SCIAMACHY

Level 0-1b Data Processing

Configuration Management

of Level 0-1b Auxiliary Data Files

ENV-CMA-DLR-SCIA-0062

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Change Record

Issue	Rev.	Date	Page	Description of Change
1		02/09/05	all	completely new
1	A	19/01/06	9, 11	c
1	B	20/03/06	11, 12 7,8 5	initialisation and keydata file with new "start validity" date inclusion of tool SciCal in ADF generation set-up addition of applicable documents
1	C	29/05/07	9, 11	new initialisation file version 4.05
1	D	05/05/08	p. 13 p. 14 p. 15 p. 16 p. 16 p. 17	Updated description of initialisation file Added new keydata file Added description of new entries in key data file for V. 7 Added section for the names of ADFs in IPF Added entry for key data file for V7 Added versions for key data file for V7
1	E	18/01/10	p. 11, p. 13	Added entry for initialisation file V 5
2		25/02/14	p. 4-9 p. 15 p. 15 p. 16 p. 17 p. 22	Updates for new database approach Updated key data description Added calibration data initialisation file Updated file names Updated individual key data versions in appendix Added SCI_LIC file contents to appendix
2	A	03/07/14	Several	Incorporated comments by ESA (clarifications and typos corrected

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1 Introduction

1.1 Purpose and Scope of Document

SCIAMACHY is a joint project of Germany, The Netherlands and Belgium for atmospheric measurements. SCIAMACHY has been selected by the European Space Agency (ESA) for inclusion in the list of instruments for Earth observation research for the ENVISAT-1 polar platform that was launched in 2002 . The SCIAMACHY programme is currently in progress under the supervision of the SCIAMACHY science team (SSAG), headed by the Principal Investigators Professor J. P. Burrows (University of Bremen, Germany), Prof. I. Aben (SRON, The Netherlands) and Dr. C. Muller (BIRA, Belgium).

The Remote Sensing Technology Institute (IMF) which has been founded in 1999 as split of German Remote Sensing Data Centre (DFD) and other DLR institutes, plays a major role in the design, implementation and operation of the SCIAMACHY ground processors (SGPs) which are part of the ENVISAT payload data segment (PDS), as described in [A1]. The present document is part of the technical documentation provided by DLR for the design and implementation of the SCIAMACHY Level 0-1b processor. The funding for these tasks is available through the DLR Bonn in Bonn as part of the ENVISAT phase C/D grant.

The present document covers the documentation of the versions of auxiliary data files (ADF) used in the operational processing of the Level 0-1b data processing for SCIAMACHY (SGP_01). In order to follow the upgrades between different versions of the ADFs, the changes are summarised in the appendix as collection with the reference to available technical notes.

The documentation begins with a short overview about the ADFs needed for Level 0-1b processing. In detail, this is documented in the IODD, chapter 2, which is also upgraded for changing of data formats and adding of new IO.

For version 8 of the operational processor the processing approach was changed: instead of using SciCal to generate ADFs, the processor stores and extracts data directly from a database that is internal to the processor. This approach enables us to track the measurements used for each calibration parameter, which was not possible with the old approach (for a deeper explanation see [R7]). The database approach is described in more detail in [R8].

1.2 Documents

Following documents are applicable for this technical note:

[A1] *ENVISAT-1 Ground Segment Concept*, **ESA/PB-EO(94)75**, Issue 5, 20 September 1994

[A2] *ESA Software Engineering Standards*, **ESA PSS-05-0**, Issue 2, Feb. 1991

[A3] *SCIAMACHY SciCal Tool: Interface Control Document*, **ENV-ICD-DLR-SCIA-0064**, Issue 1.0, 2005

[A4] *SCIAMACHY SciCal Tool: Architectural Design Document*, **ENV-ADD-DLR-SCIA-0065**, Issue 1.0, 2005

[A5] *SCIAMACHY SciCal Tool: Detailed Processing Model*, **ENV-DPM-DLR-SCIA-0066**, Issue 1.0, 2005

The following documents are referenced:

