SLAC Magnetic Measurements

Planar Insertion Device Analysis

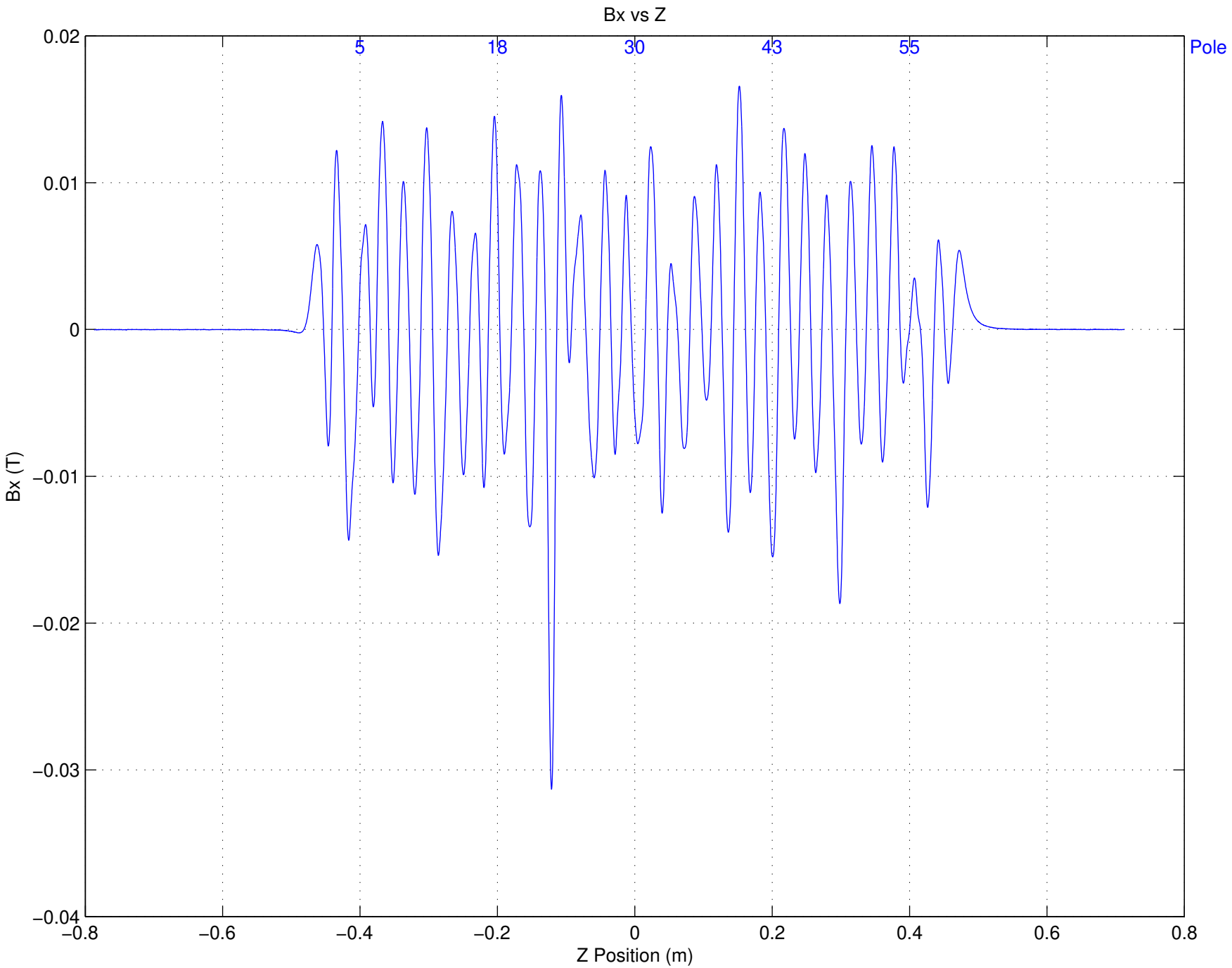
SLAC Magnetic Measurements
Date: 12−10−2012
Time: 14:39:55

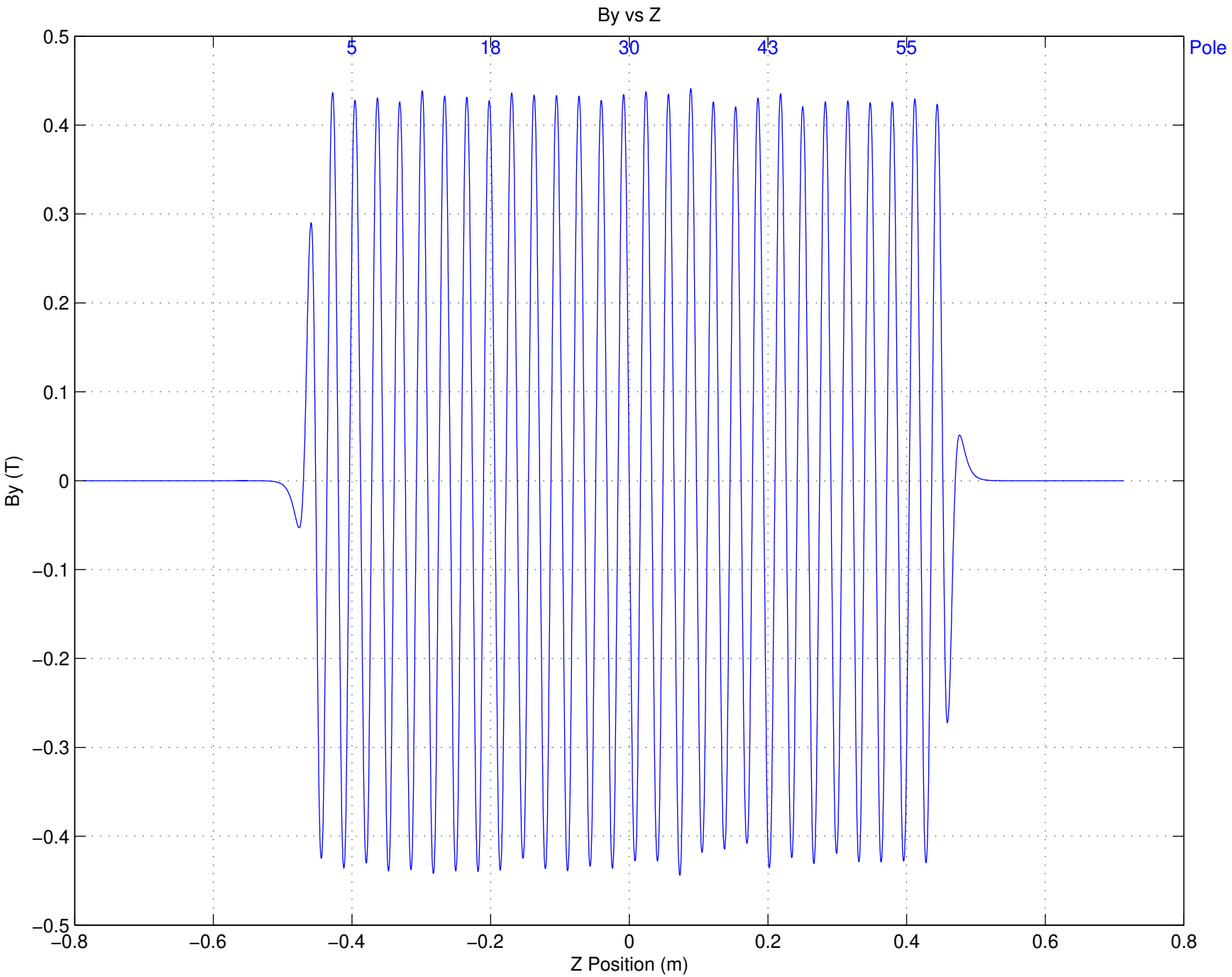
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: DELTA
DATASET Number: 1
