SLAC Magnetic Measurements

Planar Insertion Device Analysis

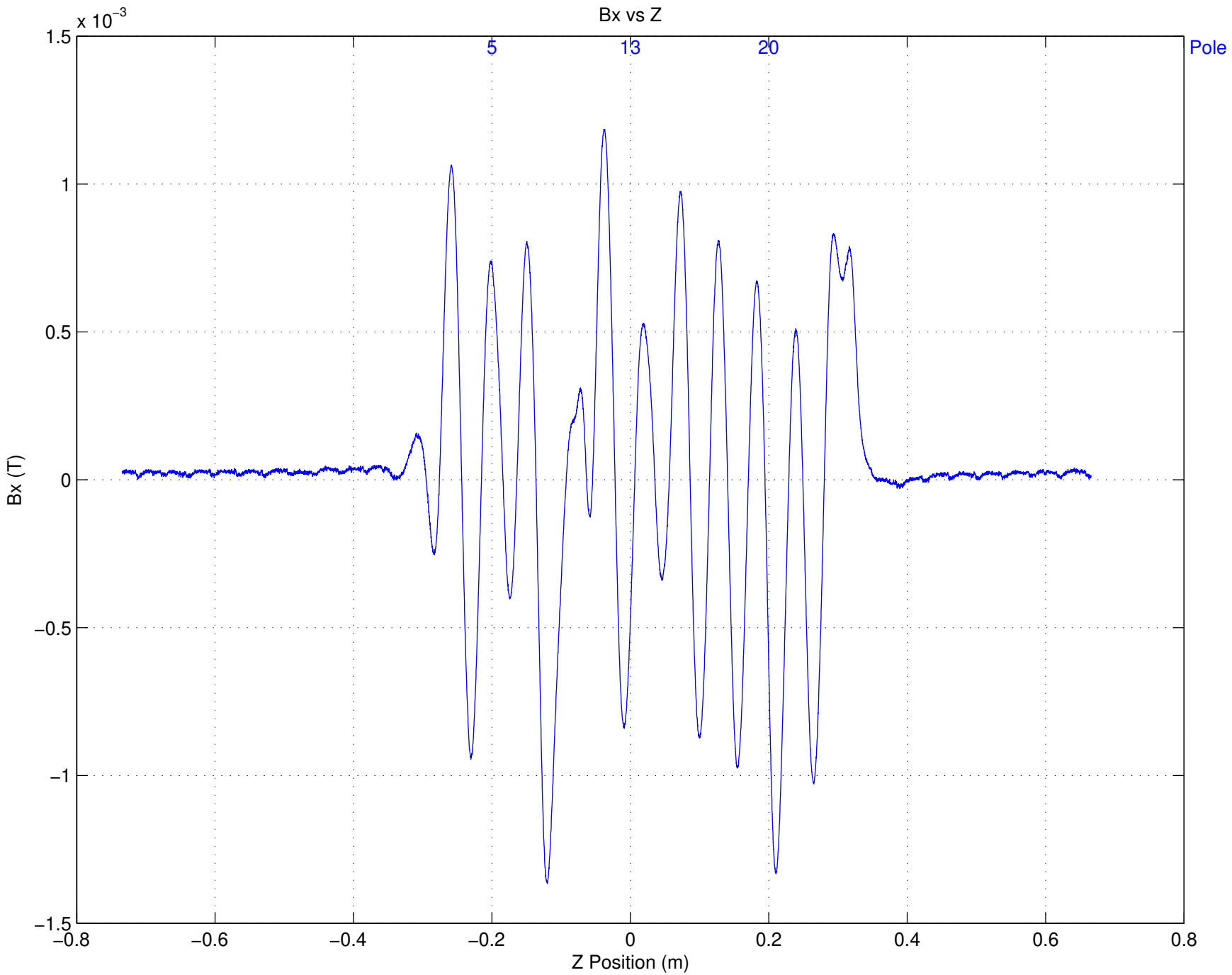
SLAC Magnetic Measurements
Date: 10−08−2012
Time: 15:15:58

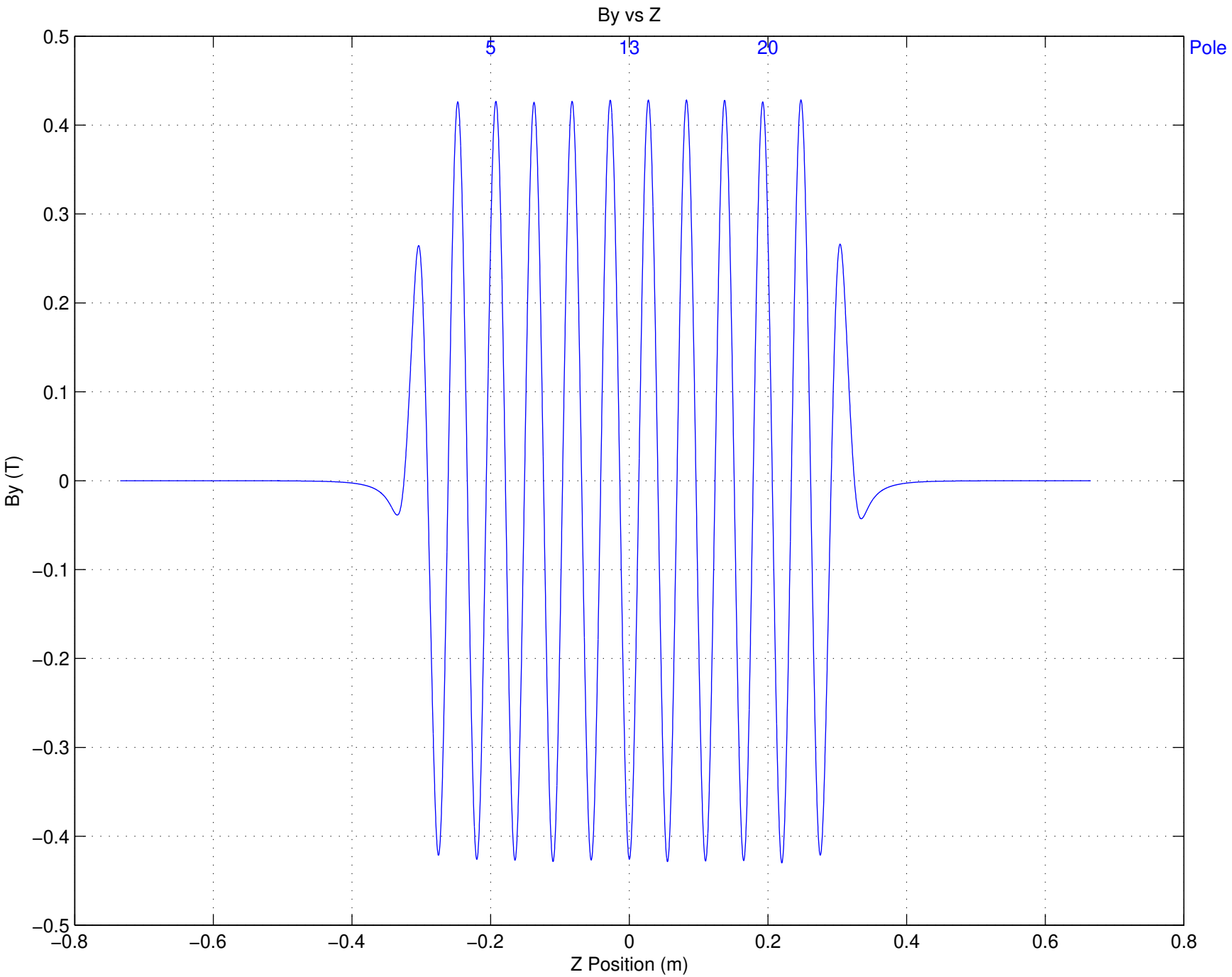
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: ECKO7−55