[R1] *SCIAMACHY Instrument Requirements Document*, **PO-RS-DAR-EP-0001**, Issue Rev. 1, 12.12.95

[R2] *SCIAMACHY Level 0 to 1b Processing*, *Input-Output Data Definition*, **ENV-TN-DLR-SCIA-0005**, Issue 5, 21.07.2000

[R3] *Keydata Version Control document*, **TPD-SCIA-PhE-TN-008**, Draft, 15.11.2004

[R4] Snel, R.: *SCIAMACHY Stray Light Revisited*, **SRON-SCIA-PhE-RP-22**; issue 2; 24 April 2008

[R5] Slijkhuis, S. et al.: *Results of a new Straylight Correction for SCIAMACHY*; **Proc. ENVISAT Symposium Montreux 2007**, Montreux, Switzerland, 23-27 April 2007,July 2007

[R6] Gottwald, M et al.: *Determination of SCIAMACHY Line-of-Sight Misalignments;* **Proc. ENVISAT Symposium Montreux 2007**, Montreux, Switzerland, 23-27 April 2007,July 2007

[R7] Lichtenberg, G: *Check of ADF data from Re-processing 2009/10, **ENV-TN-DLR-SCIA-0113**, issue 1, 15.07.2011*

[R8] Lichtenberg, G.: *Level 0-1 Calibration Database Processing*, **ENV-TN-DLR-SCIA-0116,** issue 1, March 2014

[R9] Slijkhuis,S, Lichtenberg, G.: *SCIAMACHY Algorithm Theoretical L0-1c Processor Baseline Document V.8*, **ENV-ATB-DLR-SCIA-0041,** Issue 6, 4.02.2014

1.3 Abbreviations and Acronyms

A list of abbreviations and acronyms which are used throughout this document is given below:

ADD	Architectural Design Document
AO	Announcement of Opportunity
ATP	Acceptance Test Plan
CFI	Customer Furnished Items
DARA	Deutsche Agentur für Raumfahrtangelegenheiten
DFD	Deutsches Fernerkundungsdatenzentrum
DLR	Deutsche Forschungsanstalt für Luft- und Raumfahrt e.V.
DOAS	Differential Optical Absorption Spectroscopy
D-PAC	German Processing and Archiving Centre
ENVISAT	Environmental Satellite
ERS	European Remote Sensing Satellite
ESA	European Space Agency
ESRIN	European Space Research Institute
ESTEC	European Space Centre of Technology
FD	Fast Delivery
GOME	Global Ozone Monitoring Experiment
GS	Ground Segment
IBM AIX	Unix Operating System of IBM Workstations
IFE	Institut für Fernerkundung der Universität Bremen
IMF	Institut für Methodik der Fernerkundung, DLR e.V.
IPF	Instrument Processing Facility
LBR	Low Bit Rate
MPH	Main Product Header
MEC	Memory Effect Correction
MME	Müller Matrix Element
NRT	Near Real Time
PAC	Processing and Archiving Centre
PCD	Product Confidence Data
PDS	Payload Data Segment
PF_HS	Processing Facility Host Structure
SCIAMACHY	Scanning Imaging Absorption Spectrometer for Atmospheric Chartography
SGP	SCIAMACHY Ground Processor
SGP_01	SCIAMACHY Ground Processor for Level 0 to 1b Processing
SOS	SCIAMACHY Operations Support
SoW	Statement of Work
SRD	Software Requirements Document
SSAG	SCIAMACHY Scientific Advisory Group
SUM	Software User Manual
TDD/TPD	Test Data Definition / Test Procedure Document
UTC	Universal Time Co-ordinate
UV	Ultra-Violet

1.4 Document Overview

The first version of this document was written at the delivery of the documentation for IPF version 6.

The present document provides information about:

- Overview about SCIAMACHY auxiliary data files;
- Overview about the auxiliary data file versions, specifically for the initialisation file and the keydata file;
- Delivery overview of auxiliary data files, specifically for the initialisation file and the keydata file.

