SLAC Magnetic Measurements

Planar Insertion Device Analysis

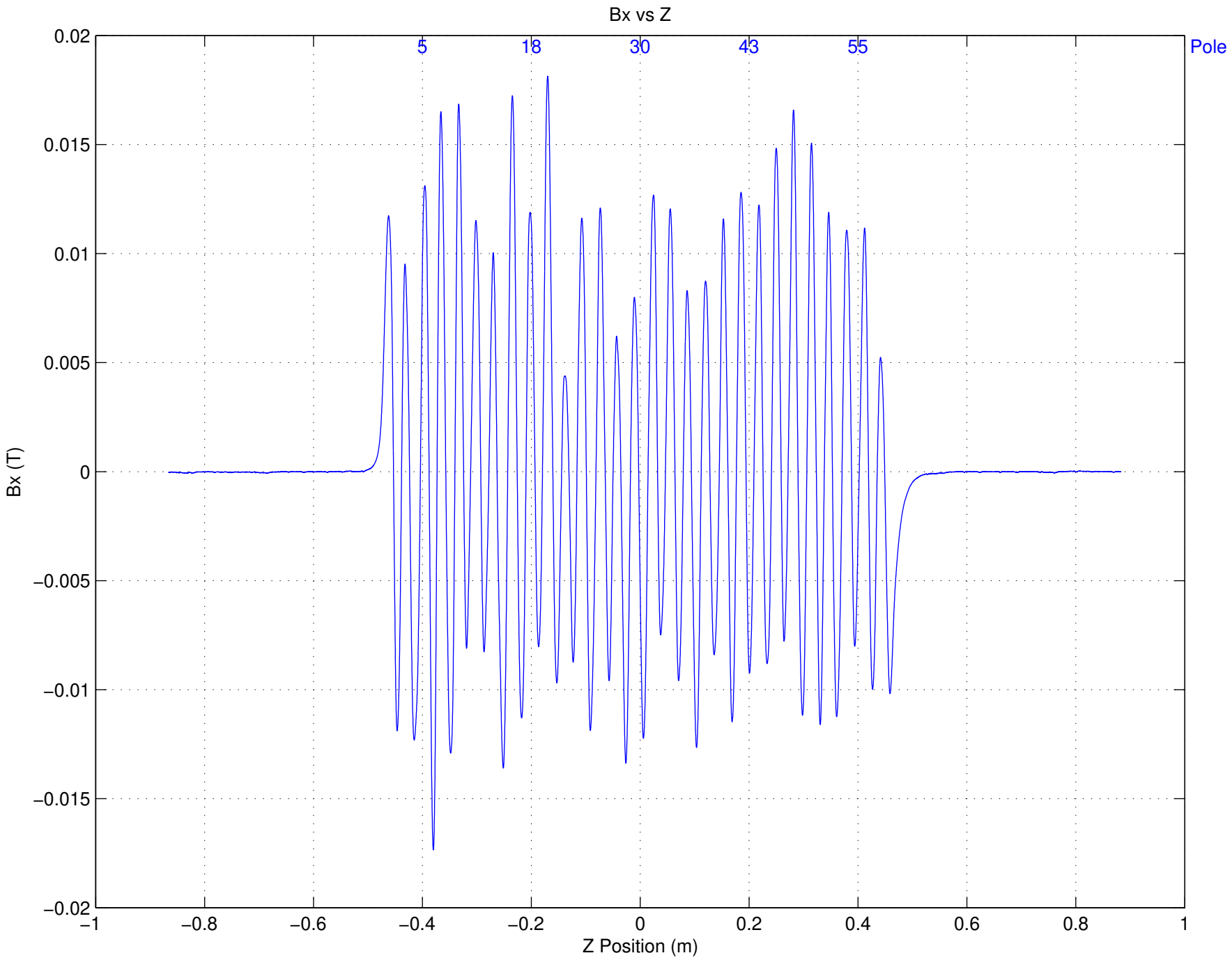
SLAC Magnetic Measurements
Date: 04−17−2013
Time: 13:33:25

