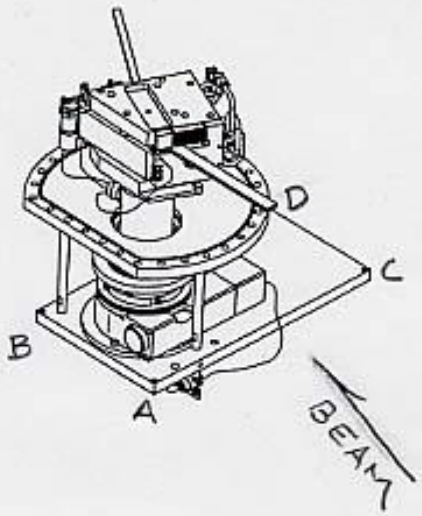
SSRL

BL 7-1 MONO

7-7-05



	X	Y	Z
A	-.296	-9.948	706.322
B	-.300	-9.862	715.574
C	-16.736	-9.955	706.322
D	-16.749	-9.861	715.581

SSRL
BL 7-1 MONO
LAB DATA

7-7-05
J.M., L.G.

check

(X)

CRYSTAL

U/S) 11.509 READ ON (+) SIDE
.110 (.118 X COS 21.88°)
11.619
(-)3.001 VALUE
+8.618 LOS

A) 7.914
1.000
8.914
8.618
-.296

B) 7.918
1.000
8.918
8.618
-.300

C) 16.940 (A-C) D) 24.367
.500 T/B
16.440
-.296
-16.736

1.000
25.367
8.618
-16.749

(Z)

708.936 U/S END
11.806 OF CRYSTAL
697.130 LOS

A) 8.192
1.000
9.192
697.130
706.322

B) 17.444
1.000
18.444
697.130
715.574

C) 8.192
1.000
9.192
697.130
706.322

D) 17.451
1.000
18.451
697.130
715.581

SSRL
B/L 7-1 MONO
LAB DATA

7-7-05
J.M., L.G.

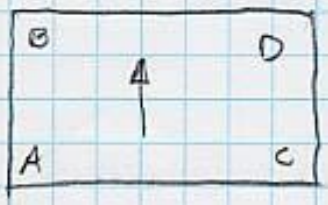
(Y)

