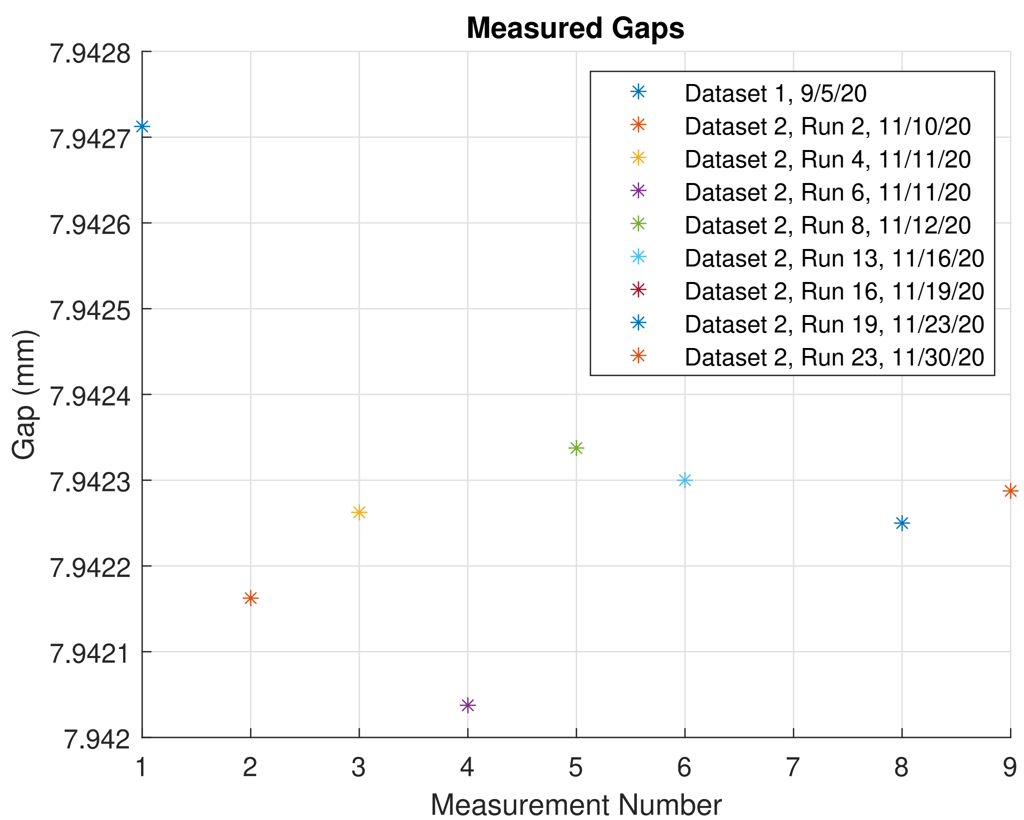
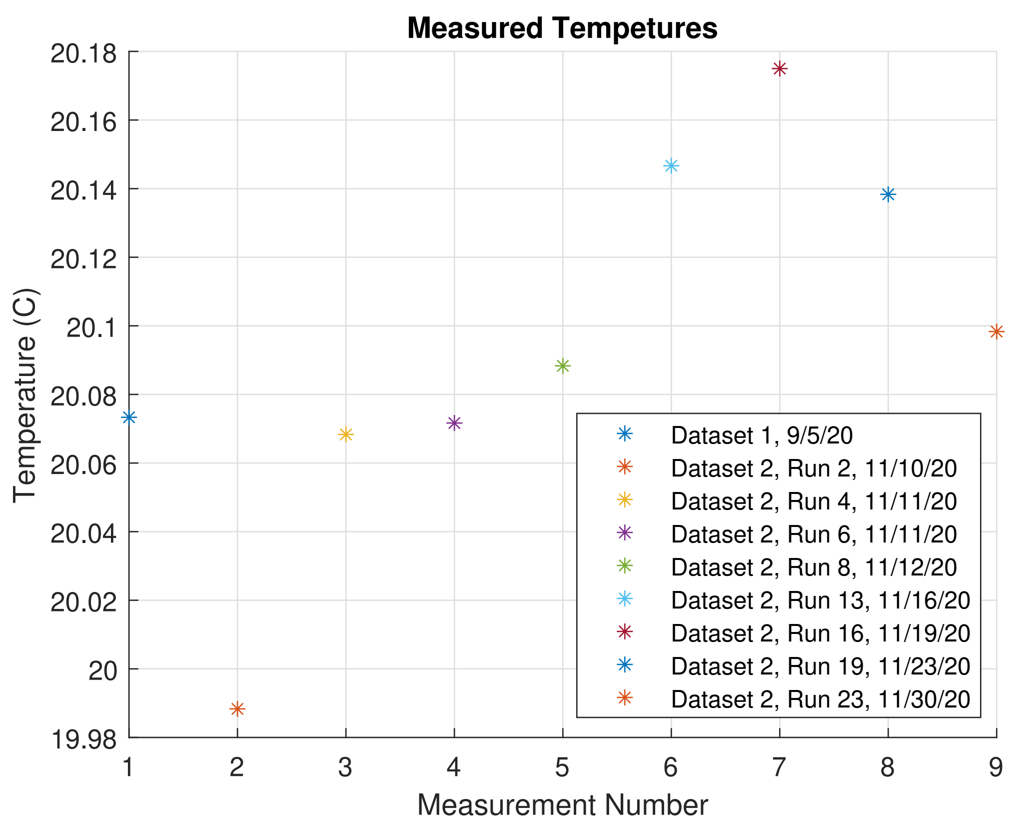
SLAC Magnetic Measurements
Undulator Analysis Comparison