Tuning Stage: Fine Tuning
Run Number: 1
Measurement Type: Z Scans
Operator: YL
Comment: find first pole position, quadrant 1
Session first run: 1
Measurement Device x:
Measurement Device y: $SENTRON_4$41

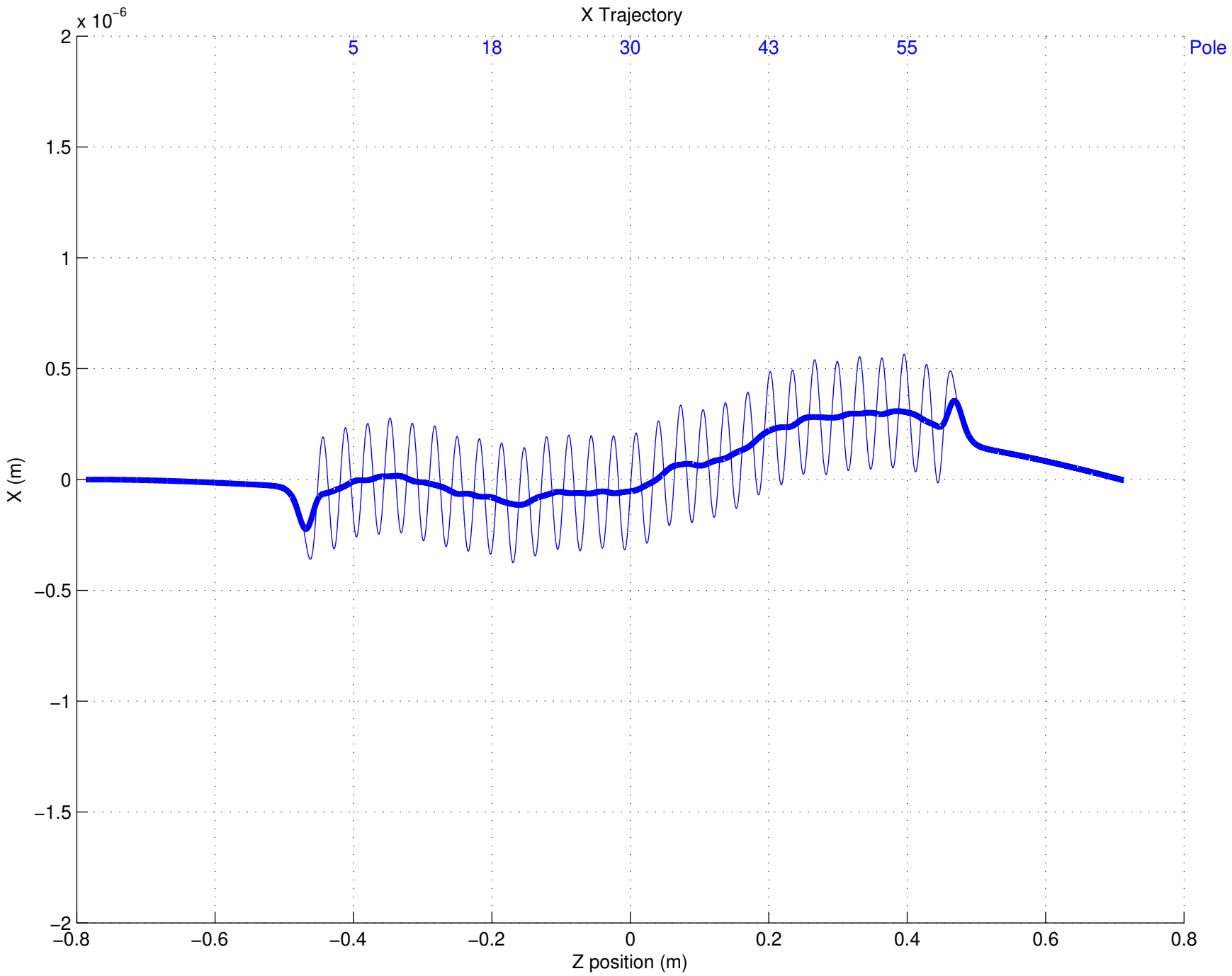
Data File: s:\magdata\LCLS\Undulator\DELTA\DATASET0001\Fine