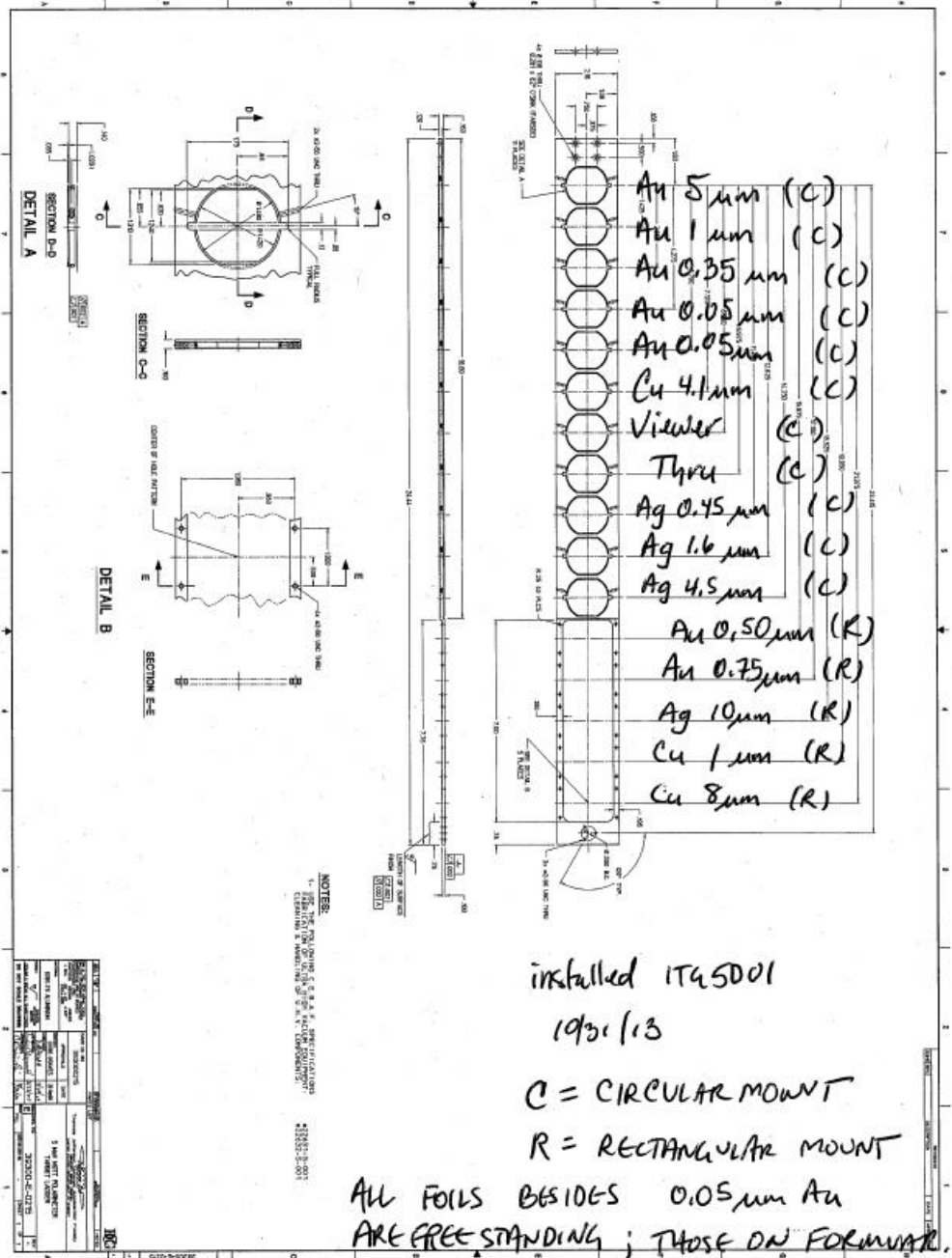# Mott Target Ladder for Commissioning

December 20, 2013
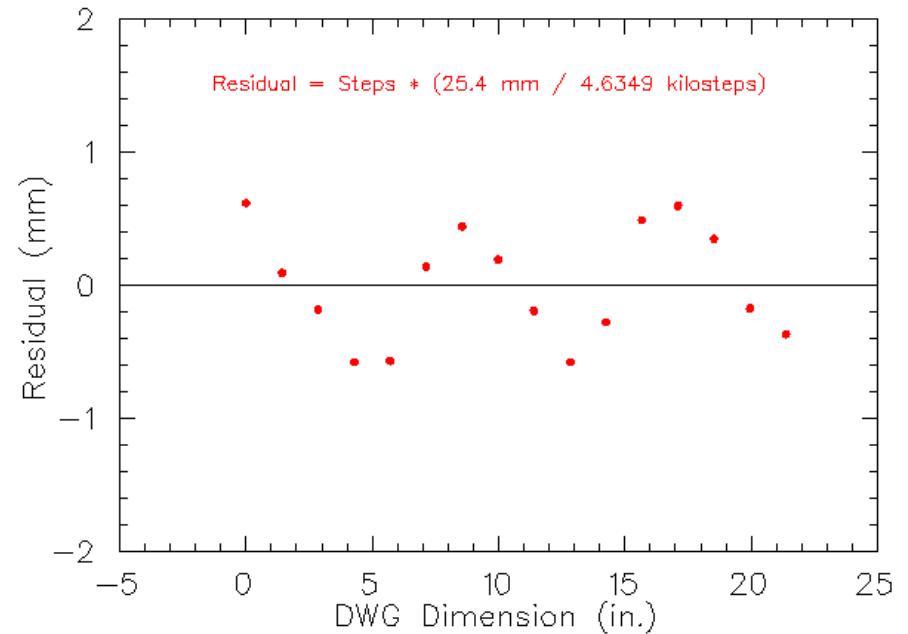
Downstream Face

Au 5 μm (C)
Au 1 μm (C)
Au 0.35 μm (C)
Au 0.05 μm (C)
Au 0.05 μm (C)
Cu 4.1 μm (C)
Viewer (C)
Thru (C)
Ag 0.45 μm (C)
Ag 1.6 μm (C)
Ag 4.5 μm (C)
Au 0.50 μm (R)
Au 0.75 μm (R)
Ag 10 μm (R)
Cu 1 μm (R)
Cu 8 μm (R)

installed ITG5D01
19/31/13

C = CIRCULAR MOUNT
R = RECTANGULAR MOUNT
ALL FOILS BESIDES 0.05 μm Au
ARE FREESTANDING ; THOSE ON FORMVAR.

```
!Ideal = 7.90" = Chamber CL to target port flange
!
!POS     STEPS          DWG
!        SURVEY-DT-1527  39300-E-0215-REVA