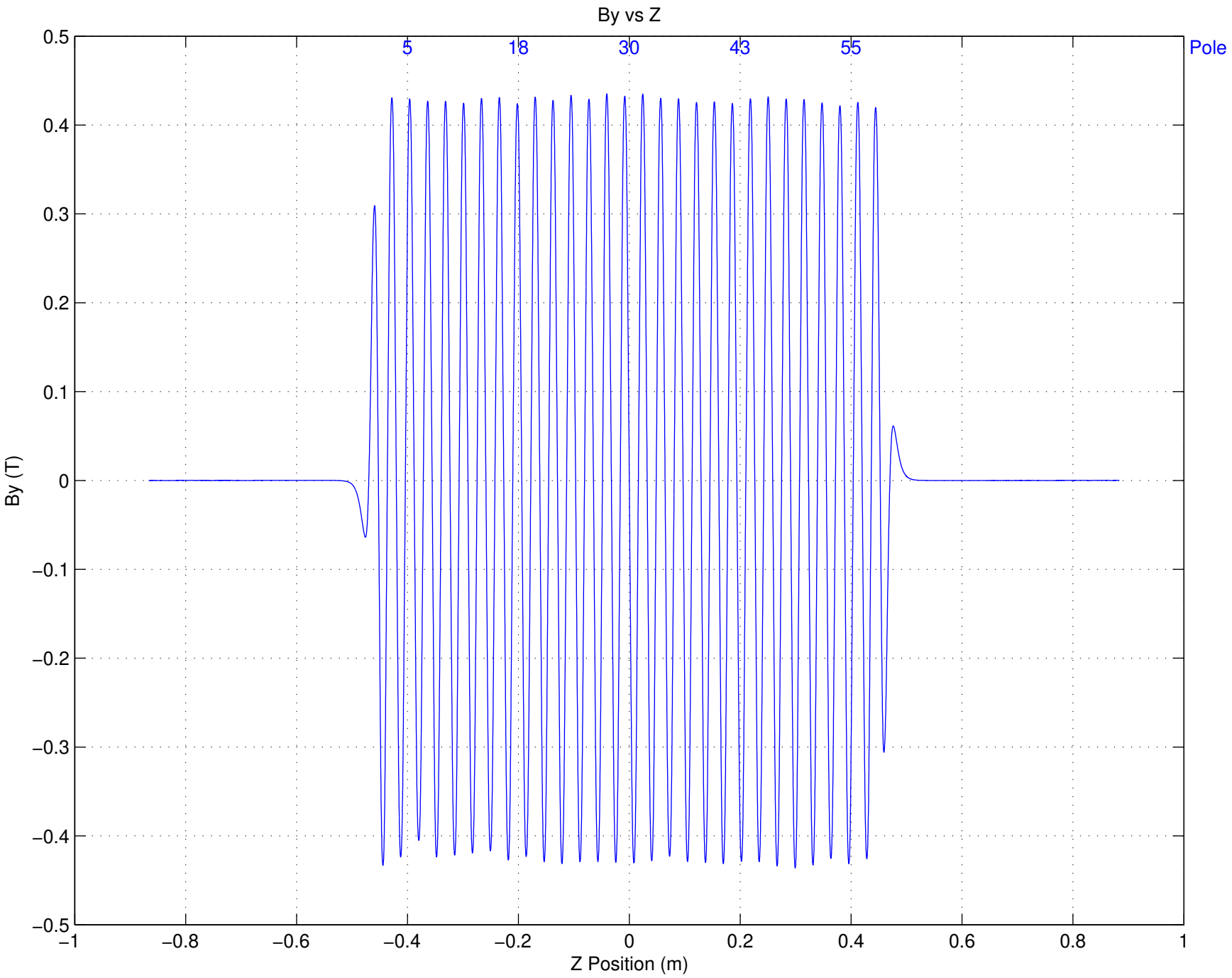
Project: LCLS
Device Type: Undulator
Data Type:
Serial Number: DELTA
DATASET Number: 1
Tuning Stage: Fine Tuning
Run Number: 51
Measurement Type: Z Scans
Operator: YL
Comment: Q2; #13 −9; #3 +x 150um
Session first run: 51
Measurement Device x:
Measurement Device y: $SENTRON_4$41