DATASET Number: 2
Tuning Stage: Fine Tuning
Run Number: 3
Measurement Type: Z Scans
Operator: YL
Comment: check K; re−tuning
Session first run: 2
Measurement Device x:
Measurement Device y: $SENTRON_4$41

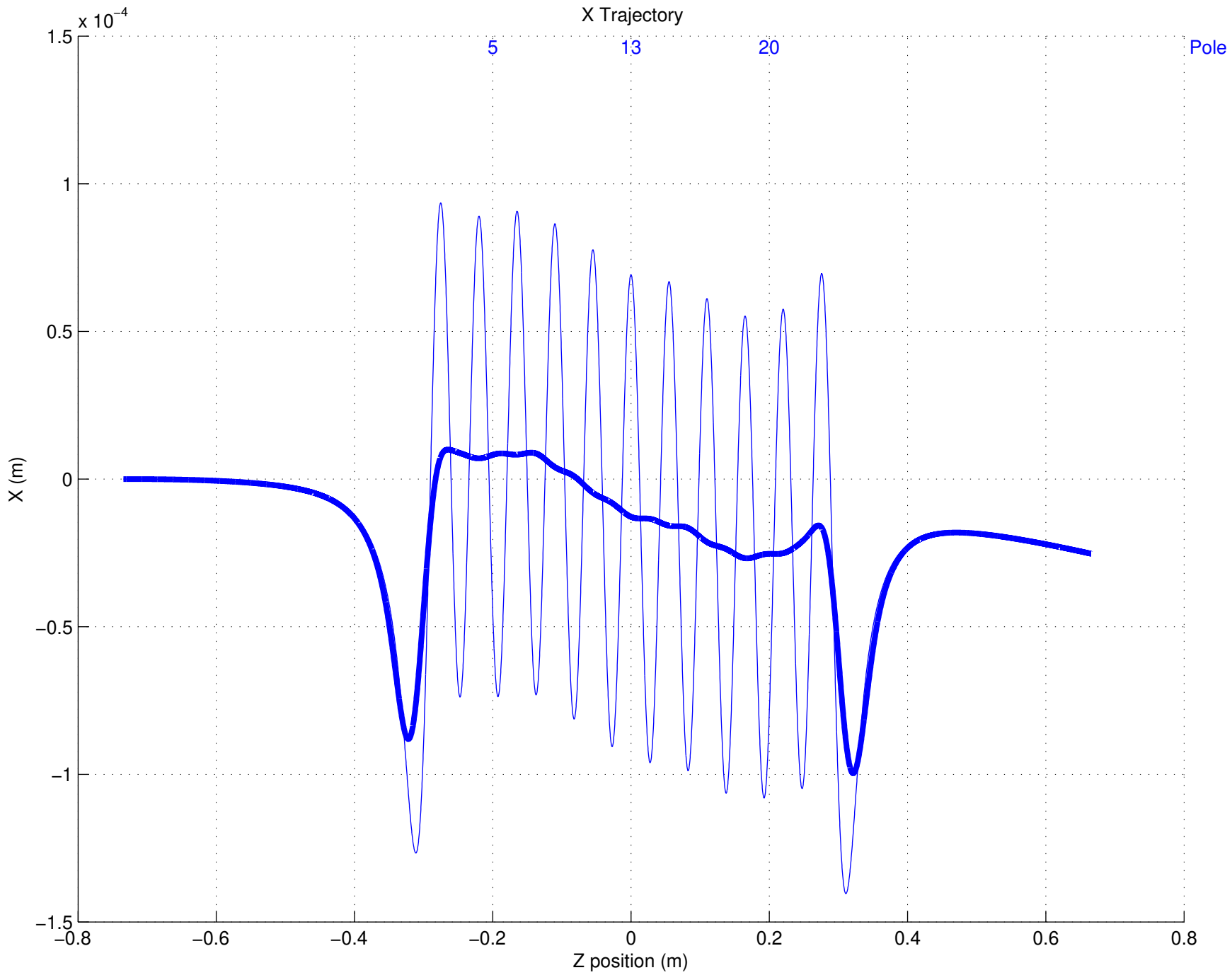