Tuning\Z Scans\Run 001\bscanz.dat

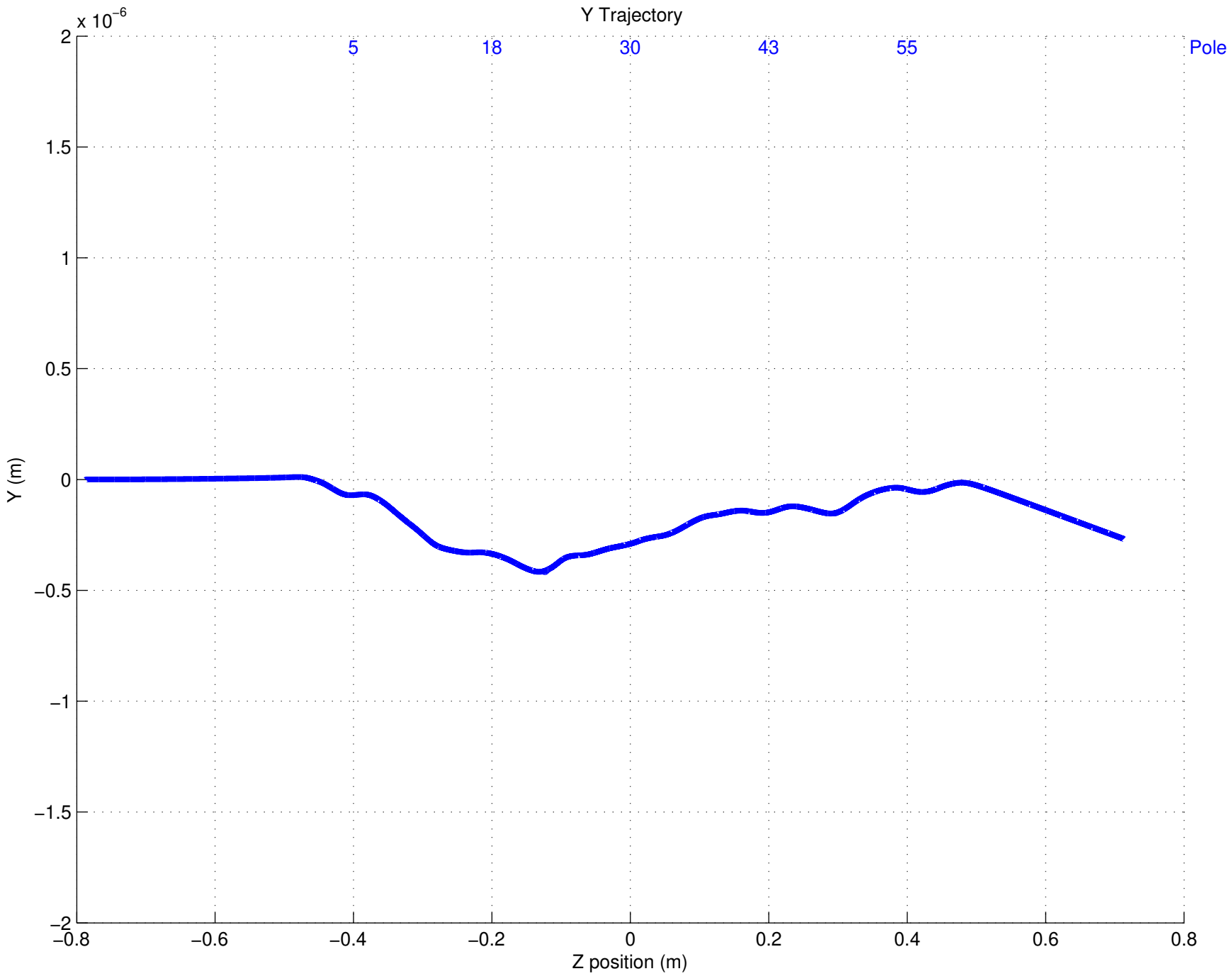
Temperature (C)
DELTA:−−> T1 20.09 −−> T2 20.03 −−> T5 19.97 −−> T3 20.04 −−> Air 20.04 −−> T4 19.94

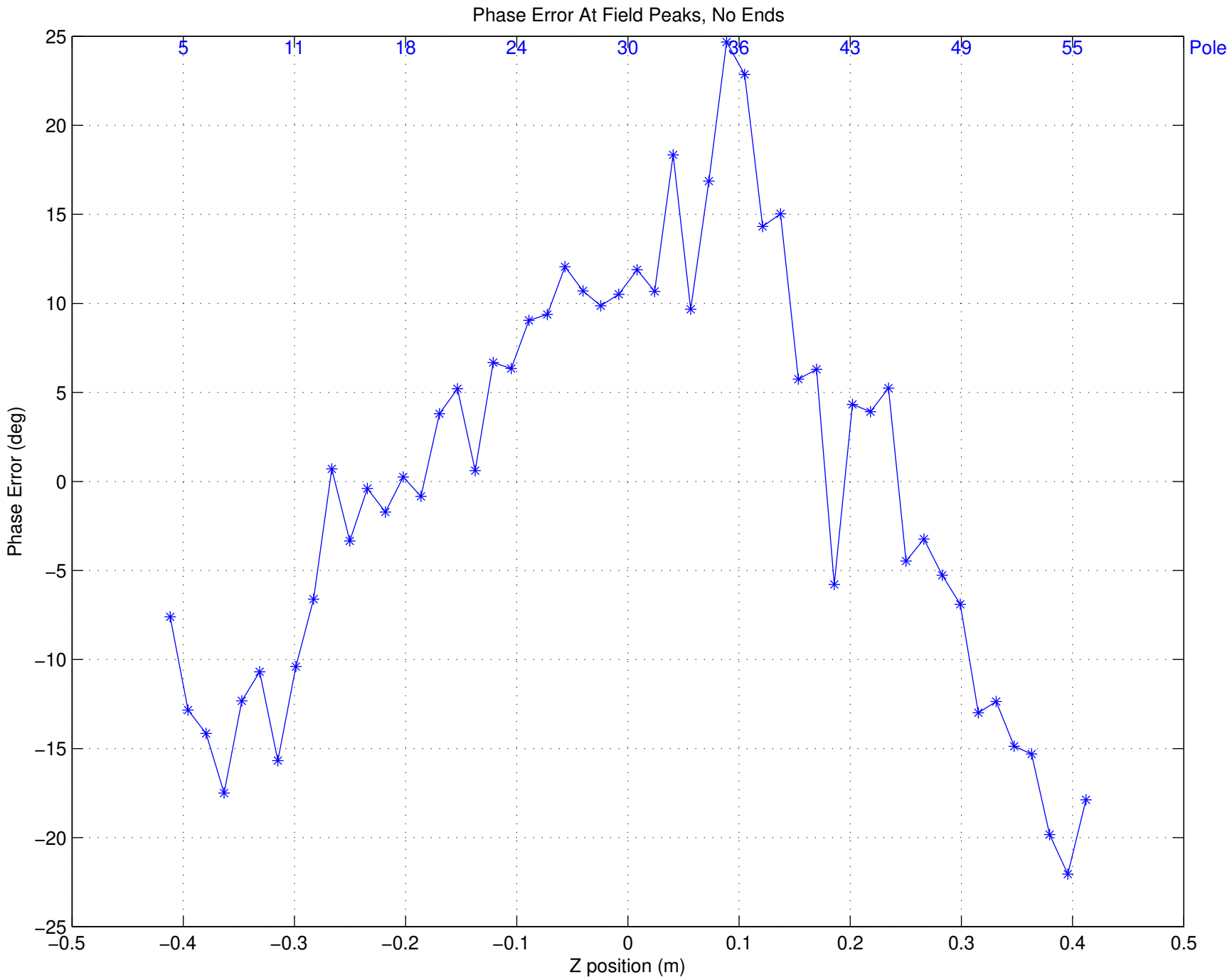
Axes position (m) X:0.030155 Y:0.000224
