SLAC Magnetic Measurements

Planar Insertion Device Analysis

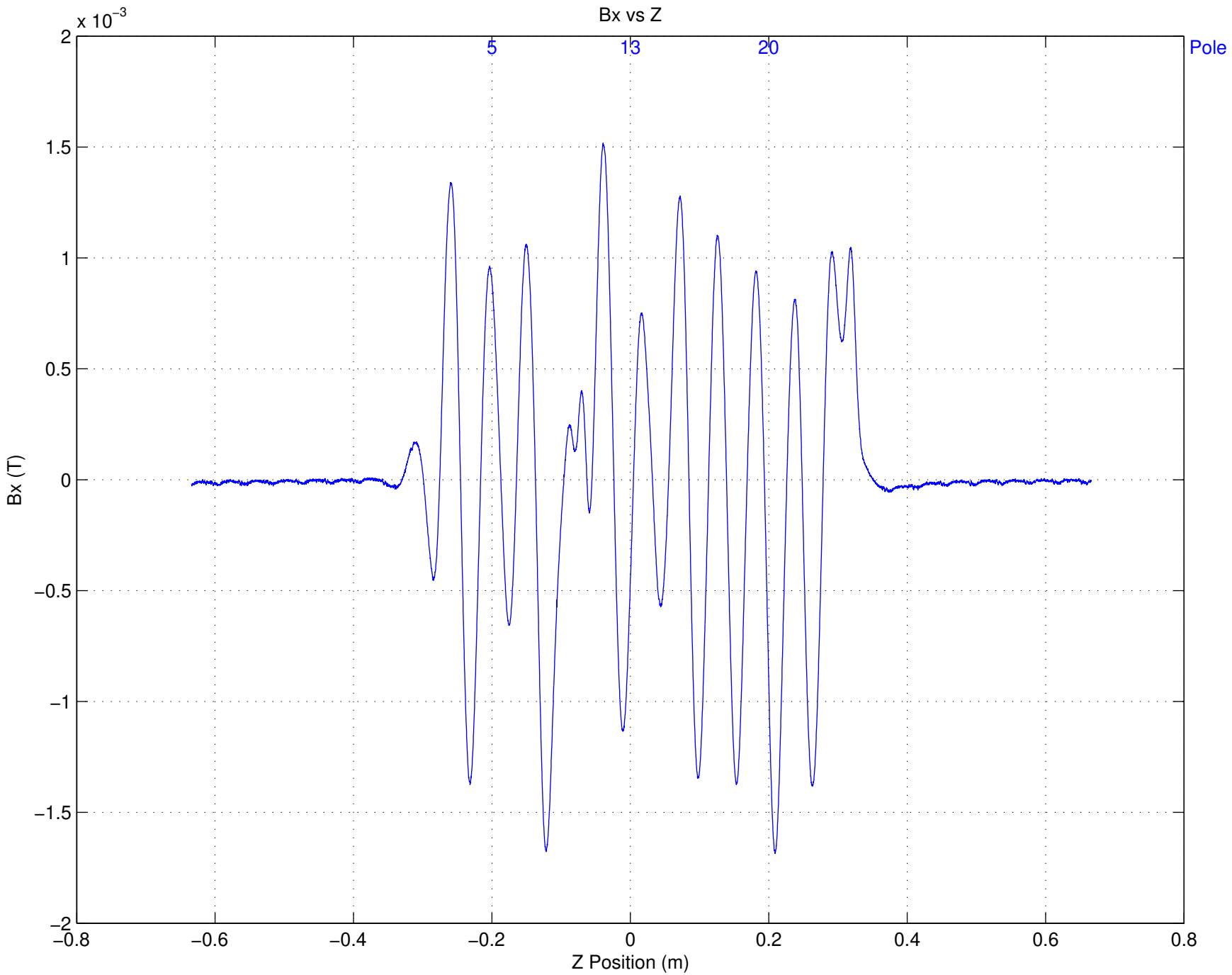
SLAC Magnetic Measurements
Date: 10−12−2012
Time: 11:44:51