Data File: s:\magdata\LCLS\Undulator\ECKO7−55\DATASET0002\Fine Tuning\Z Scans\Run 003\bscanz.dat

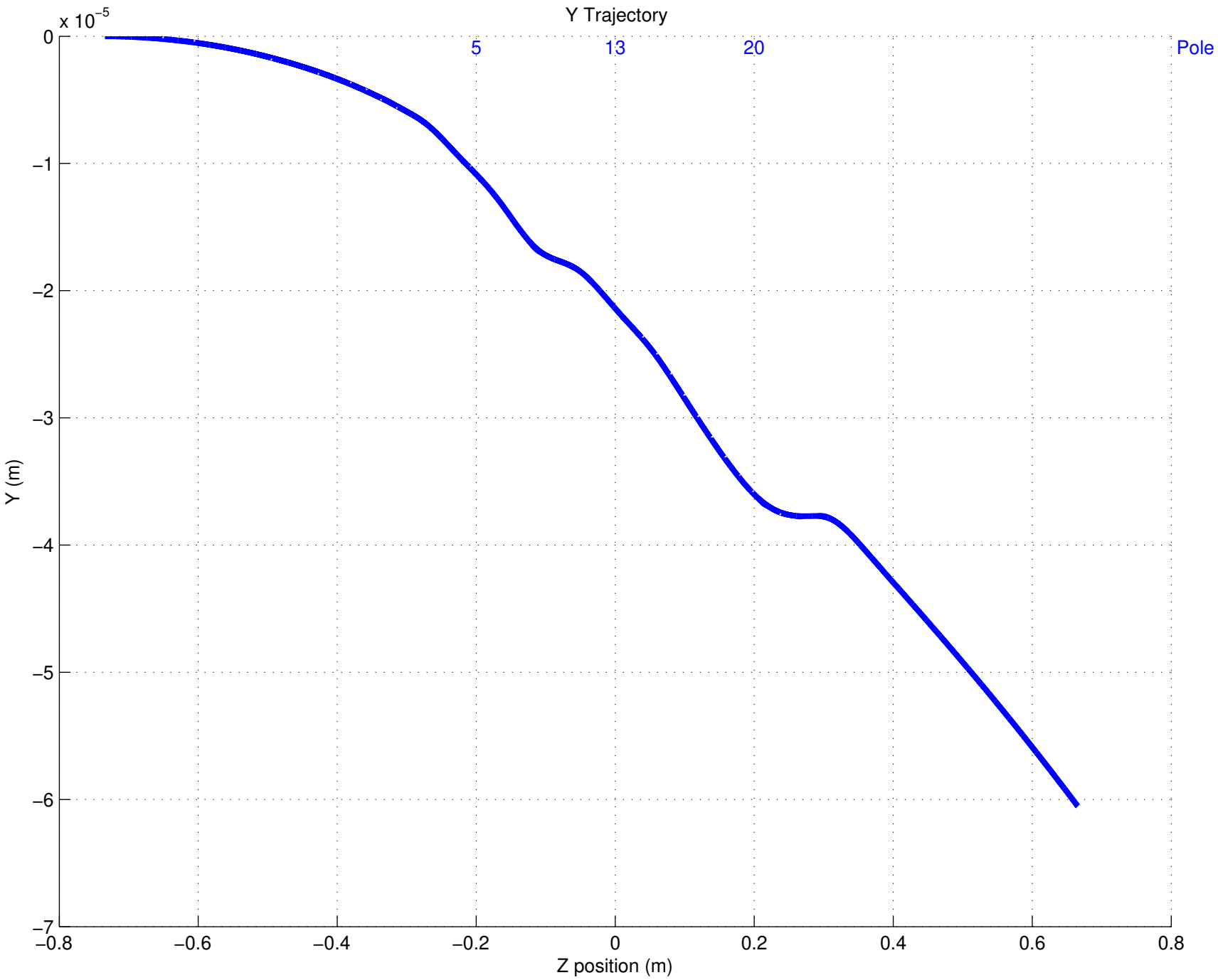
Temperature (C)
ECKO7−55:−−> T1 20.13 −−> T2 20.04 −−> T5 20.06 −−> T3 20.06 −−> Air 20.09 −−> T4 20.13