Initial Hall Probe Zero Measurements:
Vx_0i = 0.001027 V
Vy_0i = −0.003362 V


Bx vs Z
5
18
30
43
55
Pole
0.02
0.01
0
−0.01
−0.02
−0.03
−0.04
Bx (T)
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z Position (m)

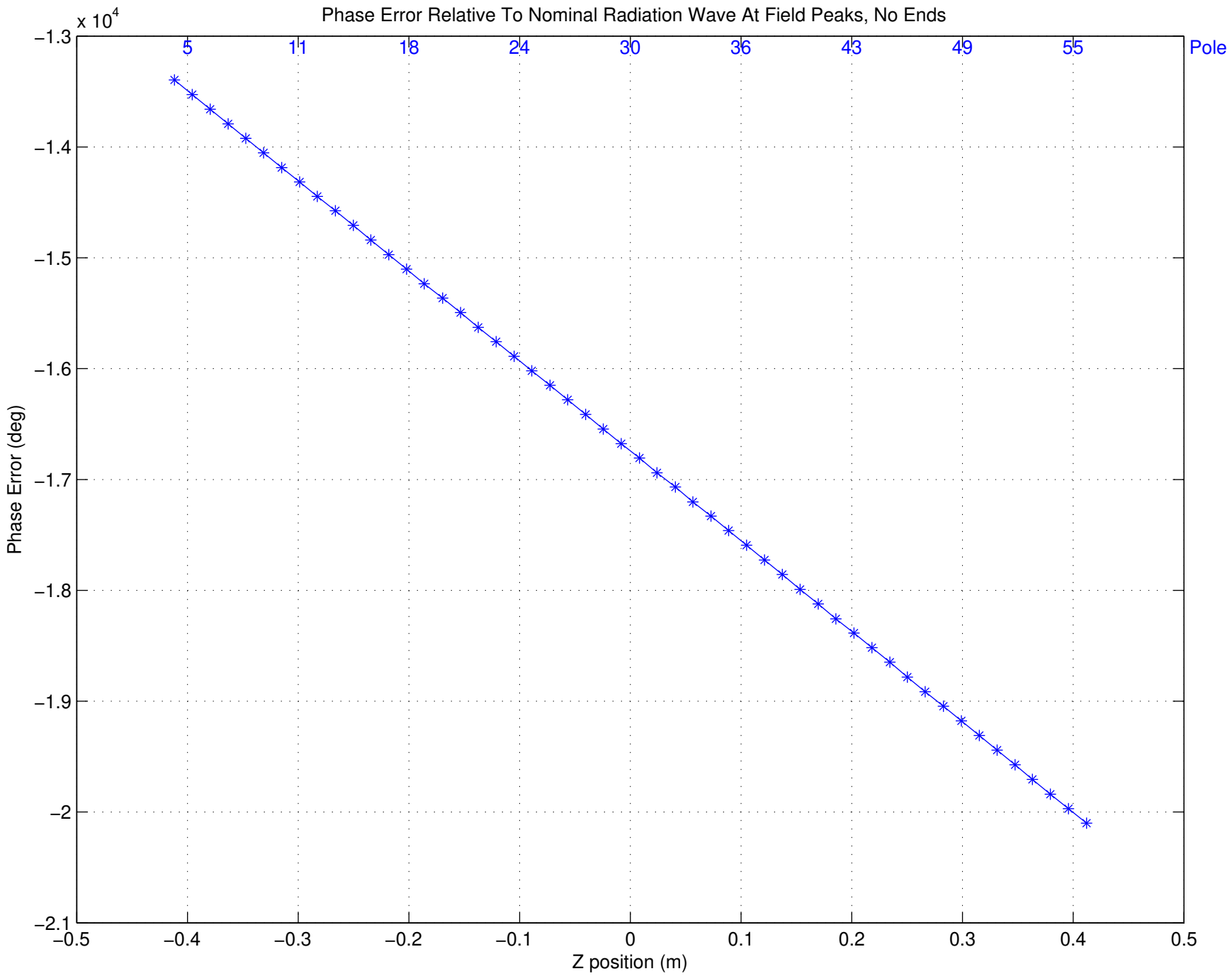

By vs Z
5
18
30
43
55
Pole
0.5
0.4
0.3
0.2
0.1
0
−0.1
−0.2
−0.3
−0.4
−0.5
By (T)
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
Z Position (m)


X Trajectory
x 10^-6
5
18
30
43
55
Pole
2
1.5
1
0.5
0
−0.5
−1
−1.5
−2
X (m)
−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
1.5
1
0.5
0
−0.5
−1
−1.5
−2
Y (m)
5
18
30
43
55
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 = 11.675874 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
x 10^4
−1.3
−1.4
−1.5
−1.6
−1.7
−1.8
−1.9
−2
−2.1
Phase Error (deg)
5
11
18
24
30
36
43
49
55
Pole
−0.5
−0.4
−0.3
−0.2
−0.1
0
0.1
0.2
0.3
0.4
0.5
Z position (m)