2 Auxiliary Data Overview

The processing of Level 0 data to Level 1b products can be characterised by a conversion of Level 0 data into 'calibrated radiances' by application of calibration algorithms and calibration parameters. Part of these calibration parameters are determined regularly using in-flight measurement data when SCIAMACHY looks into deep space or records white light, spectral lamp, or sun diffuser measurements. In addition, data from pre-flight instrument calibration, the so-called key data, are required.

From this, the input files for the processing of the Level 1b product are summarised in Table 1 with their generic identifier used in the name convention.

Table 1: Input files

Type	Identifier	File Content
Product	SCI_NL__0P	Level 0 product
Auxiliary	AUX_FRO_AX DOR_POR__2P DOR_VOR__2P	FOS Restituted Orbit File DORIS Preliminary Orbit State Vector Product DORIS Precise Orbit State Vector Product
Auxiliary	AUX_FRA_AX	ENVISAT Restituted Attitude Data File
Auxiliary	SCI_LI1_AX	Initialisation file to control the Level 0-1b processing
Auxiliary	SCI_KD1_AX	Key Data file (on-ground calibration data)
Auxiliary	SCI_MF1_AX	Monitoring correction factors file (M-factors)
Auxiliary	SCI_LIC_AX	Input file previously used by SciCal, now input to the processor

Attitude and Orbit files are subject of the ENVISAT G/S and provided to each I Processing Centre by the ENVISAT ground segment.

The in-flight calibration data, in the form of the Leakage current parameter file, PPG/Etalon parameter file, Spectral calibration parameter, and the Sun reference spectrum, are generated from by the processor. They are stored in a database and are not listed further in this document.

The M-factors determination is subject to SOST-IFE activities. For re-processing, files are provided for the whole mission.

The preparation of the ADFs by the Expert Support Laboratory (DLR-IMF), and the associated configuration management is thus limited to the initialisation file, the Keydata file and the calibration configuration file. All these configuration files are used to generate the calibration database for processing which is used to process the science data. The database will be delivered by ESL completely filled and quality checked. Some specific characteristics with respect to the Key data have to be taken into account.

The on-ground calibration of SCIAMACHY has been performed under the responsibility of the Dutch AOP (NIVR, now NSO), who is also in charge of the analysis and the extraction of the key data from the on-ground calibration campaign. Thus, the content of the key data file has been and will be delivered by NSO to DLR-IMF which assembles and reformats the delivery in ENVISAT file format. Since the Key Data file is an assembly of about 40 different entries, which independently may be subject to analysis changes, NSO has installed a configuration management to all Key data input, providing a separate version number to each key data entry. This version number should be the only one valid for DLR-IMF, i.e. there is no version control numbering for the Keydata auxiliary file as a whole, but only for the individual entries. Note:

since this configuration management has not been fully installed since begin of life, the version numbering of older key data file versions may for a few entries be deviating from the current ones.

The format and content for the relevant ADFs are described in the IODD. In this document we provide the change record of the two ADFs (SCI_KD1_AX and SCI_LI1_AX) over the lifetime of the instrument. Each file is traced in one section; a summarising table provides an overview about the upgrade of the files and their validity, e.g. their usage in the ENIVSAT ground segment. Sub-sections describe each file change.

Since the processor now directly generates the dynamic auxiliary data, the initialisation file used for SciCal (SCI_LIC_AX)now becomes an input file for the processor. It contains constants and definitions used for the generation of calibration data.

3 SCIAMACHY Level 0-1b ADF Versions

Starting with launch of ENVISAT, various ADFs have been provided to the ENVISAT ground segment. In addition, several ADFs have been generated for the purpose of software testing and verification exercises. For those cases where a milestone was reached (e.g. DPM issue or external verification/validation campaign), we also list these ADFs even if they were not operationally used.

3.1 Initialisation File

The initialisation file core name is given by SCI_LI1__AX following the convention of the ENVISAT ground segment. The core name is followed by the generation time, and by the start and stop validity times. The validity start time is usually set to the generation date of the file and the validation stop is set to a date far in the future to ensure that always the correct initialisation file is taken. Note that, contrary to other ADFs, this file is not updated during a processing campaign: it is associated with a DPM and processor version and not with a measurement date. We recommend to remove older initialisation files from the processing centre to ensure that the correct file is selected for processing.