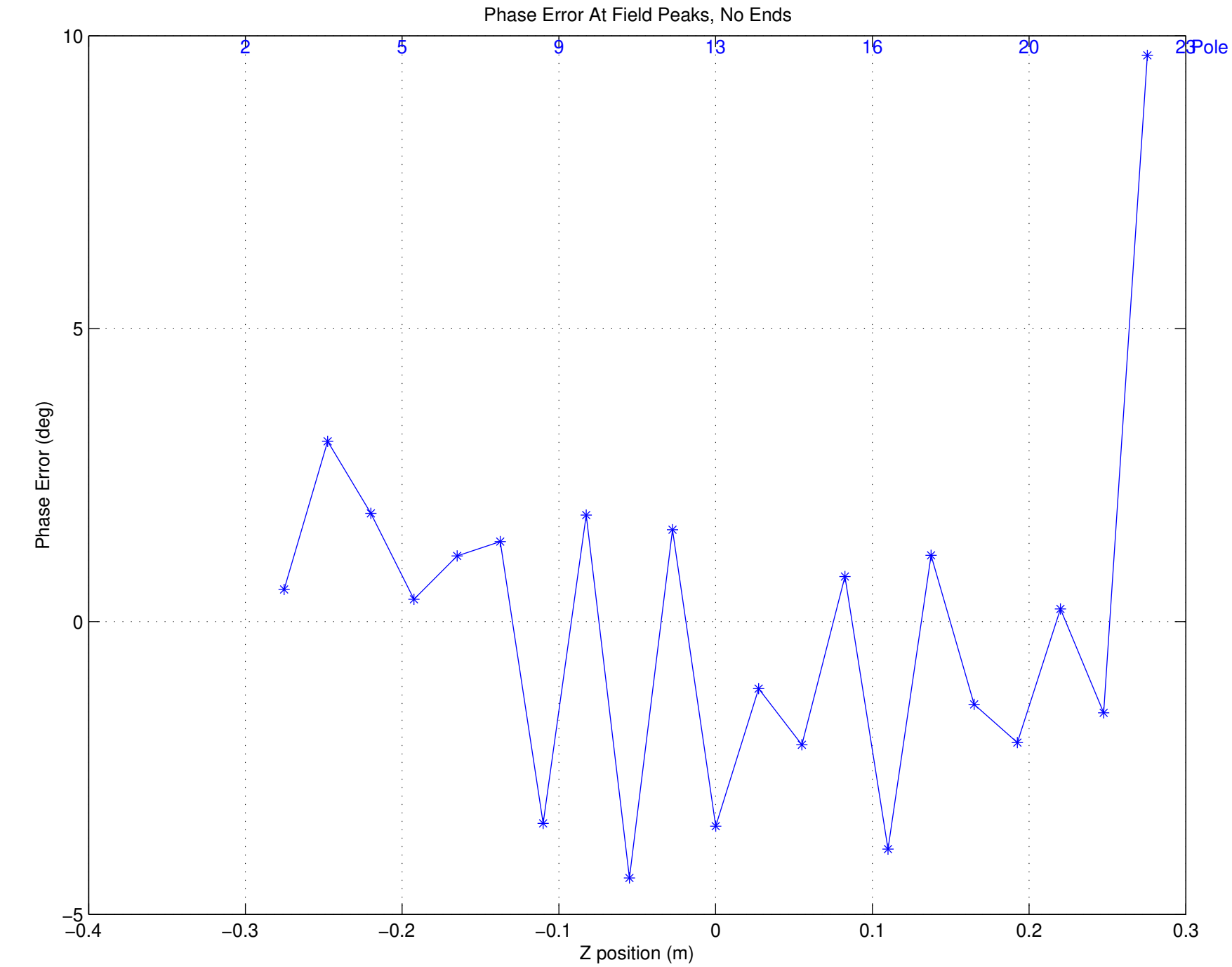
Axes position (m) X:0.029917 Y:0.000132
Initial Hall Probe Zero Measurements:
Vx_0i = 0.000903 V
Vy_0i = −0.003365 V


Bx vs Z
x 10^-3
1.5
1
0.5
0
−0.5
−1
−1.5
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)

