



Interface Control Document

Automated Alignment System: AAS Unit

Telescope Tilt Measurement Hardware to Fast-

Tip-Tilt System

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1. Scope

The scope of this document is to define the automated alignment system tilt measurement hardware interfaces with the fast tip-tilt system hardware on the Nasmyth table at the unit telescope.

2. Related Documents

[1] INT-410-TSP-0002: MROI's Automated Alignment System Top Level Requirements

[2] INT-410-ENG-102: Automated Alignment System Optical Preliminary Design and Model

3. Abbreviations & Acronyms

AAS	Automated Alignment System
CCR	Corner Cube Retro-reflector
FTT	Fast Tip-Tilt (System)
MROI	Magdalena Ridge Observatory Interferometer
TBD	To be determined
UT	Unit Telescope

Figure 3.1 Table of abbreviations and acronyms used in this document.

4. Change Procedure

Should a change be required from the listed interfaces, or an additional interface identified, the change shall be discussed and approved by the leaders of the AAS and FTT sub-projects.

This document shall be corrected to reflect the changes and a copy signed by both sub-project leaders shall be retained in the project archives.

Under no circumstances shall changes be accepted without the revision of this document.

5. Interfaces

5.1. AAS Corner Cube Retro Reflector (CCR)

5.1.1. Optical Interfaces

The AAS CCR has the following optical specifications and/or interfaces defined and required:

- Clear aperture of at least 50.8mm at normal incidence
- Distance from Nasmyth table to CCR vertex: 150mm
- Beam deviation¹: 0.5"
- Mirror coating: protective aluminum
- Optical axis: the CCR axis must be collinear to the reflected axis of the dichroic
- Position: the CCR must be positioned behind the dichroic (actual location TBD after FFT configuration is TBD)

Based on the above list of interfaces and requirements the following CCR was chosen:

Vendor: PLX Innovative Optical Systems

Product No: HM-25-5

Specifications:

Clear Aperture: 63mm

Beam Deviation: 5"

Weight: 110 grams

Mirror coating: protective aluminum

¹ Beam Deviation is the maximum deviation from parallelism, expressed in second of arc, of any single return beam from any of the 6 sub-apertures of the retroreflector, when the retroreflector is fully-illuminated.

5.1.2. Mechanical Interfaces

The AAS CCR has the following mechanical specifications and/or interfaces defined and required:

- The CCR must be hard mounted
- Positioned to 1mm accuracy in x, y, and z directions
- Angular deviation must not exceed 0.5°