The following table provides an overview of changes in the Initialisation files. The version numbering of the file is given on the file itself, under keyword
`OPER – file version – static parameter file version`

Note that for the IPF version 8 the initilisation file has not changed from the previous version. However, the IODD and the DPM have changed and you find two version numbers in the table below. The second one belongs to IPF V. 8.

Table 2: List of ADF Upgrades for the Initialisation file

ADF Version	Name	DPM Version	I/ODD Version	Usage
2.11	SCI_LI1_AXND-P20020905_ 145537_20020701_000000_20991231_235959	2	5	PDS
2.13	SCI_LI1_AXND-P20031112_ 165543_20020701_000000_20991231_235959	2/C	5	"alignment"
3.04	SCI_LI1_AXND-P20031113_ 103208_20020718_030000_20991231_235959	2/C	5	"improvement"
3.05	SCI_LI1_AXND-P20031219_ 165357_20020718_030000_20991231_235959	2/C	5	"improvement"
3.05	SCI_LI1_AXVIEC20040330_ 162931_20020718_030000_20991231_235959	3	5	PDS
4.01	SCI_LI1_AXND-P20041201_ 110813_20020701_000000_20991231_235959	4	6	"verification 2005"
4.02	SCI_LI1_AXND-P20050901_ 105710_20020701_000000_20991231_235959	4	6	Test for IPF 6.x
4.04	SCI_LI1_AXND-P20060118_ 103349_20020701_000000_20991231_235959	4	6	PDS
4.05	SCI_LI1_AXND-P20070212_ 185127_20020701_000000_20991231_235959	4	6	IPF 6.03, 7.0
5.00	SCI_LI1_AXNIEC20091126_125714_20020701 _000000_20991231_235959	5,6	7,8	IPF 7.01-8.0

3.1.1 Version 2.0 (Begin of Life)

Versions 2.0 – 2.10 were tested in the commissioning phase and not used operationally.

3.1.2 Version 2.11

This is the version for the first operational software, after implementation of the SCIAMACHY consolidated beta states on 18.7.2002 (orbit 1990).

3.1.3 Version 2.13

The PMD bandpass for PMD E and F was changed to avoid bad pixels at the detecor edges.
It was used as test data in the "alignment" procedure between DJO and DLR-IMF. Test products using this file, for verification of the new Limb polarisation keydata, were distributed to selected verification scientists.

3.1.4 Version 3.04

This version marks a major fine-tuning of the initialisation parameters. The following changes were made:

- PMD filter delay time increased to obtain (approximate) synchronisation with central bandpass instead of first channel detector pixel
- Hot pixel limits for Dark signal decreased in channels 1-6
- Hot pixel limit for WLS added
- Etalon frequencies revised for channel 1-3, added for channel 4-5
- Centre of PMD A band revised
- Statistical atmospheric depolarisation split in Nadir case and Limb case
- Wavelengths for polarisation overlap regions revised
- Decreased limit within which MME angles are considered equal
- Revised state setup times for MEC of first pixel in state

It was used as test data in the "improvement" procedure between DJO and DLR-IMF. Test products using this file, for verification of the new polarisation keydata, were distributed to selected verification scientists.

3.1.5 Version 3.05 from 19.12.2003

Contains further tuning of polarisation parameters:

- Theoretical U used for all PMDs except PMD-D (exception due to software)
- PMD out-of-band correction now also enabled for PMDs A, B, C.
- Overlap polarisation points disabled (no L1b parameter but passed to ENVIVIEW)

It was used as test data in the "improvement" procedure between DJO and DLR-IMF. Test products using this file, for verification of the new polarisation keydata, were distributed to selected verification scientists.

3.1.6 Version 3.05 from 30.03.2004

This is identical to Version 3.05 from 19.12.2003 except for a bugfix in the SPH. The file is used operationally with IPF versions 5.x .