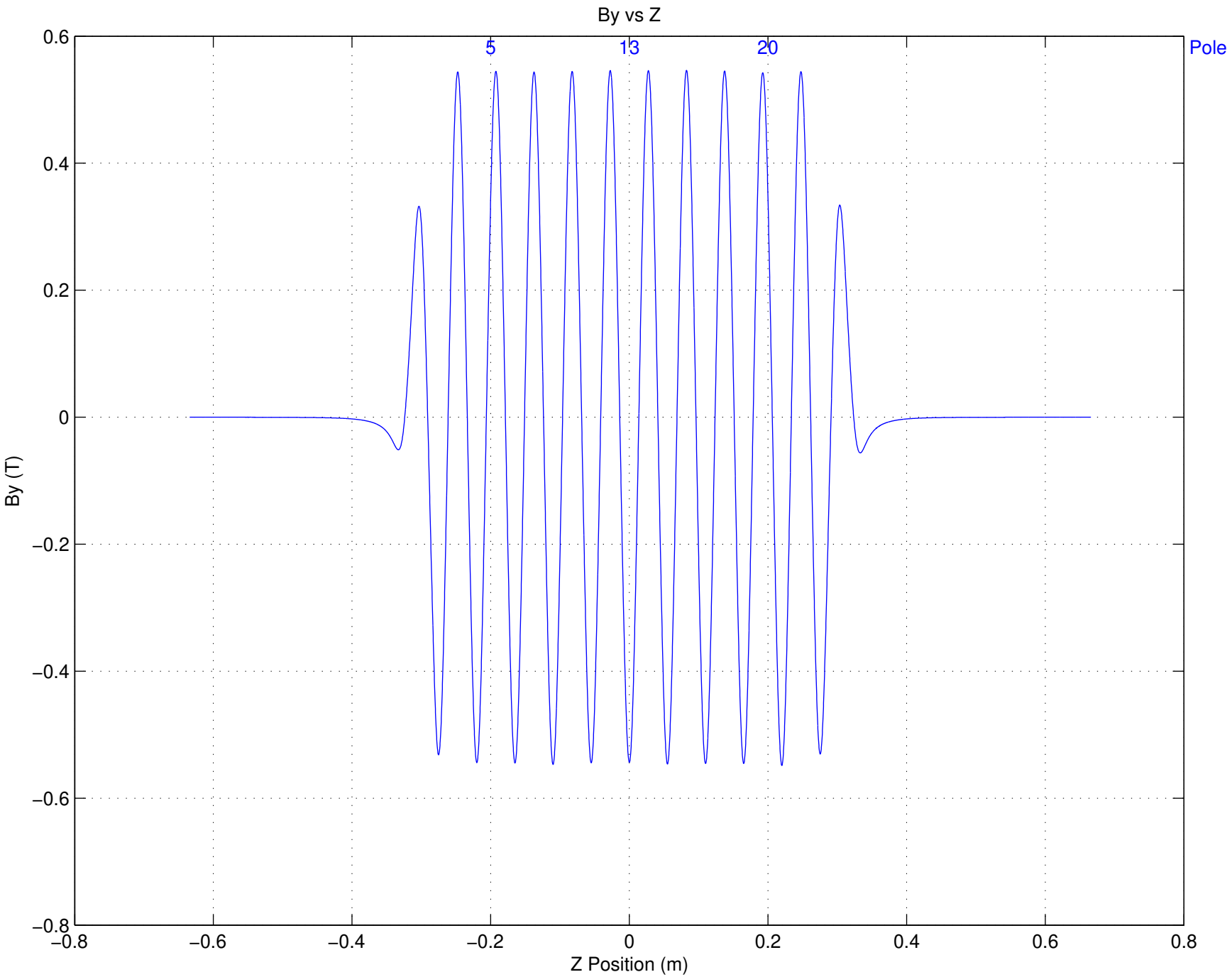
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: ECKO7−55
DATASET Number: 2
Tuning Stage: Fine Tuning
Run Number: 7
Measurement Type: Z Scans
Operator: YL
Comment: check K; re−tuning, gap=20.7mm
Session first run: 7
Measurement Device x:
Measurement Device y: $SENTRON_4$41