!        (#)            (inches)
!
16      -108535          0.000
15      -101835          1.425
14      -95180           2.850
13      -88503           4.275
12      -81900           5.700
11      -75425           7.125
10      -68875           8.550
9       -62225           9.975
8       -55550          11.400
7       -48875          12.825
6       -42325          14.250
5       -35860          15.675
4       -29275          17.100
3       -22625          18.525
2       -15925          19.950
1        -9285          21.375
```
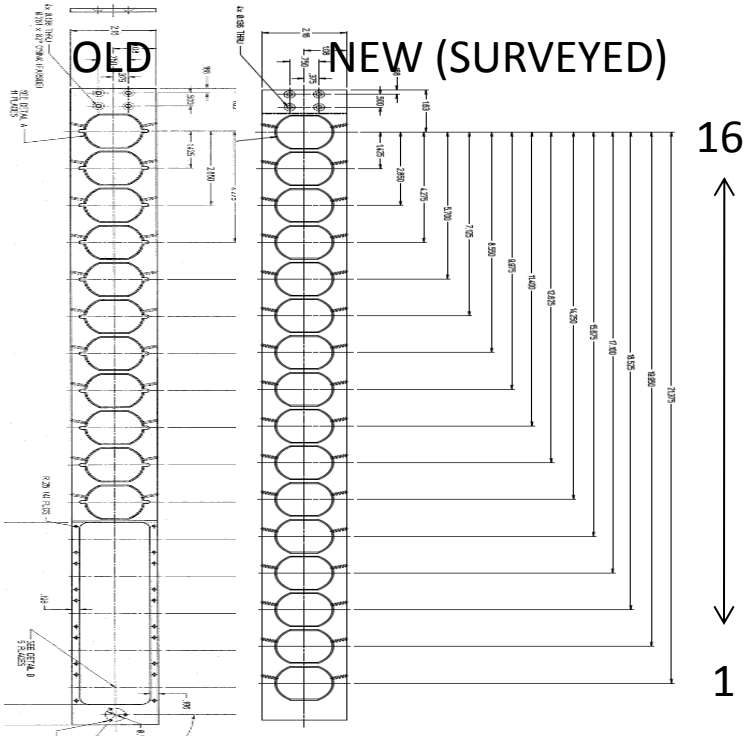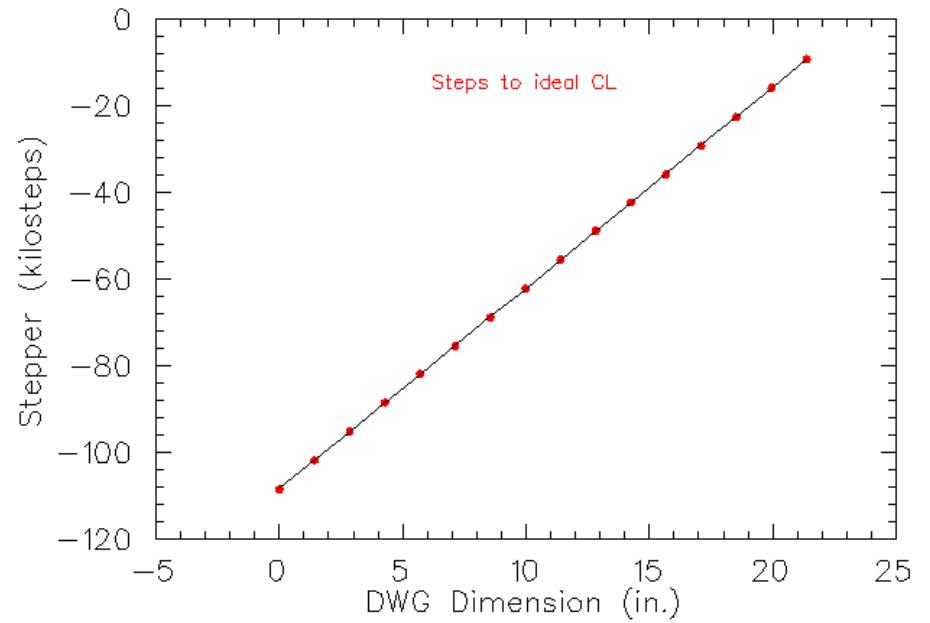

