



# Jefferson Lab Alignment Group

## Data Transmittal

**TO:** M. Jones, B. Sawatzky, D. Gaskel, S. Lassiter, M. Fowler

**DATE:** 01/02/2018

**FROM:** Kelly Tremblay

**Checked:** (cwg)

**# :** C1842

**DETAILS** data: aalign\hms\2017\ hc\_hms\_102617,h20170809\_1,hms\_20170519,h20170809,h20170808

Below are the results from the surveys of HMS spectrometer carried out on various dates in 2017.

The horizontal pointing value shows how much the central axis of the spectrometer misses the ideal target. This value is perpendicular to the spectrometer axis, not along the beam line. For the vertical pointing, a positive value indicates that the spectrometer is pointing above the target.

2017.05.19 ===== RESULTS ===== HC\_12\_20170519

The central ray of the spectrometer is at 40.534 degrees  
The central ray is missing the defined target center by 3.35 [mm] Upstream  
and -1.01 mm vertically [positive value is up]

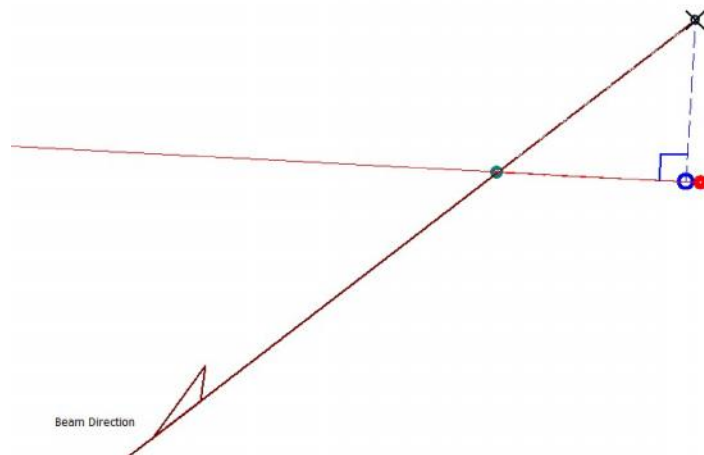
9 Par A posteriori value : 0.29 (mm)

HMS\_20170519

- Beam-Spec Intercept Point
- Beam-Spec Perpendicular Point
- Spectrometer Projected Target Point
- ⊗ Straight-Ahead Target Point [ideal]

angles: delta : 40.53360 [degrees]  
beam : -142.48325 [degrees]  
spectrometer: 176.98315 [degrees]

perpendicular distance : 3.359 [mm]  
target - intersect dis : 5.169 [mm]  
found target - intersect dis : 4.225 [mm]  
Spectrometer is -1.01 lower than ideal target [mm]



- Spectrometer Line
- Straight-Ahead Beam
- Perpendicular line

The central ray of the spectrometer is at 25.013 degrees  
 The central ray is missing the defined target center by 1.47 [mm] Upstream  
 and -0.92 mm vertically [positive value is up]

9 Par A posteriori value : 0.27 (mm)  
 at

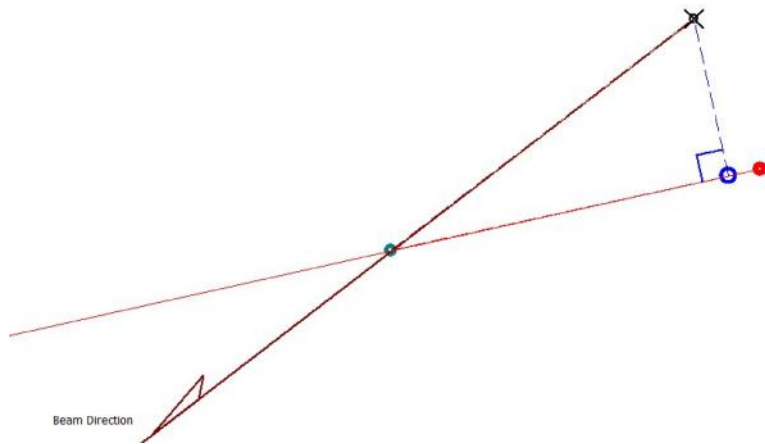
H20170809

- Beam-Spec Intercept Point
- Beam-Spec Perpendicular Point
- Spectrometer Projected Target Point
- ✕ Straight-Ahead Target Point [ideal]

angles: delta : 25.01294 [degrees]  
 beam : -142.48325 [degrees]  
 spectrometer: 192.50381 [degrees]

perpendicular distance : 1.470 [mm]  
 target - intersect dis : 3.476 [mm]  
 found target - intersect dis : 3.449 [mm]  
 Spectrometer is -0.92 lower than ideal target [mm]

- Spectrometer Line
- Straight-Ahead Beam
- Perpendicular line



2017.08.09 am ===== RESULTS ===== H20170809

The central ray of the spectrometer is at 15.004 degrees  
 The central ray is missing the defined target center by 0.76 [mm] Upstream  
 and -1.29 mm vertically [positive value is up]

9 Par A posteriori value : 0.55 (mm)

Sketch on following page:

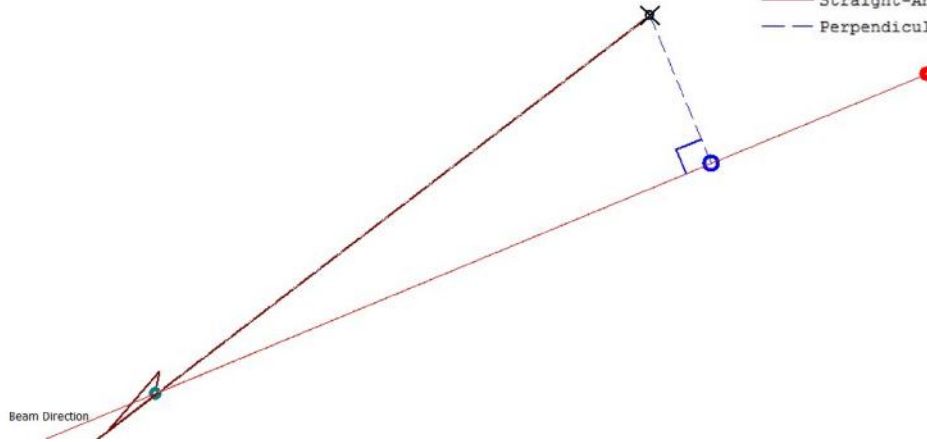
H20170809

- Beam-Spec Intercept Point
- Beam-Spec Perpendicular Point
- Spectrometer Projected Target Point
- ✕ Straight-Ahead Target Point [ideal]

angles: delta : 15.00418 [degrees]  
beam : -142.48325 [degrees]  
spectrometer: 202.51257 [degrees]

perpendicular distance : 0.760 [mm]  
target - intersect dis : 2.937 [mm]  
found target - intersect dis : 3.939 [mm]  
Spectrometer is -1.29 lower than ideal target [mm]

- Spectrometer Line
- Straight-Ahead Beam
- Perpendicular line



2017.08.09 pm ===== RESULTS ===== H20170809\_1

The central ray of the spectrometer is at 15.005 degrees  
The central ray is missing the defined target center by 0.82 [mm] Upstream  
and -1.45 mm vertically [positive value is up]

9 Par A posteriori value : 0.57 (mm)

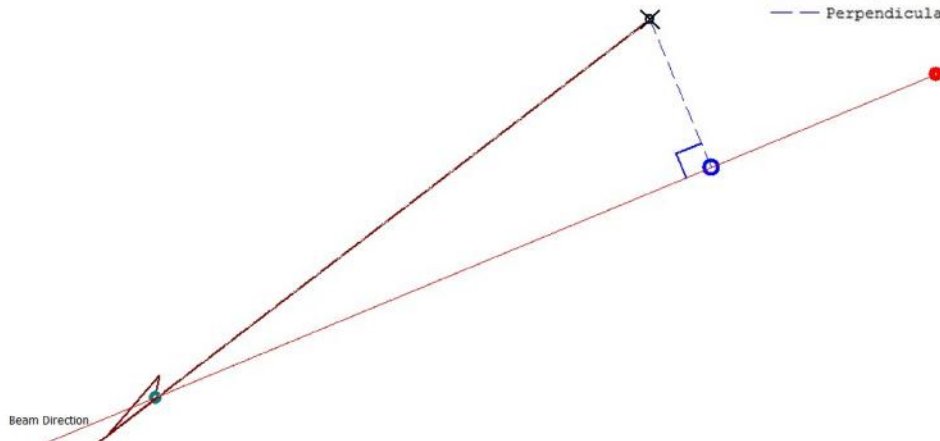
Sketch on following page:

H20170809\_1

- Beam-Spec Intercept Point
- Beam-Spec Perpendicular Point
- Spectrometer Projected Target Point
- ⊗ Straight-Ahead Target Point [ideal]

angles: delta : 15.00543 [degrees]  
beam : -142.48325 [degrees]  
spectrometer: 202.51132 [degrees]  
  
perpendicular distance : 0.810 [mm]  
target - intersect dis : 3.128 [mm]  
found target - intersect dis : 4.245 [mm]  
Spectrometer is -1.45 lower than ideal target [mm]

- Spectrometer Line
- Straight-Ahead Beam
- Perpendicular line



2017.10.26 ===== RESULTS ===== HC\_HMS\_102617

The central ray of the spectrometer is at 35.944 degrees  
The central ray is missing the defined target center by 2.67 [mm] Upstream  
and -0.82 mm vertically [positive value is up]

9 Par A posteriori value : 0.41 (mm)

Sketch on following page:

HC\_HMS\_102617

- Beam-Spec Intercept Point
- Beam-Spec Perpendicular Point
- Spectrometer Projected Target Point
- ⊗ Straight-Ahead Target Point [ideal]

angles: delta : 35.94433 [degrees]  
beam : -142.48325 [degrees]  
spectrometer: 181.57242 [degrees]

perpendicular distance : 2.669 [mm]  
target - intersect dis : 4.547 [mm]  
found target - intersect dis : 4.349 [mm]  
Spectrometer is -0.82 lower than ideal target [mm]

- Spectrometer Line
- Straight-Ahead Beam
- Perpendicular line

