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Subject: CCAT Observatory Instrument Readiness Reviews

This document covers instrument readiness for deployment on the Fred Young Submillimeter Telescope (FYST). To be installed on FYST, an instrument must satisfy the following criteria to be covered within an Instrument Readiness Review (IRR). The IRR will be run by the Project Office before shipment to the FYST site in Chile. The instrument team will:

1. Provide an expected timeline from successful completion of the IRR to first light, preferably in Gantt chart form. The timeline should include at least the following milestones: completion of preship tests; shipping to the site; unpacking the instrument and preparing it for operation; installation on FYST; commissioning activities; and science observations. The timeline should include contingencies that are sufficient to ensure a reasonable probability of success.
2. Provide a Commissioning Plan including requirements, goals and activities and provide time estimates for these activities (which will be part of the instrument Gantt chart). This should include verification of instrument capabilities and instrument operational modes as related to science goals.
3. Provide a first light and early science plan including scheduling blocks and scan patterns.
4. Demonstrate reliable receiver operation in the lab in a manner that simulates operation at the telescope including:
    a. Demonstration of sufficient sensitivity to achieve first light science.
    b. Demonstration of remote operation including observing modes.
    c. Demonstrate that status, safety monitoring and quick look results can be obtained remotely.
    d. Demonstrate stable operation of the system over timescales >1 weeks.
    e. Demonstrate linkage with the Observatory Control System ("OCS").
5. Provide team staffing plans that comply with CCAT safety guidelines and requirements.
6. Provide checklists developed with respect to readiness of hardware and software subsystems and interfaces as appropriate.
7. Provide plans for "continuous" remote operation including scheduling and uploading of observing sequences, data storage and data retrieval.
8. Provide plans for safe shutdown and recovery from power interruptions as well as brownouts and power surges. A goal should be seamless recovery for interruptions of under 30 minutes.
9. Provide a plan for safe installation (and removal) of the instrument including mounting hardware and tooling with an eye towards minimizing time at altitude. Procedures requiring cranes or winches should be described in detail to ensure safe operation.

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

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