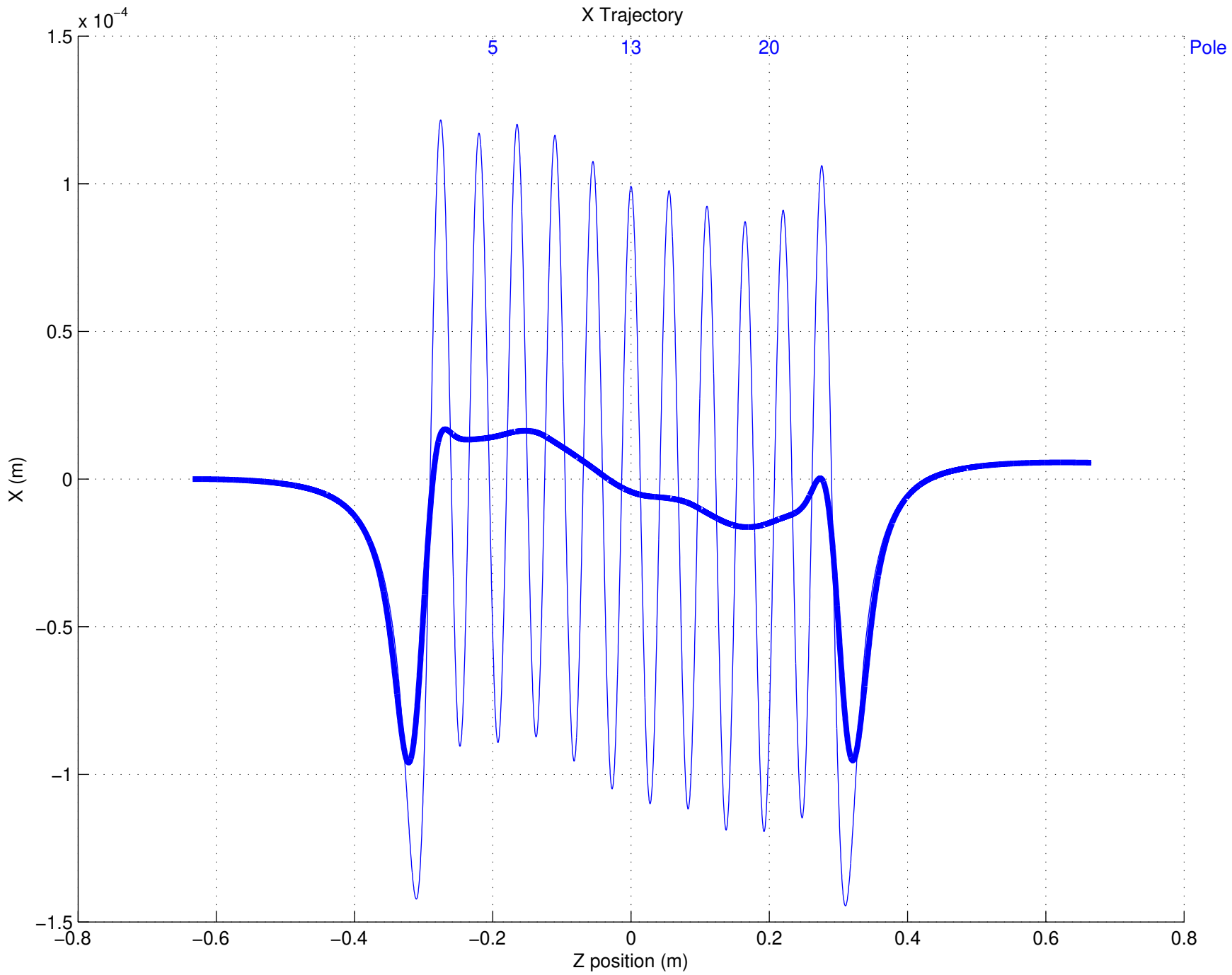
Data File: s:\magdata\LCLS\Undulator\ECKO7−55\DATASET0002\Fine Tuning\Z Scans\Run 007\bscanz.dat

