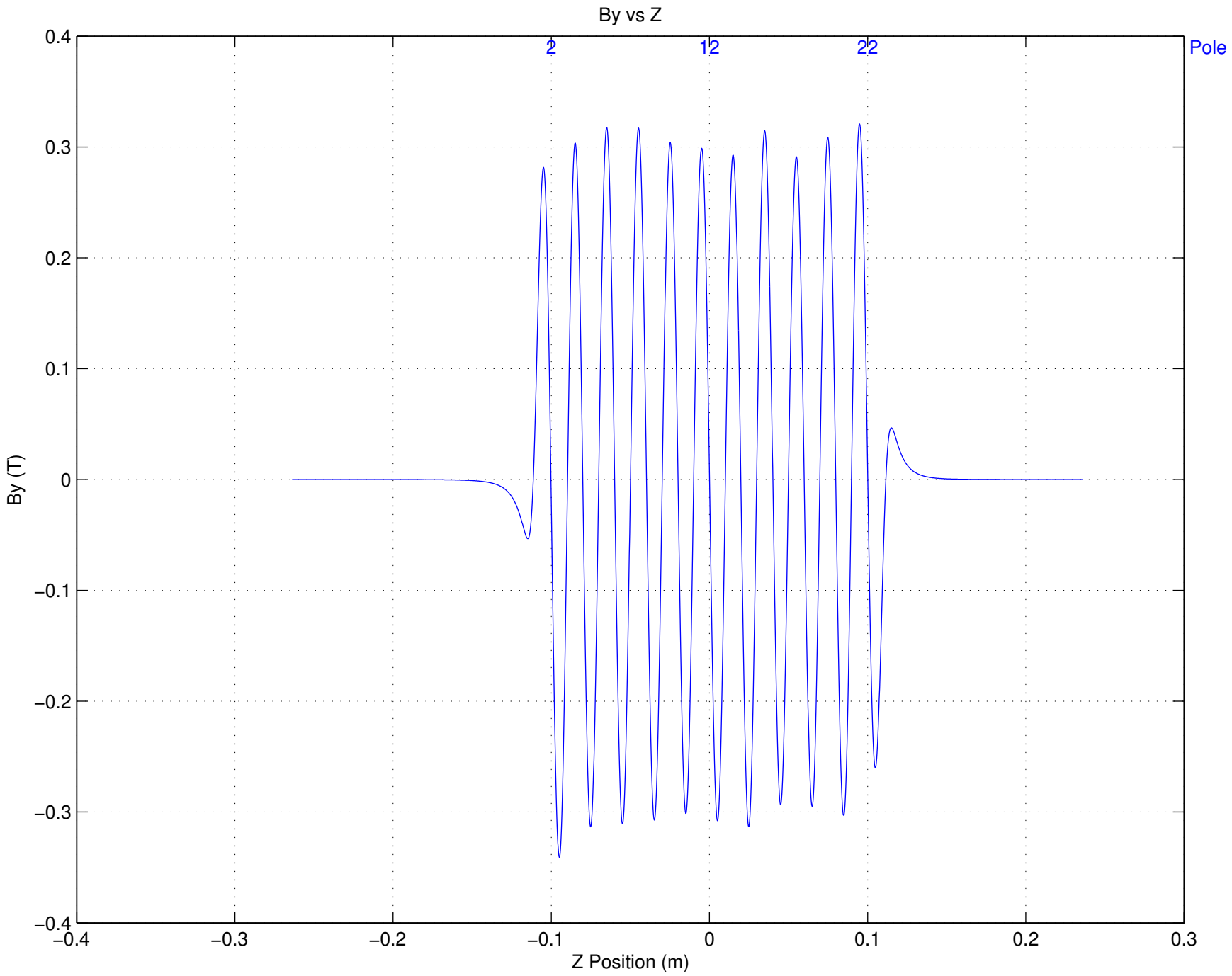
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: ECKO7−20−PPM
DATASET Number: 2
Tuning Stage: Fine Tuning
Run Number: 8
Measurement Type: Z Scans
Operator: YL
Comment: back from tunnel; Gap 11.905mm; changed by .003"
Session first run: 8
Measurement Device x:
Measurement Device y: $SENTRON_4$41