3.1.7 Version 4.01

Byte compression factors and offsets were added for the MEC and non-linearity correction. The orbit phase boundaries for dark signal and solar straylight were adapted to the new calibration using 5 eclipse dark states. The saturation level for channel 6 was lowered from 60,000 to 56,000 BU.
Test products using this file, for verification of the new keydata, were distributed to selected verification scientists

3.1.8 Version 4.02

AOCS offset parameters have been added (currently set to 0.0) for compatibility with IPF version 6. The fixed size of the 'static parameter' ASCII record in the file was thereby increased, from 15kB to 20kB (spare room left for future changes).

3.1.9 Version 4.04

AOCS offset parameters set to values for -1.1 km Limb tangent height correction, and correction of 0.22 degree azimuth mispointing. Set LC_STRAY_CH/PMD to NONE (up to now the corresponding ADF fields of this were manually set to zero in the IECF). SAA region reduced (based on hot pixel occurences) to enable more WLS measurements to be processed.

3.1.10 Version 4.05

AOCS offset parameters taken from M.Gottwald (see [R6]). This file is used for IPF versions 6.03 to version 7.0.

3.1.11 Version 5.00

AOCS offset parameters were corrected after discussion with M. Gottwald. The measurement category 27 was added for Limb Mesosphere Measurements. This file is used both, for the IPF Versions 7.0x (IPF) and the new C++ processor ("gencal").

3.2 Key Data File

The Key data file core name is given by SCI_KD1__AX following the convention of the ENVISAT ground segment. The core name is followed by the generation time, and by the start and stop validity times. The validity start time is usually set to the generation date of the file and the validation stop is set to a date far in the future to ensure that always the correct file is taken. Note that, contrary to other ADFs, this file is not updated during a processing campaign: it is associated with a DPM and processor version and not with a measurement date. We recommend to remove older files from the processing centre to ensure that the correct file is selected for processing.

The following table provides an overview of changes in the Keydata files. As explained in the previous section, the version numbering of the file as a whole should be based on the version number of each entry in the file. For the following overview, we list DLR-IMF internal version numbering as reference to the whole file. For the numbering of each entry, see the attached list in the Appendix.

The reason for the mismatch of version numbers 3.2 and 3.3 with the dates given in the file is a feature related to the ESA ground segment and the IECF:

For the processing runs up to version 7 the validation start in the name was changed by the IECF from the original name, which contained the generation time of the file, to the time when it was transferred into the IECF archive For version 8 the IECF is decommissioned and the name is not changed anymore and still reflects the generation time of the file. This is the reason that the SCI_KD1_AX file for version 8 has an earlier date than the the key data file for the version 7.

Table 3: List of ADF Upgrades for Keydata

ADF Version	Name	DPM Version	I/ODD Version	Usage
2.32	SCI_KD1_AXND-P20020905_ 172502_20020301_000000_20991231_235959	2	5	PDS
2.2_3.0	SCI_KD1_AXND-P20031014_ 164522_20020301_000000_20991231_235959	2/C	5	"alignment"
2.4_3.0	SCI_KD1_AXND-P20031120_ 172958_20020301_000000_20991231_235959	2/C	5	"improvement"
3.0	SCI_KD1_AXVIEC20040309_ 092921_20020301_000000_20991231_235959	3	5	PDS
3.01	SCI_KD1_AXND-P20040518_ 153804_20040518_000000_20991231_235959	4	6	"verification 2005: old KD"
3.1	SCI_KD1_AXND-P20050210_ 132920_20050210_132920_20991231_235959	4	6	"verification 2005: new KD"
3.1	SCI_KD1_AXND-P20050210_ 132920_20020301_000000_20991231_235959	4	6	PDS
3.2	SCI_KD1_AXNIEC20091126_123849_20020301 _000000_20991231_235959	5	6	PDS
3.3	SCI_KD1_AXNDP20091016_154930_20020301_ 000000_20991231_235959	6	8	Re-processing V. 8 Phase F (D-PAC)

3.2.1 Version 2.32 (Begin of Life)

This is the Begin-of-Life version for the first operational software. It contains polarisation and (ir)radiance keydata version 2.2 . The version 2.4 for parameter SPEC_LINE (see Appendix) refers to a reversal of channel 2 pixel numbering.