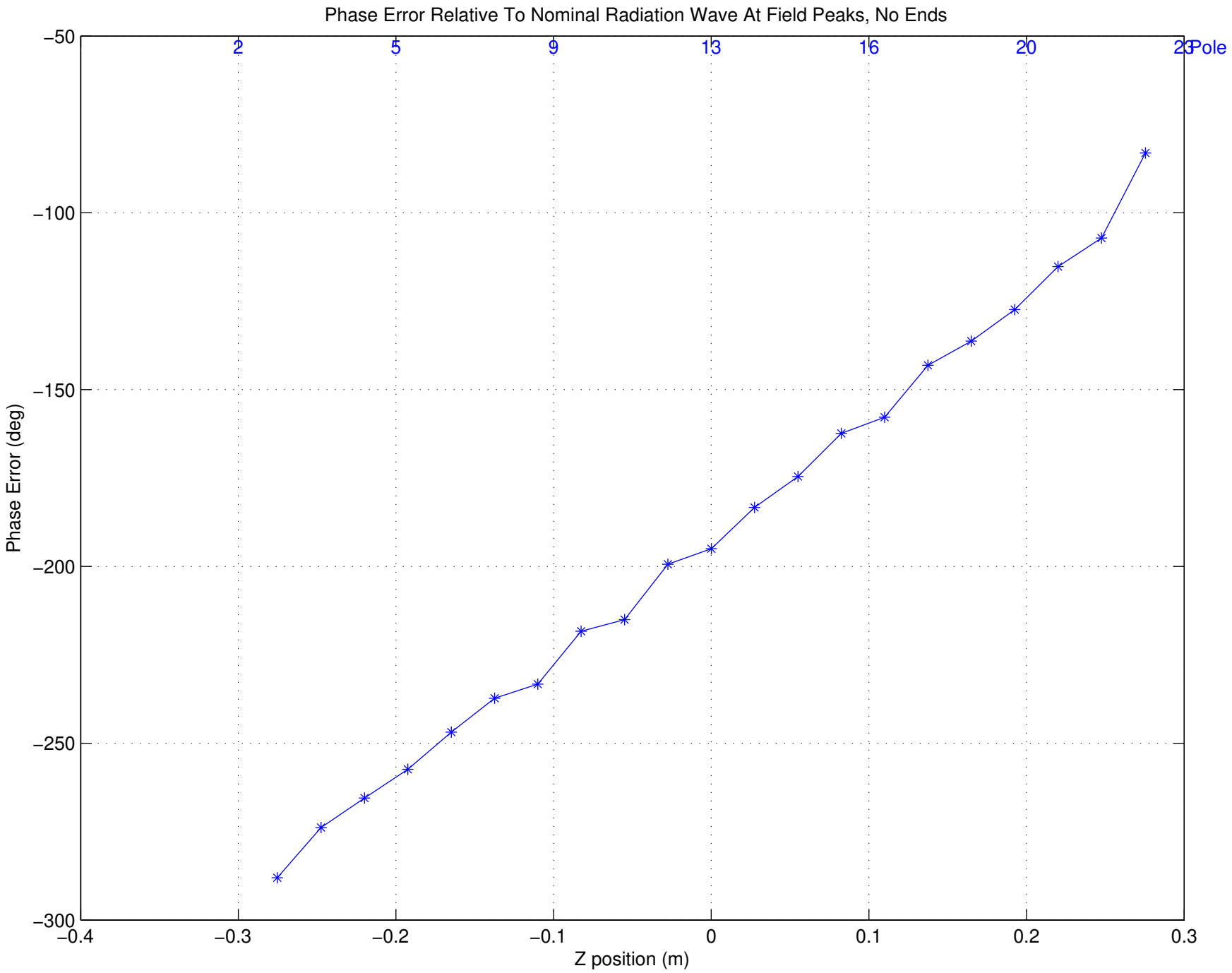

By vs Z
5
13
20
Pole
0.5
0.4
0.3
0.2
0.1
0
−0.1
−0.2
−0.3
−0.4
−0.5
By (T)
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z Position (m)


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^-5
0
−1
−2
−3
−4
−5
−6
−7
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 = 3.085123 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
2
5
9
13
16
20
23
Pole
−50
−100
−150
−200
−250
−300
Phase Error (deg)
−0.4
−0.3
−0.2
−0.1
0
0.1
0.2
0.3
Z position (m)