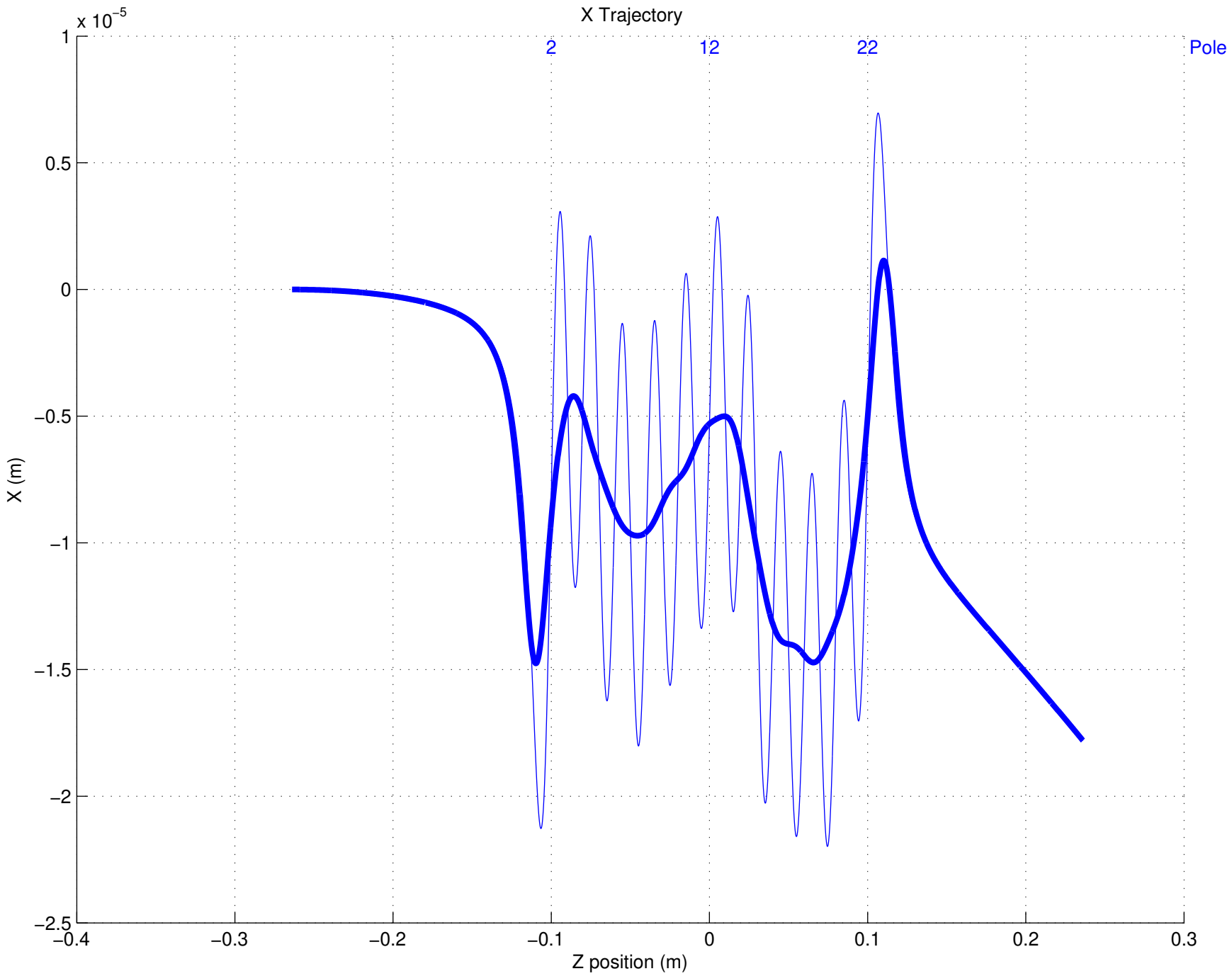
Data File: s:\magdata\LCLS\Undulator\ECKO7−20−PPM\DATASET0002\Fine Tuning\Z Scans\Run 008\bscanz.dat

