OSIRIS

Optical, Spectroscopic, and Infrared Remote Imaging System

OSIRIS camera tandem ADC offset correction parameters

RO-RIS-MPAE-TN-088

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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.

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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