



1.08.05 Lab Subsystem DAQ

Abigail Crites

2023 Conceptual Design Review

July 24th, 2023



Who Am I

**Abigail Crites - Assistant Professor, Cornell University /
Visiting Associate, Caltech**

Lab Subsystem Development and Support L3

- Graduate student on SPTpol and postdoc on TIME a mm-wavelength spectrometer using TDM and TESs.



Outline

- Location in WBS
- Scope
- Key requirements (design drivers) and interfaces
- Design overview and details
- Next steps towards CD-1
- Summary

Changes Since the Last Review

- Fully defined the scope of the WBS Element (see next slide).
- Postdoc at Cornell now being supported to work on Lab Support

Scope

- This L3 provides lab support for the deployment of the DAQ/Control software in the labs for testing (L4 in progress)
-

1.08.05 - Lab Subsystem Development and Support	CMBS4-AOA1.1.08.05.01 Software build and distribution system
	CMBS4-AOA1.1.08.05.02 User Documentation
	CMBS4-AOA1.1.08.05.03 Test Stand Support
	CMBS4-AOA1.1.08.05.04 Test Infrastructure

Key Requirements (Design Drivers)

1. Provide tools to labs during development, *avoiding effort duplication and ensuring test exposure pre-deployment*
2. Enable authorship of DAQ agents for most components (thermal sensors etc.) by hardware groups, *enabling independent development by labs*
3. Long-term record of Lab Support for DAQ / Control tracking problems and solutions

Interfaces With Other L3s

- Observatory Control (1.08.02) L3, through the OCS repository
- Observatory DAQ (1.08.03) L3, e.g. file format
 - we will be deploying these capabilities in the labs prior to integration and commissioning.
- Interface with monitoring and alarms (1.08.04) to implement this in the labs.
- This L3 also interfaces with I&C/Sites as deployment in the lab will test implementation that will be done during I&C.
-

Key Details Of The Design

- Provide and update training documentation
- Provide technical support for installation and use, including live monitoring tools
- Provide efficient data tooling for offline analysis
- Provide and update hardware minimum requirements
 - We do *not* provide hardware, to avoid budget creep. If extra teststands are required, DAQ hardware costs should be booked with the teststand rather than coming out of the DAQ budget.
 - This set of things will change as the project progresses -- computer availability and state-of-the-art will be different five years from now

Next Steps Toward CD-1

- Use and develop training materials for OCS
- Solicit input from first users hardware plans
- Initial training for first line users
- Write data-read tools

Summary

- Providing lab deployment of DAQ systems to:
 - Minimize risk later on
 - Reduce duplication of effort
 - Provide testing
 - Validate interfaces
- Near term work in support of initial lab installations and CD1
 - Interface and iterate with other L2s that have near-term needs for DAQ/Control software in the labs.
 - Begin work early to meet lab testing needs.