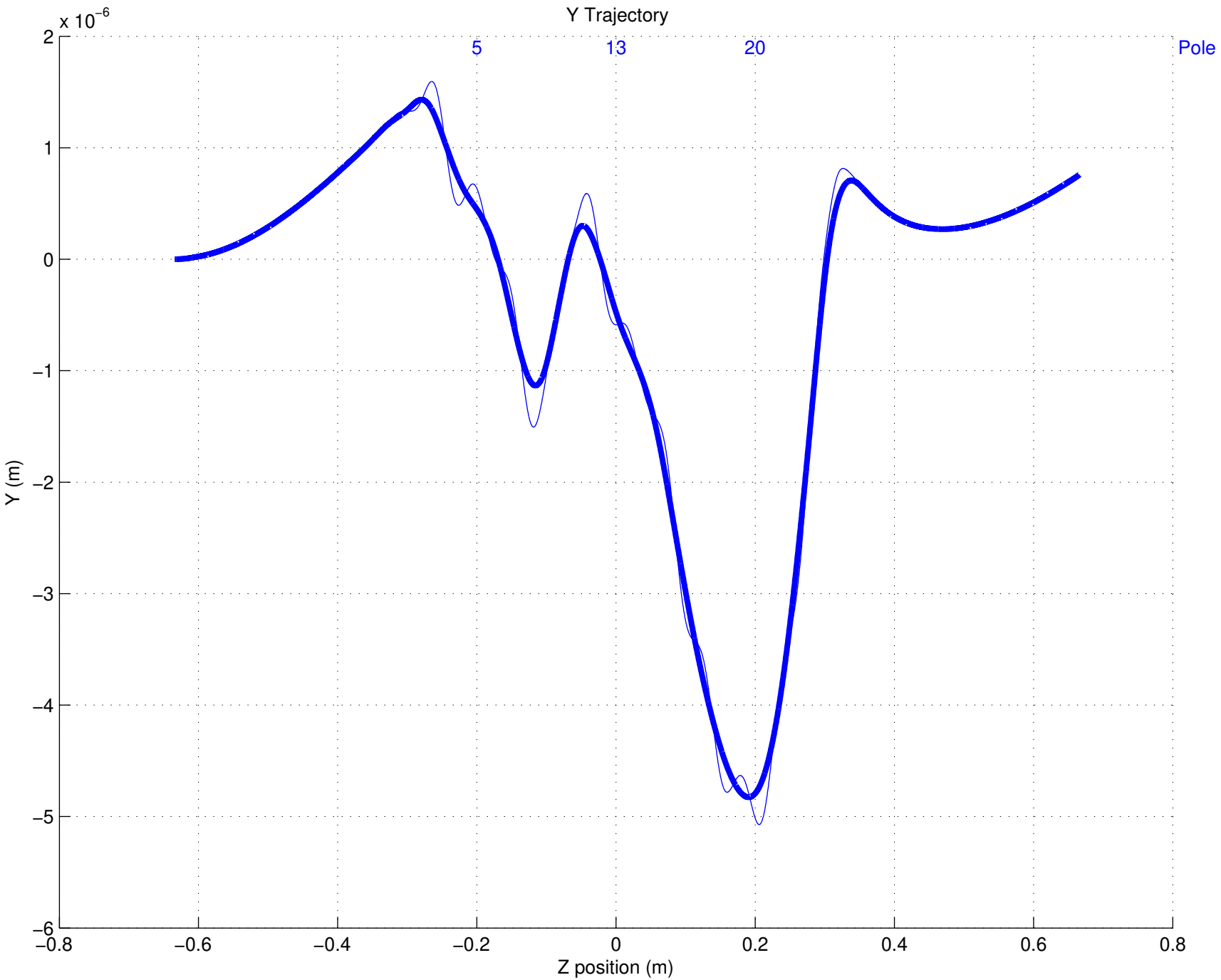
Temperature (C)
ECKO7−55:−−> T1 20.12 −−> T2 20.11 −−> T5 20.11 −−> T3 20.06 −−> Air 20.16 −−> T4 20.05