CRYSTAL

u/s) +.024 READ
.118
+.094 FROM ℄
2.696 VAL. @ ℄
2.790

D/s) +.085
.118
+.033 FROM ℄
2.755
2.788

M = +2.789 HI



A) 20.545
1.250
21.795
11.847
-9.948

B) 20.459
1.250
21.709
11.847
-9.862

C) 20.552
1.250
21.802
11.847
-9.955

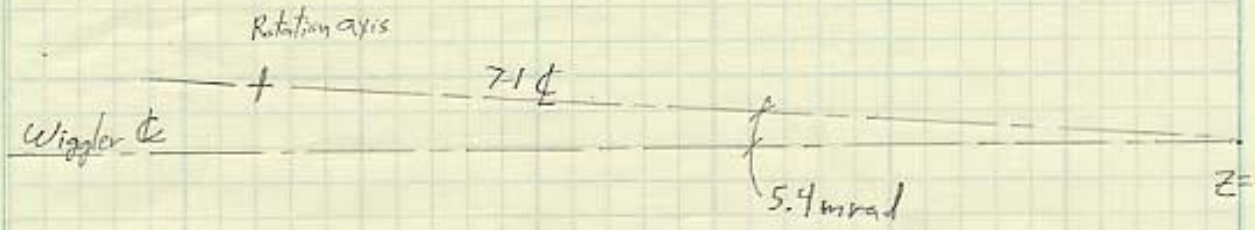
D) 20.458
1.250
21.708
11.847
-9.861

GUN1
9.578 REF.
2.789 HI
6.789 = ℄

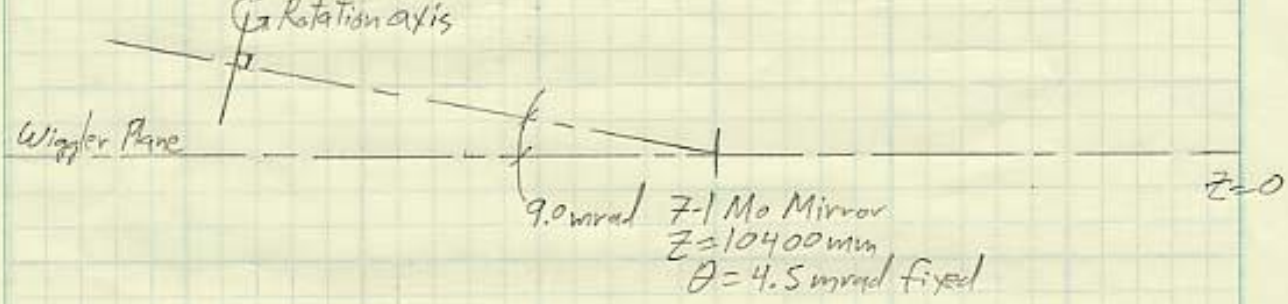
GUN2
18.636
6.789 ℄
+11.847 HI

BL7-1 Mono | Alignment

Plan View

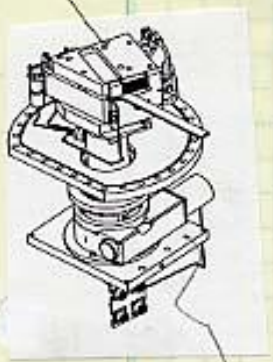


Elevation Along Optical Path (5.4 mrad)



Rotation Axis Alignment

1. Optical Face of Crystal must be parallel to Rotation Axis such that the crystal face will sweep a plane that is orthagonal to the rotation axis. This can be acheive by aligning the crystal pitch and roll parallel to the Huber Plate



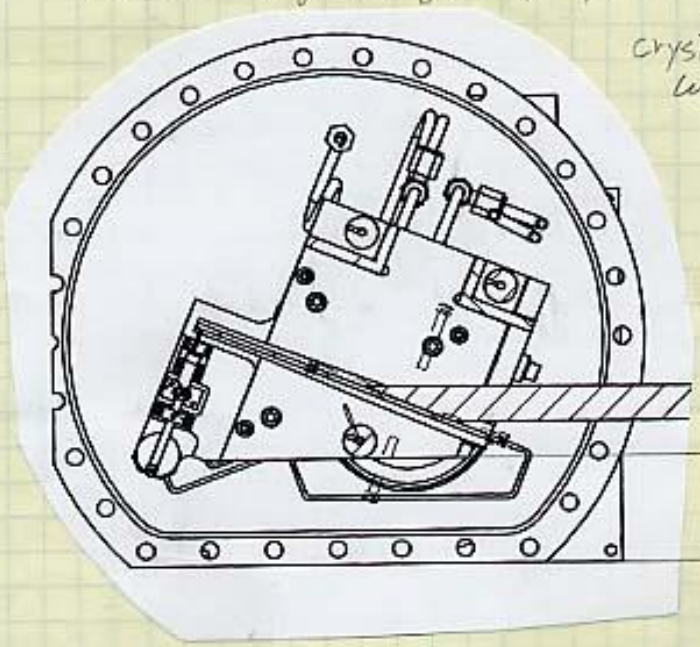
A. Roll w.r.t. Huber Plate: Best accuracy - limited to measuring geometry of crystal or Flexture Holder
± 2 mrad

B. Pitch, measured over 7 inches (w.r.t. Huber) ± .005"/7in = ±0.7 mrad

C. Y w.r.t. Huber Plate set to ± 0.1"
measured ± .002".

2. Crystal Yaw (Theta) to be set in known angle. By setting indicated edge of slid cap parallel to wiggler ℄ in X, the crystal should be at 21.88 deg w.r.t. wiggler ℄