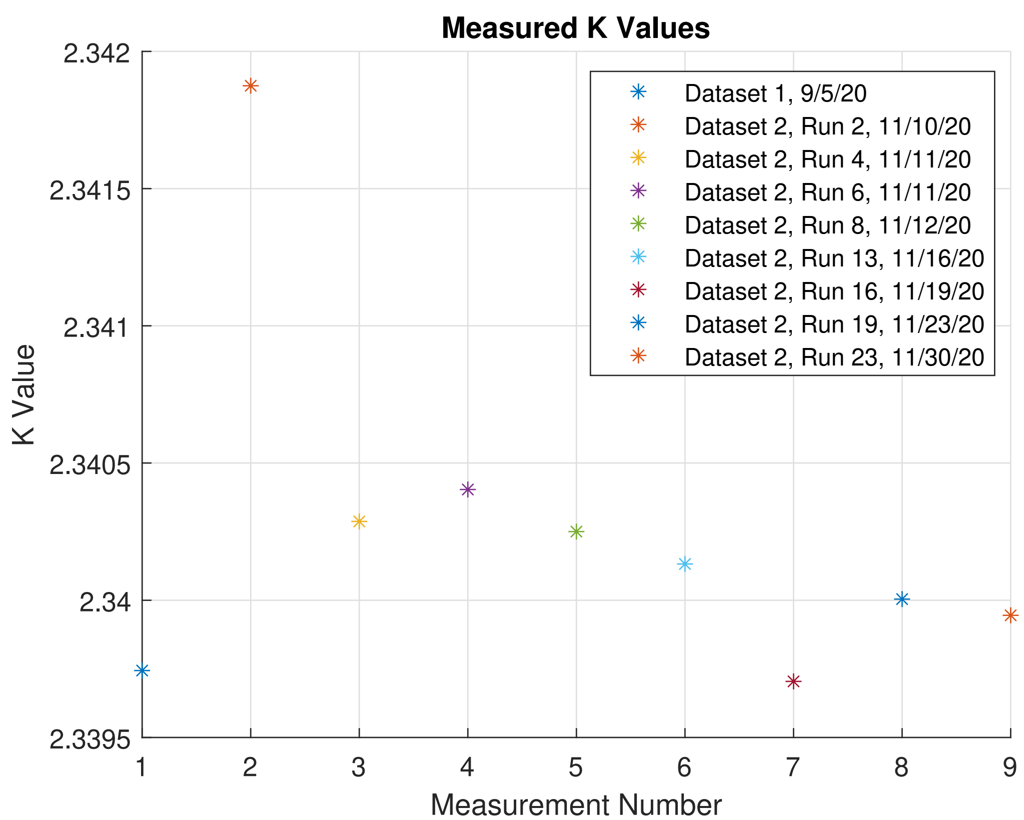
Title:
HXU-016 Commissioning Gap

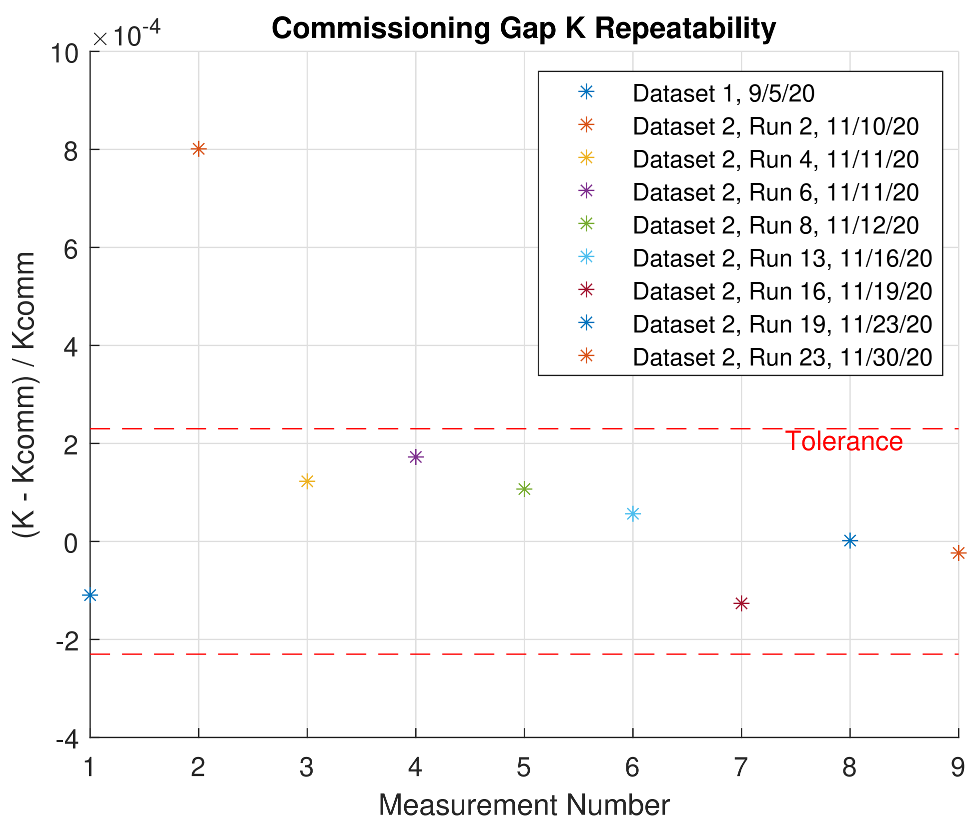
Input Files:
1) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0001\Final Results\Z Scans\Commissioning Gap\001gap007.942x+00.00y+00.00\pid_anal.mat
2) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 002\001gap007.942x+00.00y+00.00\pid_anal_2.mat
3) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 004\001gap007.942x+00.00y+00.00\pid_anal.mat
4) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 006\001gap007.942x+00.00y+00.00\pid_anal.mat
5) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 008\001gap007.942x+00.00y+00.00\pid_anal.mat
6) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 013\001gap007.942x+00.00y+00.00\pid_anal.mat
7) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 016\001gap007.942x+00.00y+00.00\pid_anal.mat
8) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 019\001gap007.942x+00.00y+00.00\pid_anal.mat
9) S:\magdata\LCLS-II\Undulator\HXU_016\DATASET0002\Tuning\Z Scans\Run 023\001gap007.942x+00.00y+00.00\pid_anal.mat



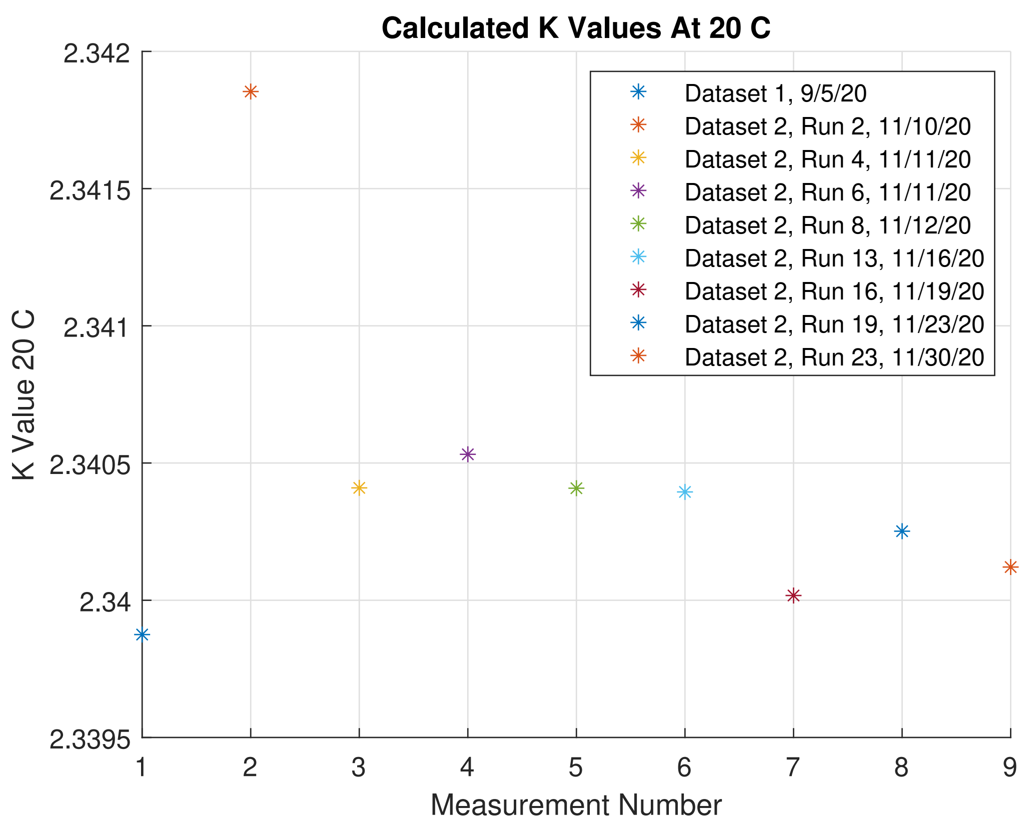
Measured Gaps
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20
Gap (mm)
7.9428
7.9427
7.9426
7.9425
7.9424
7.9423
7.9422
7.9421
7.942
1
2
3
4
5
6
7
8
9
Measurement Number


