OSIRIS

Optical, Spectroscopic, and Infrared Remote Imaging System

OSIRIS camera tandem ADC offset correction parameters
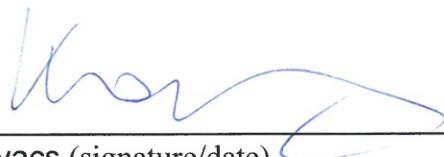
RO-RIS-MPAE-TN-088

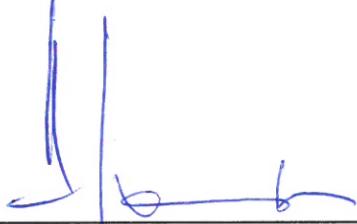Issue: 1

Revision: -

19 February 2018

Prepared by:

Gabor Kovacs

Approval Sheet

prepared by: G. Kovacs (signature/date)

approved by: H. Sierks (signature/date)

Document Change Record

Iss./Rev.	Date	Author	Pages affected	Description
Draft/-	28/06/2017	G. Kovacs	all	first release
1/-	19/02/2018	C. Tubiana	all	Formatted Table 1 Referenced RDs in the text. Removed AD/RDs that are not referenced in the document.

OSIRIS

Table of contents

List of Tables

1 General aspects

1.1 Scope

This document describes the correction parameters for the OSIRIS NAC and WAC tandem analog-to-digital converter (ADC) offset.

1.2 Introduction

Both OSIRIS cameras are equipped with high-resolution (16 bits) CCD readout channels [RD1]. These readout electronics utilize a tandem ADC design of two 14-bit ADCs (ADC-LOW and ADC-HIGH). The readout electronics can use the ADCs separately (either ADC-LOW or ADC-HIGH) or together providing a quasi-16bits dynamical range, which is resolved using a sub-ranging technique. The two ADCs had been adjusted to cover a continuous range linearly. However, there is a few DNs offset between them. The calibration software corrects this offset, as described in the calibration pipeline document [RD2].

1.3 Reference Documents

no.	document name	document number, Iss./Rev.
RD1	OSIRIS user manual	RO-RIS-MPAE-MA-004 D/s
RD2	OSIRIS Calibration Pipeline OsiCalliope	RO-RIS-MPAE-MA-007 1/d

2 ADC offset correction parameters

The correction constants, determined during the system integration and ground calibration campaigns, are summarized in Table 1.

	NAC	WAC
Switch point (DN)	16383	16383
Single channel readout		
Offset A amplifier (DN)	32	12
Offset B amplifier (DN)	36	12
Dual channel readout		
Offset A amplifier (DN)	44	24
Offset B amplifier (DN)	48	24

Table 1 ADC offset correction parameters