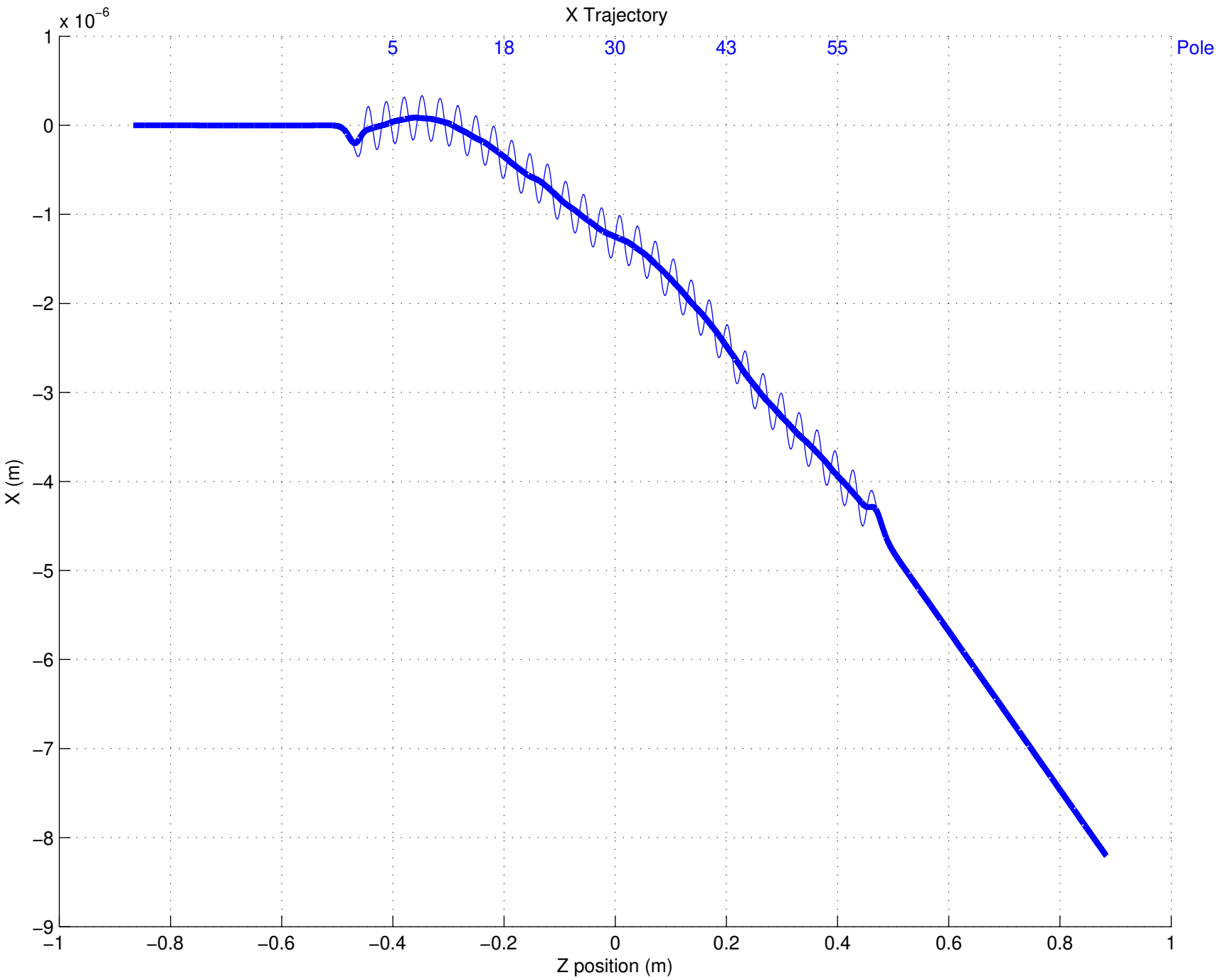
Data File: s:\magdata\LCLS\Undulator\DELTA\DATASET0001\Fine Tuning\Z Scans\Run 051\bscanz.dat

