MRO FTT/NAS & FLC

Software Requirements for PDR-phase Testing

MRO-TRE-CAM-nnnn-mmmm

The Cambridge FTT Team

rev 0.1

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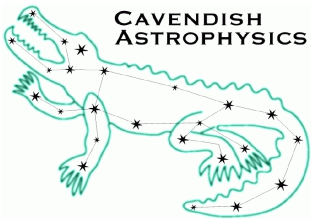

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Change Record

Revision	Date	Author(s)	Changes
0.1	2010-08-18	JSY	Initial version

Objective

To specify the software functionality needed to conduct the component and integrated tests planned for the PDR phase of the FTT contract.

Scope

The requirements in this document are intended to supplement the requirements for the software to be delivered to NMT specified in RD1 and RD2. We will architect a set of software packages to satisfy the superset of these requirements, in order to avoid duplication of effort.

Reference Documents

RD1 Technical Requirements: Fast Tip-Tilt/Narrow-field Acquisition System (INT-403-ENG-0003) – rev 2.2, May 20th 2010

RD2 Technical Requirements: First Light Camera (INT-403-TSP-0107) – rev 1.0, May 20th 2010

Applicable Documents

Acronyms and Abbreviations

FTT Fast Tip-Tilt

FLC First Light Camera

ISS Interferometer Supervisory System

MROI Magdalena Ridge Observatory Interferometer

NAS Narrow-field Acquisition System

NMT New Mexico Tech

TBC To be confirmed

TBD To be determined

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1 Functional Requirements

1.1 Data Logging

- Logging of metrology readings from DL metrology subsystem
- Logging of EMCCD camera images
    - Full frame at up to 10 Hz frame rate (full frames may be needed for holographic interferometry)
    - Small subframes (e.g. 23 × 23 pixel at 1 kHz frame rate)
- Logging of temperature readings (≤ 1 Hz sample rate)
- Logging of data entered manually (e.g. theodolite readings)
- Logging of data from other devices (TBD)
- Transmission of EMCCD images over Ethernet to test PCI bus conflicts
- Burst logging: logging of high-sample rate data for short periods at intervals
- Expected maximum test duration is 20 minutes

1.2 Display

- The software application that runs the EMCCD camera shall have a built-in image display capability for debugging purposes. It shall be possible to disable this at application startup.
- Remote display to user in nearby room with latency < 0.1 s(preferably over Ethernet)

1.3 Control

- Software shut-off of test heating when specified temperature exceeded
- Software power-off of EMCCD camera when outside safe operating temperature range
- Remote control capability for user in nearby room (preferably over Ethernet)