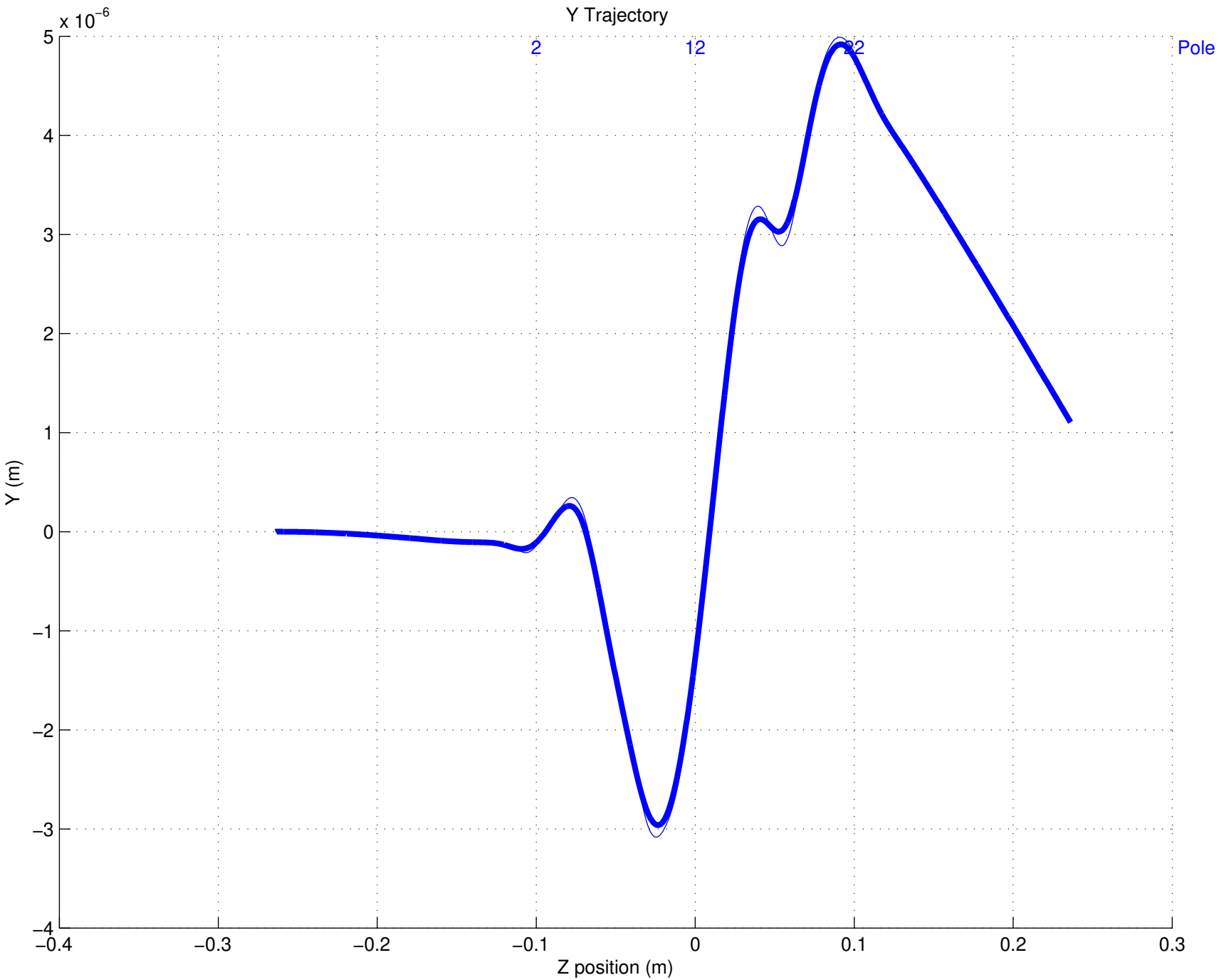
Temperature (C)
ECKO7−20−PPM:−−> T5 20.01 −−> T2 20.11 −−> T1 20.10 −−> T3 20.15 −−> Air 20.34 −−> T4 20.16