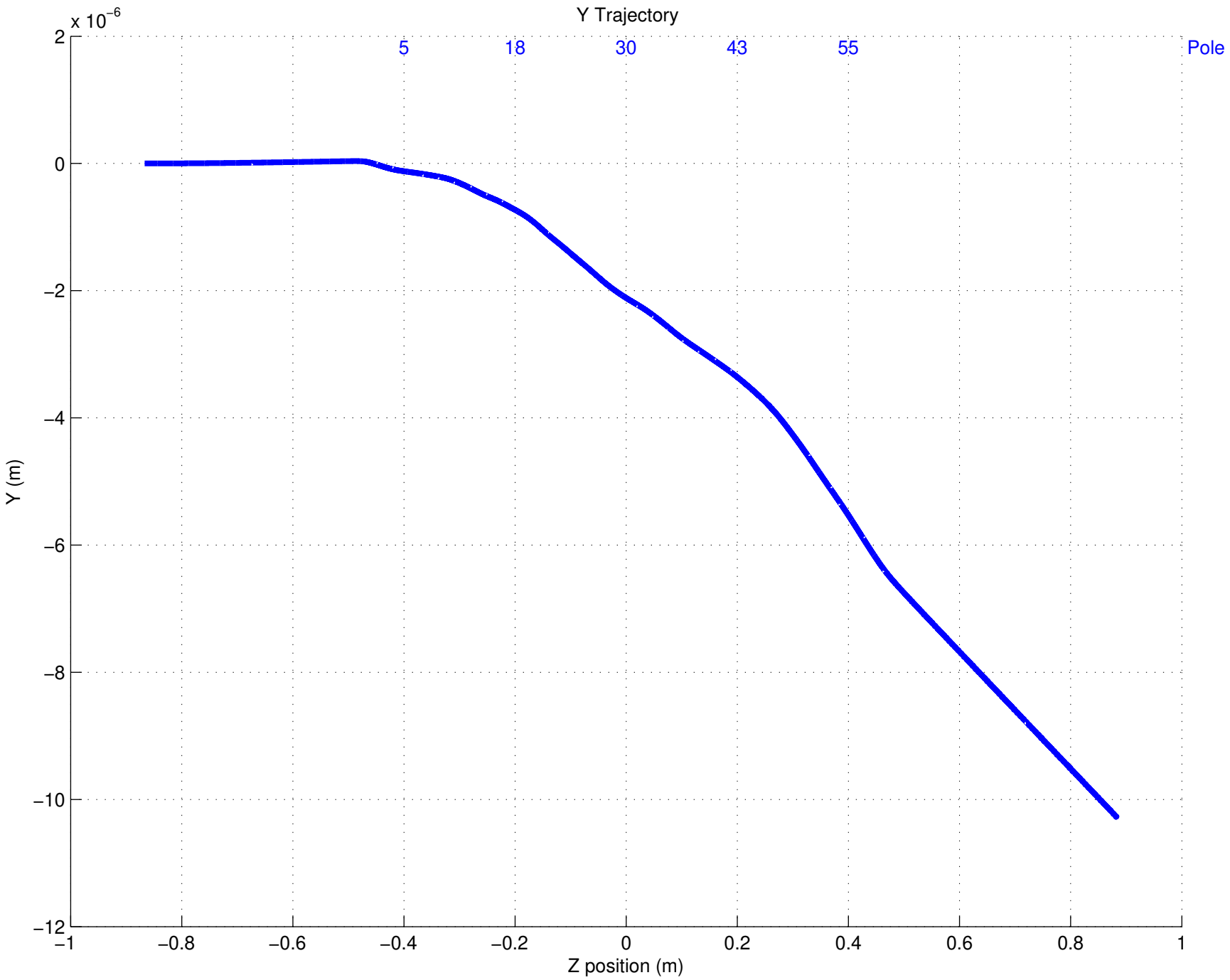
Temperature (C)
DELTA:−−> T1 19.93 −−> T2 20.11 −−> T5 19.85 −−> T3 19.92 −−> Air 19.96 −−> T4 19.91

