



## DSG Weekly Report – August 26, 2015

This week on the weekly report will have an epigraph.  
This Latin proverb was mentioned to me by a person I admire and respect.

*Herba Volant Scripta Manent*

### Antonioli, Mary Ann:

#### Hall B

##### DC

- Examined test data and completed spreadsheet for 48 signal cables.
  - ★ 6/252 bundles completed.

##### HDICE

- Attended status meeting.

#### DSG

- Researched and ordered label maker.

### Arslan, Sahin:

#### Hall B

##### DC

- Working on DC signal cables testing.
  - ★ Measured propagation velocity (1.778 ns/ft.) and delay skew between channels of a single cable (~2.5 ns).
  - ★ Cables of a bundle have been grouped in 1 foot bins (e.g. 65' to 65'11").
  - ★ Max time difference between any two channels in a bundle could be as big as:  
 $1.8 \text{ ns} + 2.5 \text{ ns} + 2 \text{ ns (measurement error)} = 6.3 \text{ ns}$

##### SVT

- Worked with Brian on R4 cable management
  - ★ Wrapped 1/2" Kapton tape around screws (to protect lacing cord from screw threads and also to serve as a guide to indicate how far to thread the screws into the tube.).
  - ★ Wrapped and tied lacing cord around the screws to hold cable.
  - ★ Added transit knots to prevent cables moving horizontally
- Fabricated 20' RG 174/ U cable with two lemo connectors (DAQ trigger cable)
- Rerouted some cable bundles, labeled cables (LVR4M14, LVR4M16, and LVR4M19), and made ground cables to ground modules.
- After all work was completed, vacuumed work area.

##### HDICE

- Attend status meeting

### Bonneau, Peter:

#### Hall B

##### HDICE

- Updated commands and descriptions needed for program development.
- Determined:
  - ★ CT-Box is not working in "Oscilloscope" mode.
  - ★ When issued an "OFFSET" command, unit gives an **error** readback.
  - ★ Issue of OFFSET:ZERO command freezes Daq.
  - ★ Error code appendix is needed. Appendix not in pre-release manual.

- ★ Internal buffer commands not available in current command set.
  - ★ Error "CT-box Not Ready" is always on. "Reset" has no effect on error.
  - ★ Triggering commands, pinout of the I/O connector, logic levels and trigger timing not available in the pre-release manual.
- CAENels was notified and is working on these issues.
  - Ordered replacement computers ; delivery 9/11/15.

### SVT

- Revised +5V distribution system in Hardware Interlock System's chassis.
  - ★ Voltage drop (~0.9V) across internal circuit breaker was causing up to 9% humidity measurement differences between EPICS and Hardware Interlock values.
  - ★ Changed breaker to in-line fuse assembly.
  - ★ After revision, humidity level differences are less than .5%
- Commissioning and testing system stability of the Hardware Interlock System using all temperature, humidity, and flow sensors.

### **Hall D**

- Examined status of slow control systems on a daily basis.
  - ★ Reviewed problems with FADC in BCAL.

### **DSG**

- Researched and ordered equipment.

## **Butler, Dave:**

### **Hall B**

#### Gas system

- Worked on filtering and averaging of MKS 223 capacitance manometer.

### **Hall D**

- With regards to update of voltage tap reading method on the solenoid magnet:
  - ★ Working on the updated PLC programming that may be required and also acting as backup to Brian on the PXI changes.
- Moved PLC control computer from a rolling cart in the counting house to a rack in the equipment room; wired the computer to the main UPS system.
- Changed PLC program for the newly added convectron gauges.
  - ★ From mTorr to Torr per request from Tom Carstens.
- Attended weekly FDC/CDC meeting .
  - ★ Discussed grounding issues with the CDC and possible new gas mixture for the FDC.
  - ★ Meeting minutes: <https://halldweb1.jlab.org/wiki/index.php/Minutes-8-20-2015>
- Attended tech meeting to discuss preparations for cooling the magnet.
  - ★ After cooling begins will have to reinstate interlocks that were defeated during warm period (vapor cooled lead threshold, helium tank level alarm and helium differential pressure alarm).