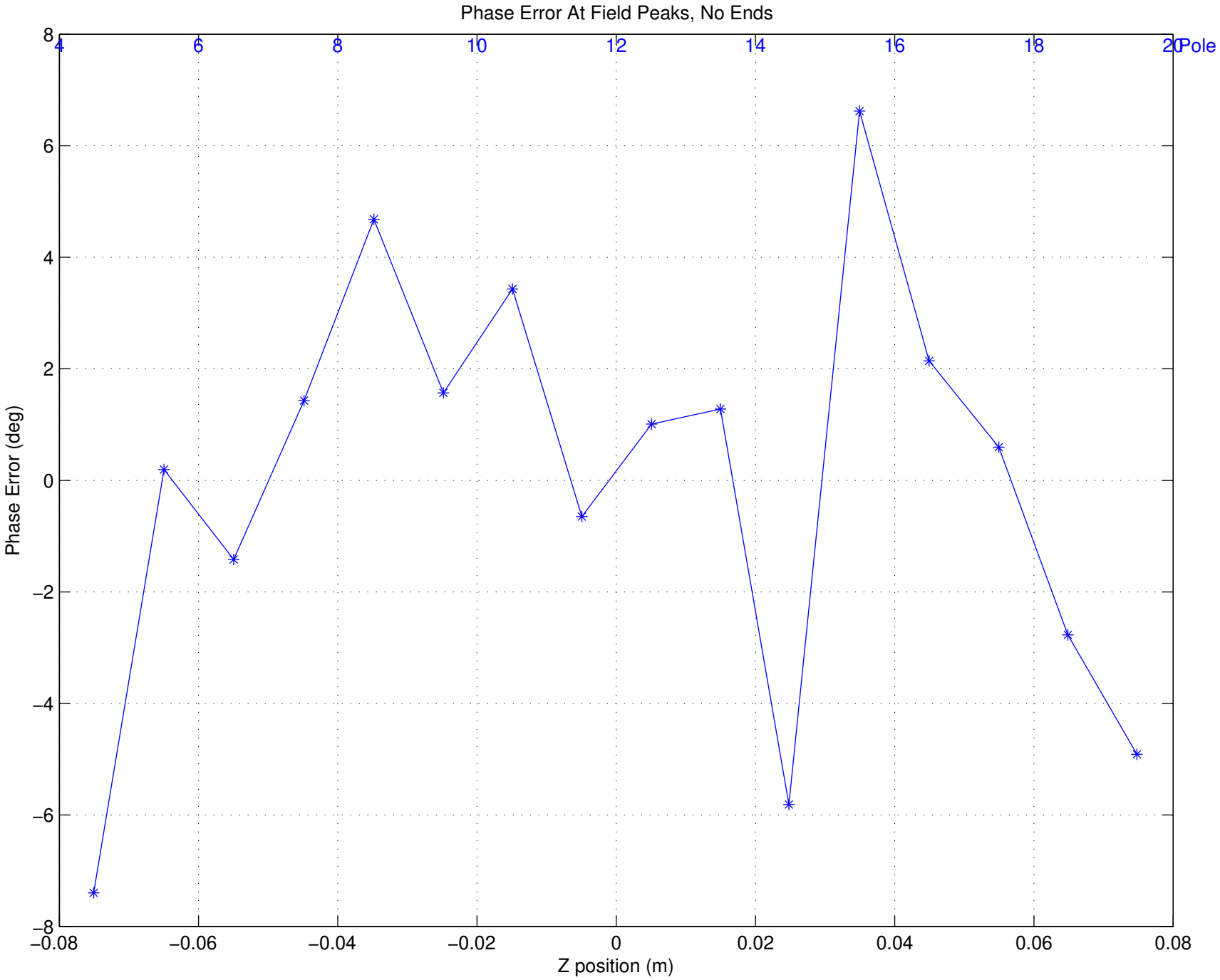
Axes position (m) X:0.041585 Y:0.000357
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001287 V
Vy_0i = −0.003052 V


Bx vs Z
x 10^-3
4
3
2
1
0
−1
−2
−3
−4
−5
Bx (T)
2
12
22
Pole
−0.4
−0.3
−0.2
−0.1
0
0.1
0.2
0.3
Z Position (m)