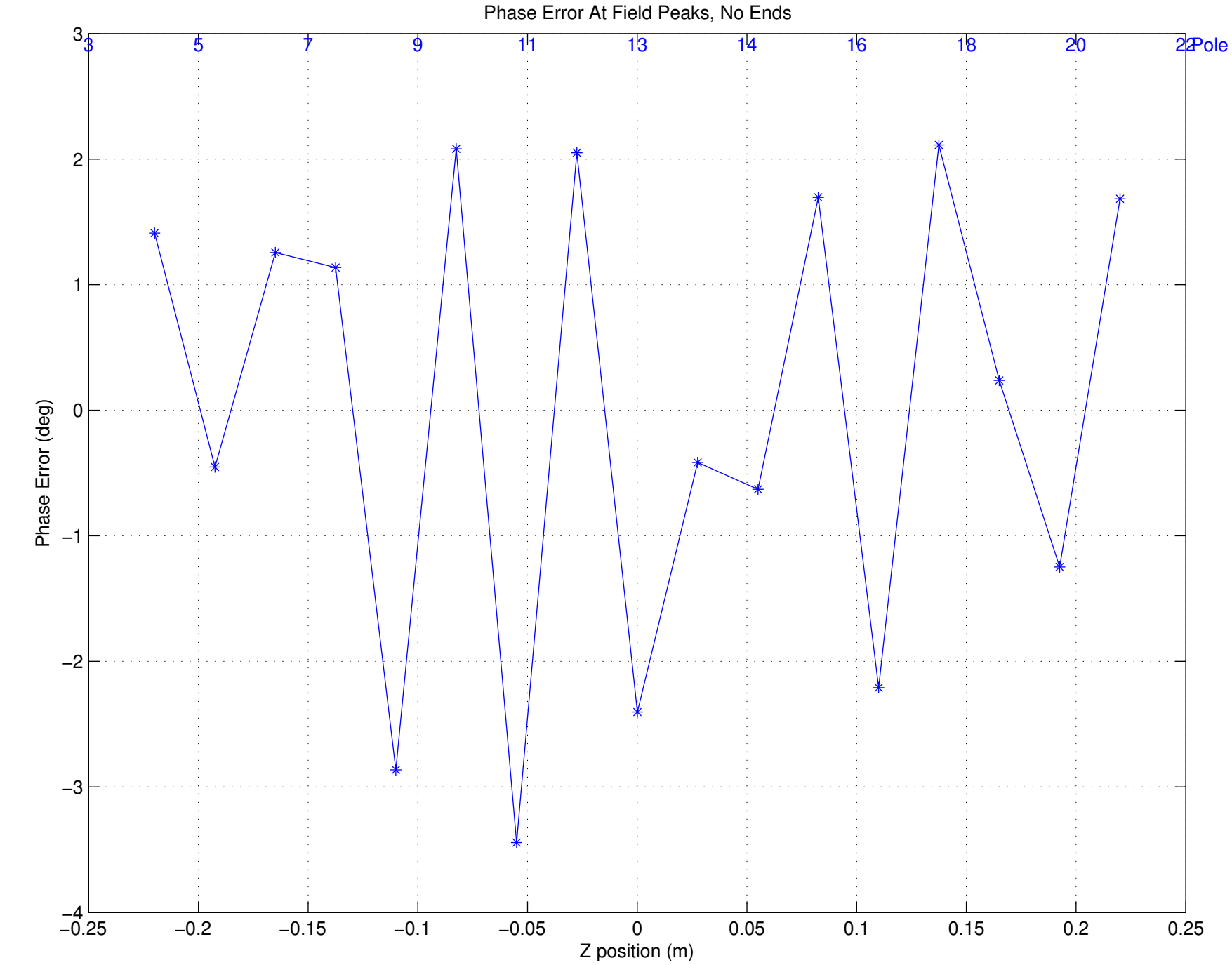
Axes position (m) X:0.029917 Y:0.000263
Initial Hall Probe Zero Measurements:
Vx_0i = 0.000984 V
Vy_0i = −0.003242 V


Bx vs Z
x 10^-3
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
Bx (T)
5
13
20
Pole
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z Position (m)