$\pm 0.01/5^{\circ} = \pm 2$ mrad



3. Beam Line Alignment

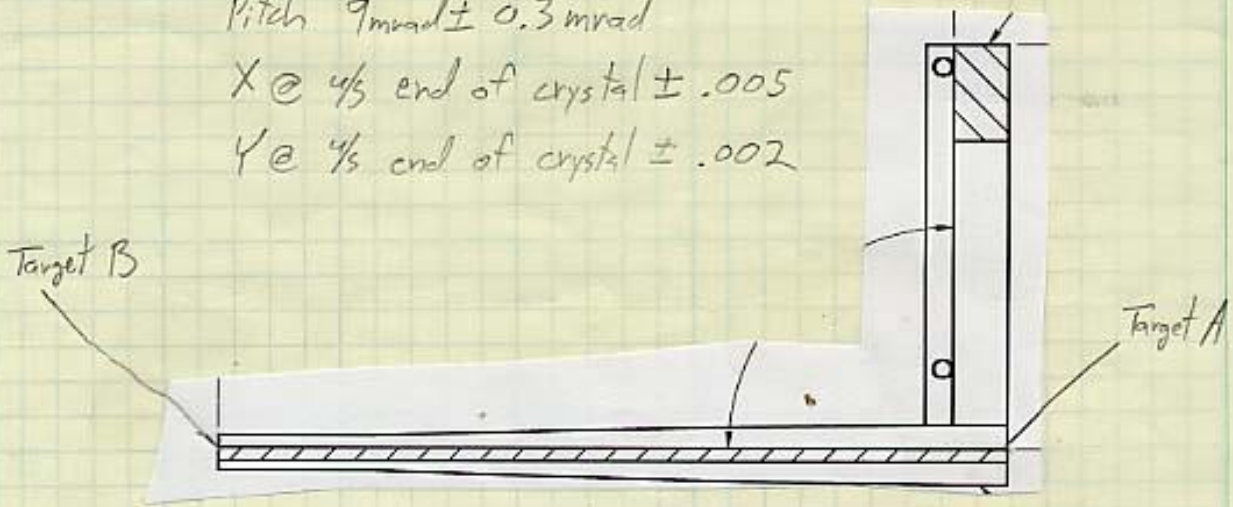
Once the above conditions are set, the whole assembly can be set into installation coordinates. This involves tilting the rotation axis 9mrad as indicated on page 1.

Y & X become crytical for alignment.

Pitch 9mrad ± 0.3 mrad

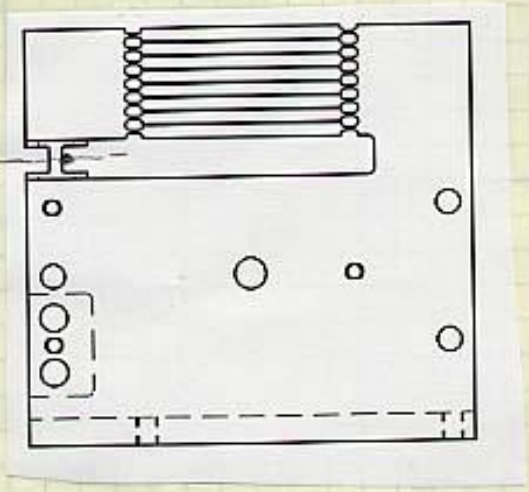
X @ u/s end of crystal ± .005

Y @ u/s end of crystal ± .002



BL 7-1 Mono | Alignment

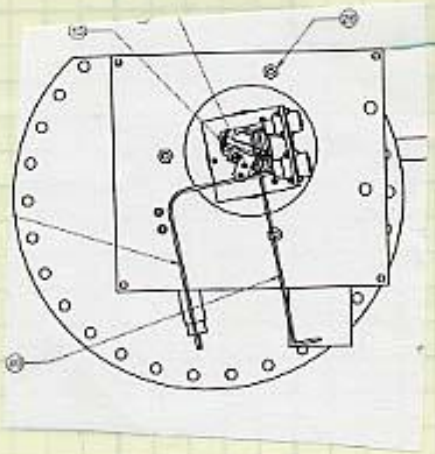
3. Beam Alignment - Continue



Target A X = -3.001" y = 2.696" Z = 708.936"

Target B X = -5.657" y = 2.755" Z = 715.547"

Δy = .059



SSRL
BL 7-1 MONO
LAB DATA

7-7-05

(X)

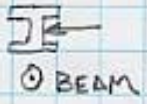
GLIDCOP

11.100 READ ON GLIDCOP U/S & D/S PARALLEL to HUBER PLATE
-2.496 VAL.
+8.604 LOS

CRYSTAL

U/S

11.509 READ U/S (+) SIDE OF CRYSTAL
.110 (1.18 × COS 21.88)
11.619 to (-) SIDE
8.604
3.015



+8.604 LOS
10.000 REF
18.604 = Z

D/S

-5.657
.110
5.547
18.604
24.151

3.015 +.014
5.557 D/S +.010

X = 21.865°

OSIR
+.010

D = 2.65²

A-C
16.940