## **Eng. Brian:**

### **Hall B**

#### SVT

- Connected R4 cables to L1C and performed gain scans on all modules.
  - ★ Replaced bad pulser cable on R4M4.
- Finished, with Sahin, cable management using lacing cord.
- Tried taking cosmics with CODA, but way to many errors and no triggers (despite triggers being generated in NIM crate [AND from SD]). Debugging underway.

## Hall D

- Researched and bought a new PXI controller.
  - \* To save data faster than 5kHz while hopefully remaining below 50% CPU (currently ~35%).

## Jacobs, George:

### Hall B

#### Gas system

- Working on DCGAS PID controls development.
- Meeting on LTCC window deformation test with Bob M, Maurizio U, David A, Doug T
  - \* LTCC window deflection test (@0.15" of water) completed; results within specs.
  - \* Started C<sub>4</sub>F<sub>10</sub> recovery process.
    - Switched from MKS 250 controller to MKS 146 controller to recover gas using sub atmospheric pressure in the control tank.
- Discussion with Bob M on moving the LTCC gas system controls to L1 forward carriage
- Meeting on TORUS DC gas manifolds with Bob Miller and Paul Hanson.
  - \* Need seven manifolds.
  - \* Specified materials and final form factors, and discussed locations.
- Participated in Hall B TDG meeting.
  - \* Discussion on quantity of C<sub>4</sub>F<sub>10</sub> to procure; to start need at least 1000 KG
  - \* Discussion on new location for LTCC gas system components on forward carriage

## Leffel, Mindy:

### DC

- Repaired signal cables:
  - \* R1S4 AX 3: re-laminated one end and replaced two connectors, two wires had been cut and cable connectors had bad connections.
  - \* R1S4 ST 4.4: re-laminated and replaced one damaged connector.
  - \* R2S5 AX 10.3: replaced one connector, bad connection
- Researched coax cable, RG174 vs RG316, and their connectors.
- Researched label maker and labels to be used for labeling cables.

### SVT

- Wire bonded FSSR2 chips to U3, U4 and started wire bonding U1 to HFCEB 2-P4 (had to remove and replace U4 due to a wire bonding error).

## Mann, Tina:

### Hall B

#### DC

- Trained with Sahin on testing signal cables.
- Assisted Sahin in testing two 65' signal cables.

#### Gas system

- Met with Mark on LTCC cable changes
- Researched tools needed and sent to Mary Ann to order

## McMullen, Marc:

### Hall B

#### Gas System

- Completed noise study of the PID chassis.
  - \* Scope measurements were taken of the noise generated:
    - By MKS 223.

- By chassis and powered separately by a Tenma bench supply.
- Measurements suggest no difference in the source of the power.
- Provided a chassis ground connection for all the chassis connections by choosing an unused contact on the connector and adding a short conductor which terminates to the chassis via a mounting screw.

### LTCC

- Fabricated two cables for the LTCC pressure test stand.
  - ★ Cables will be used to connect MKS 146C cluster gauge vacuum measurement controller and control system.
  - ★ Installed both cables on the forward carriage with George.

## **Sitnikov, Anatoly:**

### **Hall B**

#### DC

- Tested:
  - ★ 2 cables for bundle 50-5
  - ★ 5 cables for bundle 50-6
  - ★ 6 cables for bundle 50-7
  - ★ 5 cables for bundle 65-8
  - ★ 5 cables for bundle 65-9
  - ★ 6 cables for bundle 65-10
- Total 29 cables = 493 channels
- Re-tested:
  - ★ 3 cables for bundle 50-1
  - ★ 3 cables for bundle 50-2 -----
  - ★ 1 cables for bundle 65-8 -----
- Total=7 cables.=119 channels
- Found
  - ★ One damaged channel (#0) on cable (65-8 b.R1S5 AX10.3)
  - ★ Four crossed channels (#23—#26) cable (65-9 R2S1 ST9.6)
- Cleaned and dried 3 bundles (65-8,65-9,65-10) using alcohol and dry air.