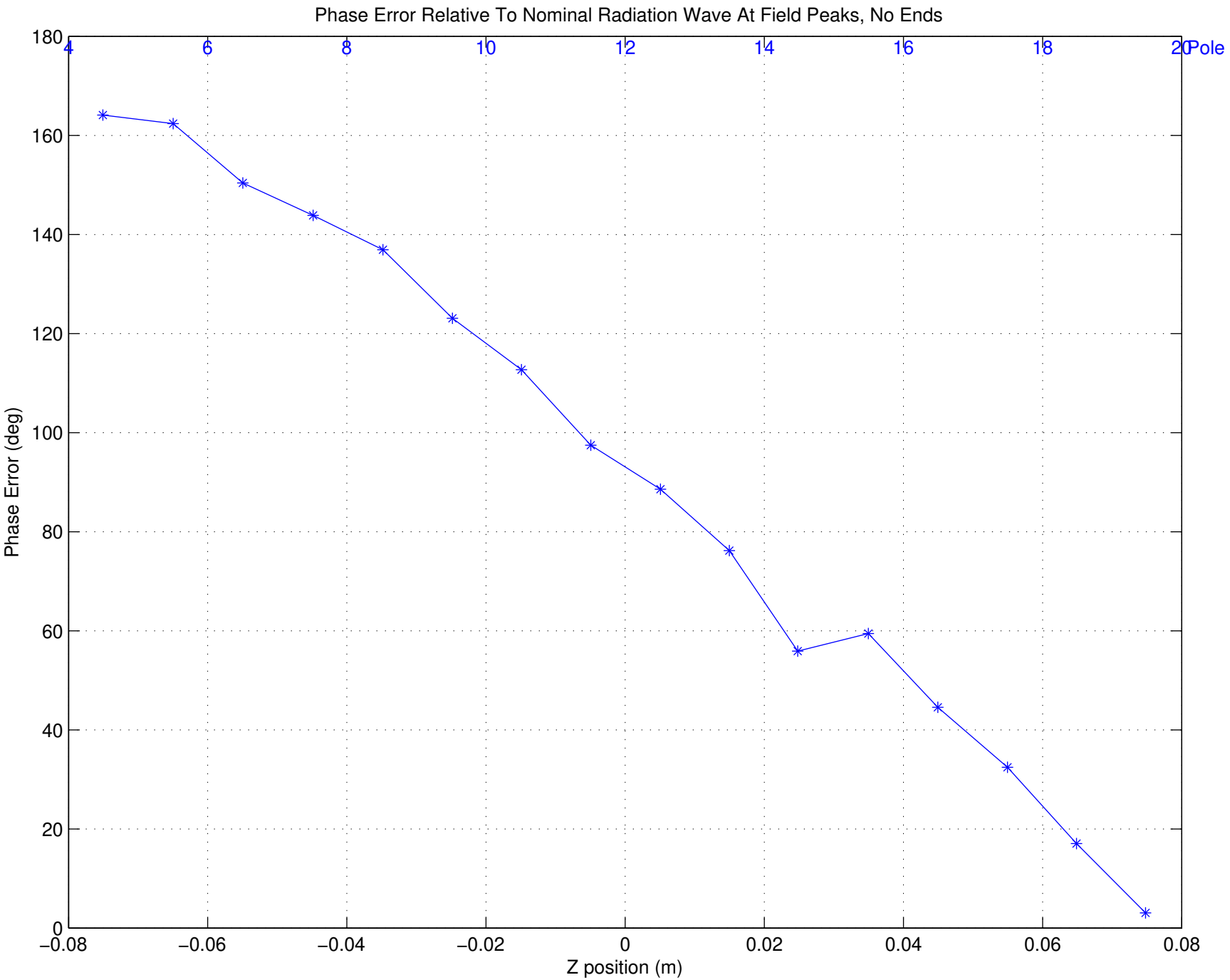

By vs Z
2
12
22
Pole
0.4
0.3
0.2
0.1
0
−0.1
−0.2
−0.3
−0.4
By (T)
−0.4
−0.3
−0.2
−0.1
0
0.1
0.2
0.3
Z Position (m)


X Trajectory
x 10^-5
1
0.5
0
−0.5
−1
−1.5
−2
−2.5
X (m)
2
12
22
Pole
−0.4
−0.3
−0.2
−0.1
0
0.1
0.2
0.3
Z position (m)


Y Trajectory
x 10^-6
5
4
3
2
1
0
−1
−2
−3
−4
Y (m)
−0.4
−0.3
−0.2
−0.1
0
0.1
0.2
0.3
Z position (m)
2
12
22
Pole



Phase Error: Ave = −0.000000 deg, RMS = 3.762959 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
Pole
4
6
8
10
12
14
16
18
20
180
160
140
120
100
80
60
40
20
0
Phase Error (deg)
−0.08
−0.06
−0.04
−0.02
0
0.02
0.04
0.06
0.08
Z position (m)