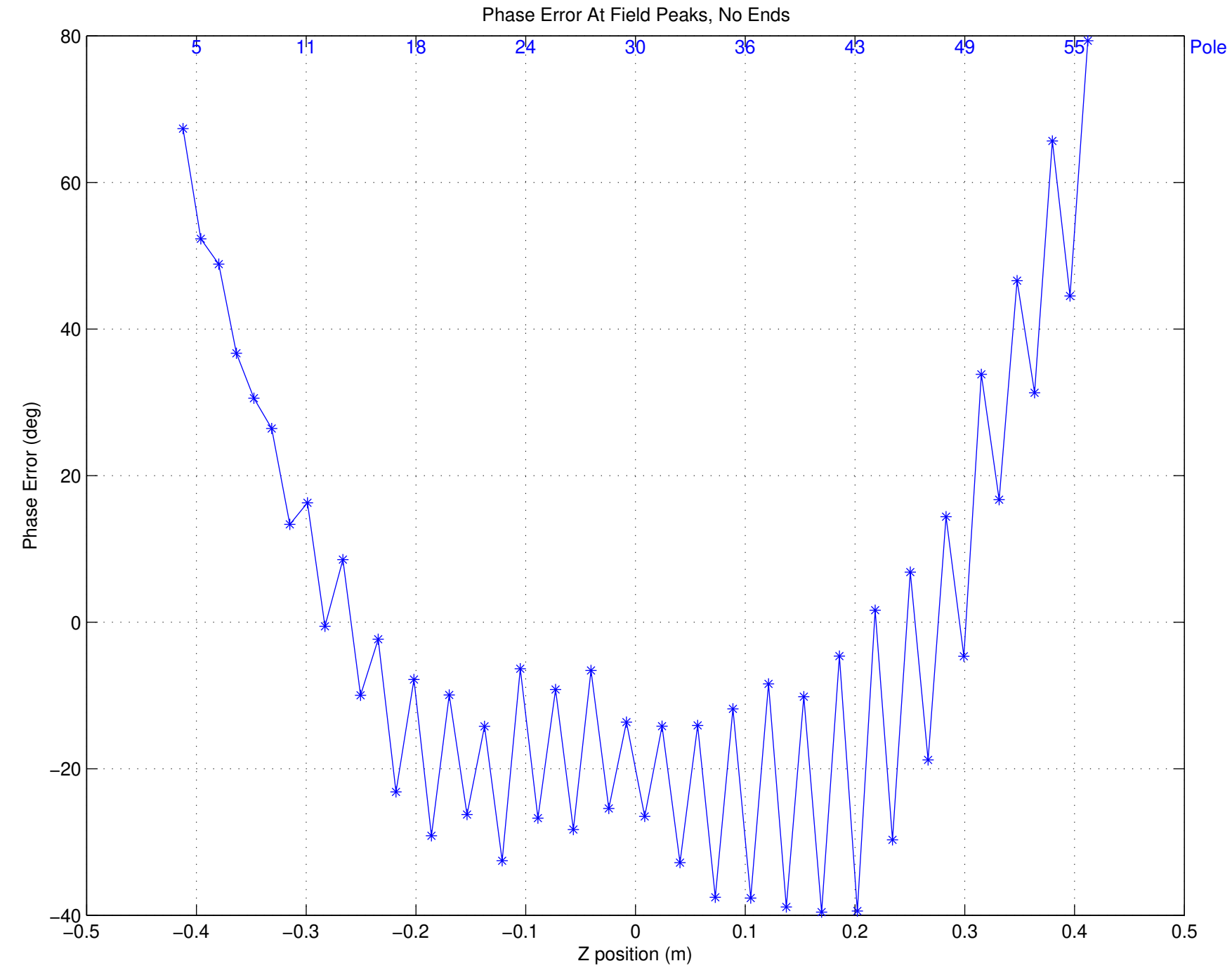
Axes position (m) X:0.020133 Y:0.000025
Initial Hall Probe Zero Measurements:
Vx_0i = 0.000723 V
Vy_0i = −0.003757 V


Bx vs Z
5
18
30
43
55
Pole
0.02
0.015
0.01
0.005
0
−0.005
−0.01
−0.015
−0.02
Bx (T)
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Z Position (m)

