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Subject: CCAT Observatory Instrument Readiness Reviews

This memo covers instrument readiness for deployment at the telescope. To be installed on the Fred Young Submillimeter Telescope (“telescope”) an instrument must satisfy the following criteria to be covered via an Instrument Readiness Review run by the Project Office before shipment to any CCAT-prime site in Chile:

- a. Outline the commissioning and science goals and provide an estimate of how long each of these steps will take, that is, how long is the planned deployment of the instrument.
 - Instrument commissioning will validate instrument capabilities, operating modes, and performance on the telescope (in accordance with the science goals).
- b. Demonstrate reliable operation in the lab in a manner that simulates operation at the telescope, that is, the instrument can be operated remotely and, in the modes, necessary for status and safety monitoring, (remote) quick look results, commissioning and science operations. Stable operation should be demonstrated over timescales of at least 2-3 weeks before shipping.
 - Instrument teams will provide checklists they develop regarding readiness of hardware and software subsystems and interfaces as appropriate.
 - Lab tests must include simulation with the Observatory Control System (“OCS”).
- c. Lab demonstrated performance (projected to on-sky sensitivity) suitable for the start commissioning and/or science operations at the telescope.
- d. A plan for safe installation (and removal) of the instrument including mounting hardware and tooling, especially minimizing time at altitude. Procedures requiring cranes or winches should be described in enough detail to ensure safe operation. The plan should cover staging of personnel at installation and comply with the CCAT safety guidelines and requirements.
- e. A plan for “continuous” remote operation while mounted to the telescope including scheduling and uploading of observing sequences, data storage and data retrieval.
- f. A plan for safe shutdown and recovery from power interruptions as well as brownouts and power surges. Unplanned power interruptions could vary in length seconds to hours to days. A goal should be seamless recovery for interruptions of under 10 (TBD) minutes.

Documentation may consist of written reports and/or PowerPoint slides which will be provided to the review team.

//signed//

Terry Herter, Director