Measured Tempetures
20.18
20.16
20.14
20.12
20.1
20.08
20.06
20.04
20.02
20
19.98
Temperature (C)
1
2
3
4
5
6
7
8
9
Measurement Number
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20

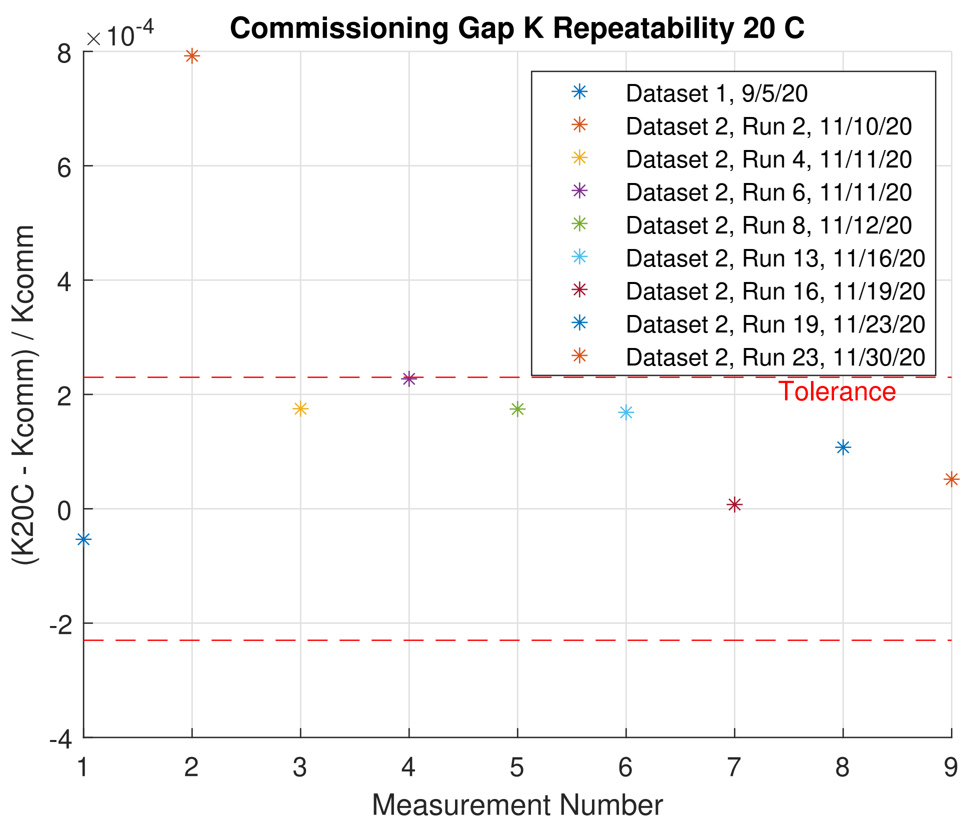

Measured K Values
2.342
2.3415
2.341
2.3405
2.34
2.3395
K Value
1
2
3
4
5
6
7
8
9
Measurement Number
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20



Commissioning Gap K Repeatability
×10^-4
10
8
6
4
2
0
-2
-4
(K - Kcomm) / Kcomm
1
2
3
4
5
6
7
8
9
Measurement Number
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20
Tolerance



Calculated K Values At 20 C
K Value 20 C
Measurement Number
2.342
2.3415
2.341
2.3405
2.34
2.3395
1
2
3
4
5
6
7
8
9
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20


Commissioning Gap K Repeatability 20 C
×10^-4
8
6
4
2
0
-2
-4
(K20C - Kcomm) / Kcomm
1
2
3
4
5
6
7
8
9
Measurement Number
Dataset 1, 9/5/20
Dataset 2, Run 2, 11/10/20
Dataset 2, Run 4, 11/11/20
Dataset 2, Run 6, 11/11/20
Dataset 2, Run 8, 11/12/20
Dataset 2, Run 13, 11/16/20
Dataset 2, Run 16, 11/19/20
Dataset 2, Run 19, 11/23/20
Dataset 2, Run 23, 11/30/20
Tolerance