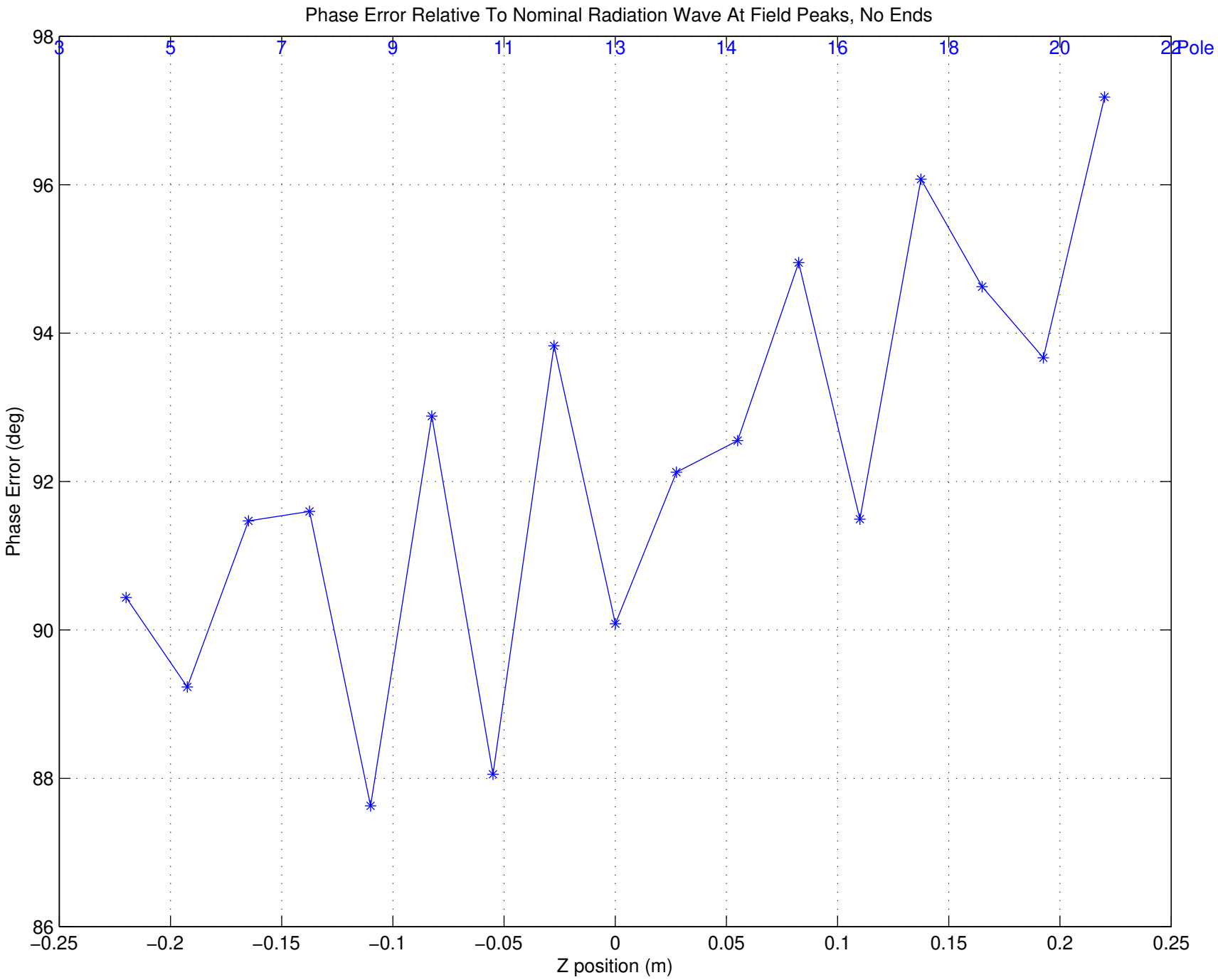

By vs Z
5
13
20
Pole
0.6
0.4
0.2
0
−0.2
−0.4
−0.6
−0.8
By (T)
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z Position (m)


X Trajectory
x 10^-4
1.5
1
0.5
0
−0.5
−1
−1.5
X (m)
5
13
20
Pole
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z position (m)


Y Trajectory
x 10^-6
2
1
0
−1
−2
−3
−4
−5
−6
Y (m)
5
13
20
Pole
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z position (m)



Phase Error: Ave = −0.000000 deg, RMS = 1.882698 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
3
5
7
9
11
13
14
16
18
20
22
Pole
98
96
94
92
90
88
86
Phase Error (deg)
−0.25
−0.2
−0.15
−0.1
−0.05
0
0.05
0.1
0.15
0.2
0.25
Z position (m)