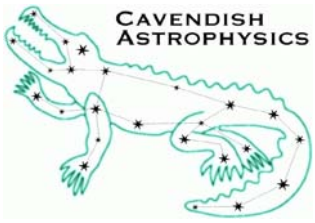
MRO First Light Camera

Conceptual Design Report

The Cambridge Delay Line Team

rev 0.1

5 July 2010



Cavendish Laboratory
JJ Thomson Avenue
Cambridge CB3 0HE
UK

Change Record

Revision	Date	Author(s)	Changes

Objective

A single sentence saying what purpose this document serves….

Scope

Here we outline the scope of the document: what is/isn't covered. Perhaps refer to other documents containing related material.

Reference Documents

RD1 Top-level requirements INT-406-TSP-XXXX

RD2

Applicable Documents

These are other review documents for review which are directly applicable, e.g.

AD01 Derived Requirements INT-406-VEN-XXXX

Acronyms and Abbreviations

BCA Beam Combining Area

BCF Beam Combining Facility

BRS Beam Relay System

DL Delay Line

DLA Delay Line Area

FTT Fast Tip-tilt

FLC First Light Camera

ICD Interface Control Document

MROI Magdalena Ridge Observatory Interferometer

MRAO Mullard Radio Astronomy Observatory

NAS Narrow-field Acquisition System

NMT New Mexico Tech

OPD Optical Path Delay

SCS Supervisory Control System

TBC To be confirmed

TBD To be determined

WFS Wide …

Table of Contents

1 Introduction

This is the introduction.

1.1 Top level requirements

Refer to top level requirements and include table here.

2 Derived Requirements

Explain assumptions Address in subsections. Refer to document. Brief explanation of how these were obtained.

2.1 Assumptions

2.2 Derived requirements overview

2.2.1 Pixel scale

2.2.2 Image quality

2.2.3 Thermal management

2.2.4 Closed loop bandwidth

2.2.5 Limiting Sensitivity

2.2.6 Dynamic range

3 Optical Layouts

Present layouts considered with a comparison table and reasons for choosing preferred candidate(s) for further analysis.

3.1 Candidate layouts

3.1.1 One

3.1.2 Two

3.2 Preferred layouts

3.2.1 Error budgets and sensitivities

3.2.2 Feasibility

3.2.3 Comparison of costs

4 Camera Selection

4.1 Candidate cameras

5 Conceptual Opto-Mechanical Design

5.1 Layout

5.2 Mechanical analyses

5.3 Optical mount design

5.4 Camera mount

6 Conceptual Thermal Design

If camera enclosure is the same as the FTT/NAS version or is sufficiently similar then refer to the applicable sections in that CoDR report and include any differences below rather than regurgitate all the design and analysis.

6.1 Thermal control

6.1.1 Camera enclosure analysis

6.1.2 Control enclosure analysis

6.1.3 Conceptual design of thermal control

6.2 Camera enclosure design

6.2.1 Control enclosure design

7 Conceptual Electronics Design

8 Conceptual Software Design

8.1 Software requirements

8.2 Software design

9 Interfaces

10 CoDR summary