Steps to ideal CL

OLD   NEW (SURVEYED)

16

1

Residual = Steps * (25.4 mm / 4.6349 kilosteps)

Jefferson Lab Alignment Group
Data Transmittal

TO: J.Grames		DATE: 13 Nov 2013
FROM: Chris Gould	Checked:	# : L1527

DETALS:

Below are the results of the recent Mott Can and Ladder survey. Locations for the can are reported in CEBAF coordinates and in a beam following system where positive Z is downstream, positive Y is up and a positive X is to the beam left. Locations for the ladder are reported relative to CEBAF coordinates, beam following and relative to the MOTT Can. Yaw angles are given relative to ideal and are reported in degrees. A positive Yaw angle is counter-clockwise from above, a positive pitch angle is counter-clockwise from the beam right side and a positive roll angle is clockwise looking downstream. The step count for the ideal position of each target is also given where target 1 is the bottom most target and 16 is the top most target. It should also be noted that while fiducializing the target ladder 6 degrees of backlash in the yaw direction was observed.

	CEBAF COORDS (M)			BEAM FOLLOWING(mm)			dYaw	dPitch	dRoll			
	Z	X	Y	Z	X	Y						
TARGET CAN	-241.11774	81.05479	99.99963	-3.652	-0.29	-0.367	0.0	0.0	-0.1			

	CEBAF COORDS (M)			BEAM FOLLOWING(mm)			dYaw	dPitch	dRoll	RELATIVE TO MOTT CAN(mm)		
	Z	X	Y	Z	X	Y				Z	X	Y
TARGET LADDER	-241.11786	81.05602	99.999813	-3.514	0.938	-0.187	-0.4	0.1	0.2	0.11	1.25	0.2

Ladder is +0.2 mm high relative to Mott can, so all targets need to be inserted 0.2 mm further.

This translates into (4.6349 kilosteps / 25.4 mm) * 0.2 mm = 36 steps
Note 1: This means stepper changes from X to X-36
Note 2: error on linear fit is 38 steps

Target Ladder Expert Values Updated

FSD Bit Tested (Motion = Fault)

/cs/opshome/edm/mott/INJ_Mott_Ops.edl

COMM Health:
Motor NO_ALARM   **Mott Ladder**   **Related**

Foil Select

Current steps: 0 steps
Motor Current: 0.00 amps

If the current step count is 0, the unit may have lost power. Reset the position from Motor Expert screen or rehome from Mott Expert.

		Mount Type	Foil Desc	Saved Pos
Home	**Home:**	n/a	Fully retracted	-250 steps
Req	**Foil 1:**	Rectangular	Cu: 8 um	-9321 steps
Req	**Foil 2:**	Rectangular	Cu: 1 um	-15961 steps
Req	**Foil 3:**	Rectangular	Ag: 10 um	-22661 steps
Req	**Foil 4:**	Rectangular	Au: 0.75 um	-29311 steps
Req	**Foil 5:**	Rectangular	Au: 0.50 um	-35896 steps
Req	**Foil 6:**	Circular	Ag: 4.5 um	-42361 steps
Req	**Foil 7:**	Circular	Ag: 1.6 um	-48911 steps
Req	**Foil 8:**	Circular	Ag: 0.45 um	-55586 steps
Req	**Foil 9:**	Circular	Thru	-62261 steps
Req	**Foil 10:**	Circular	Viewer	-68911 steps
Req	**Foil 11:**	Circular	Cu: 4.1 um	-75461 steps
Req	**Foil 12:**	Circular	Au: 0.05 um	-81936 steps
Req	**Foil 13:**	Circular	Au: 0.05 um	-88539 steps
Req	**Foil 14:**	Circular	Au: 0.35 um	-95216 steps
Req	**Foil 15:**	Circular	Au: 1 um	-101871 steps
Req	**Foil 16:**	Circular	Au: 5 um	-108571 steps

Status: Lost COMM to STAC5

ABORT

(wmoore, 2013-10-09)

/cs/opshome/edm/fsd/ISD0I012.edl

INJ01_2 (IN01B08-26-18-C1) (24 Volt Card)

UM S R G F I

U M   Watchdog Timer - INJ01_2

U   45 Mev in Line Dump (ICN) ***

U M   Mott Target Ladder (EGG)

Fault Trip Reset

*** Hrdw always active (mask ignored)

Mask Set   0