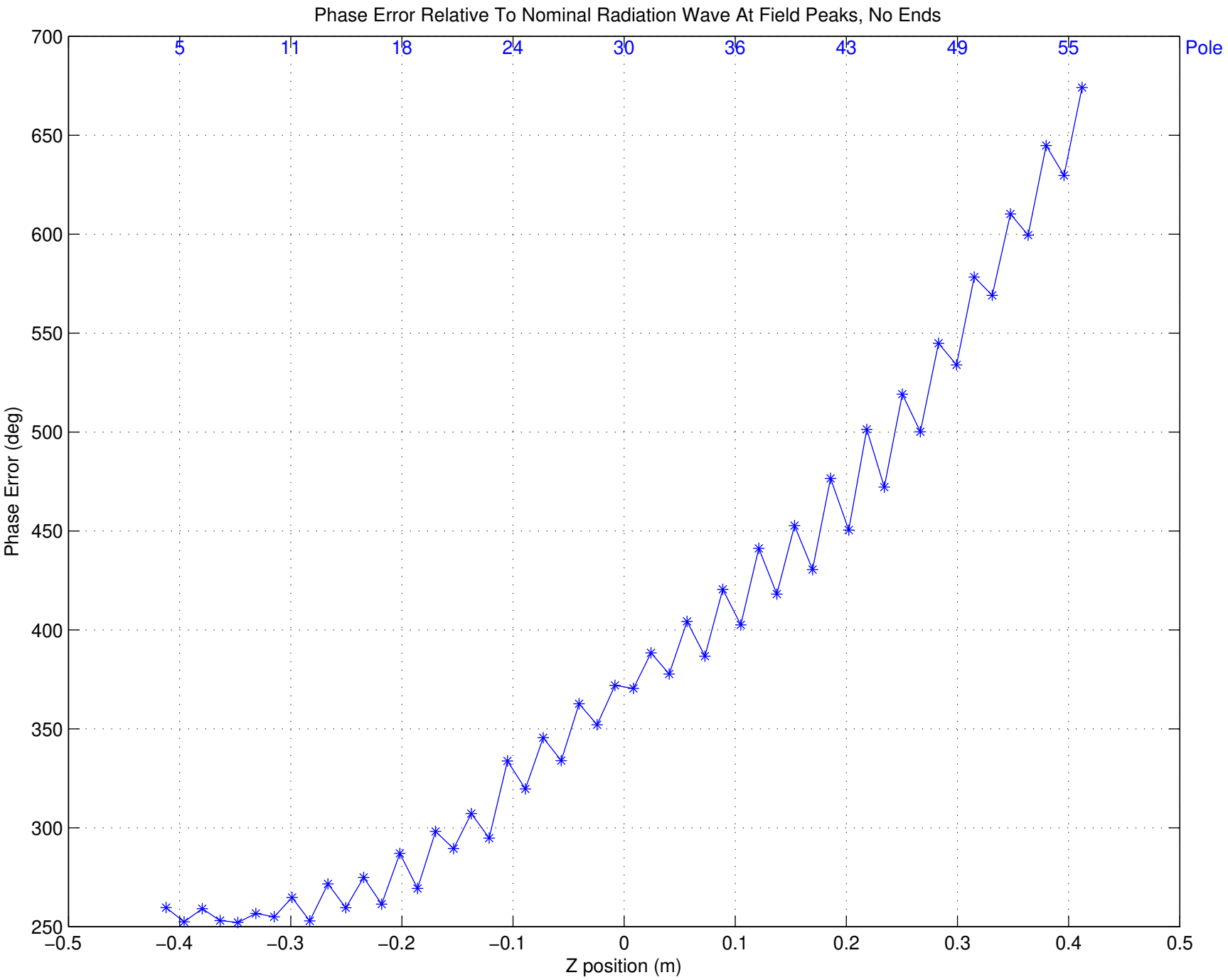

By vs Z
5
18
30
43
55
Pole
0.5
0.4
0.3
0.2
0.1
0
−0.1
−0.2
−0.3
−0.4
−0.5
By (T)
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Z Position (m)


X Trajectory
x 10^-6
5
18
30
43
55
Pole
1
0
−1
−2
−3
−4
−5
−6
−7
−8
−9
X (m)
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Z position (m)


Y Trajectory
x 10^-6
2
0
−2
−4
−6
−8
−10
−12
Y (m)
5
18
30
43
55
Pole
−1
−0.8
−0.6
−0.4
−0.2
0
0.2
0.4
0.6
0.8
1
Z position (m)



Phase Error: Ave = −0.000000 deg, RMS = 30.650295 deg


Phase Error Relative To Nominal Radiation Wave At Field Peaks, No Ends
5
11
18
24
30
36
43
49
55
Pole
700
650
600
550
500
450
400
350
300
250
Phase Error (deg)
−0.5
−0.4
−0.3
−0.2
−0.1
0
0.1
0.2
0.3
0.4
0.5
Z position (m)