3.2.2 Version 2.2_3.0

The file contains updated polarisation keydata for Limb (version 3.0) based on the revised calibration coordinate system.
It was used as test data in the "alignment" procedure between DJO and DLR-IMF. Test products using this file, for verification of the new Limb polarisation keydata, were distributed to selected verification scientists.

3.2.3 Version 2.4_3.0

The file contains updated polarisation keydata for Limb (version 3.0) and for Nadir (version 2.4). The latter are the so-called 'unsmoothed' keydata.
It was used as test data in the "improvement" procedure between DJO and DLR-IMF. Test products using this file, for verification of the new polarisation keydata, were distributed to selected verification scientists.

3.2.4 Version 3.0

This is basically identical to Version 2.4_3.0: only an error in the SENSING_START field was corrected.

3.2.5 Version 3.01

Contains a new format (Lookup Table instead of parametrisation) for the correction of the memory effect. A Lookup Table for the correction of non-linearity is added.
Test products using this file, for verification of the new keydata, were distributed to selected verification scientists – these products were nicknamed 'old keydata' products (as opposed to data calculated with Version 3.1).

3.2.6 Version 3.1

Contains newly calculated (ir)radiance data from IFE Bremen.
Test products using this file, for verification of the new keydata, were distributed to selected verification scientists – these products were nicknamed 'new keydata' products (as opposed to data calculated with Version 3.01).

The two files in Table 3 with Version 3.1 contain the same keydata; only the "start validity"date in the MPH is different, for correct usage in the PDS.

3.2.7 Version 3.2

Contains the new stray light matrix for channel 2 in the uniform stray light part and changes to prepare the matrix approach for the other channels. The uniform stray light correction was changed from using only one value per channel and one input value for the incoming light to a wavelength dependent input light and stray light. Details can be found in [R4, R5].

3.2.8 Version 3.3

Contains the new stray light matrix for channels 3-8. Also contains new radiometric key data and new polarisation key data.
Part of the key data that are needed by the scan mirror model were delivered by SRON in an archive. These data are used for the scan mirror model calculations in the processor. A complete list of parameters can be found in the ATBD [R9].

3.3 Calibration initialisation file SCI_LIC_AX

In previous processor versions this file was used for the initialisation of the ADF processing with SciCal. Since this is done now by the processor itself, this file becomes an input file for the Level 0-1 processor. This verion is used with the new gencal Level 0-1 C++ processor.

3.3.1 Version 1.1

This file is unchanged with respect to the last time it was used for SciCal.
The file name is

```
SCI_LIC_AXND-P20051001_194500_20000101_000000_20991231_235959
```

4 Names of ADFs in operational processing V.6-7

During operational processing, the original names of the key data file and of the initialisation file are changed by the IECF to reflect the date, when the ADF was available for the processing. This processing does *not* change the content of the file. For completeness the new file names are given in the table below:

Table 4: File names used in operational processing

IPF version	ADF type	Name
6.0x	Key data	SCI_KD1_AXVIEC20060523_182626_20020301_000000_20991231_235959
7.0x	Key data	SCI_KD1_AXNIEC20091126_123849_20020301_000000_20991231_235959
6.02	Initialisation	SCI_LI1_AXVIEC20060523_182643_20020701_000000_20991231_235959
6.03	Initialisation	SCI_LI1_AXVIEC20070628_134108_20020701_000000_20991231_235959

For the phase F processing (processor version > 7), the IECF is no longer used, since the forward processing chain was decommissioned. Thus the file names are unchanged. We keep the table for reference and to keep the traceability for older products from previous processor versions.

5 Appendix:

5.1 List of Keydata Versions for each entry

Here we list the version numbers from 1.2 for each Keydata entry in the Keydata files. Note that the version number written in older Keydata files may deviate from the latest version assignment in 1.2, see Section 2.

The following list has been generated from the Keydata files using the UNIX command:
`grep FILE_TYPE <filename>`

```
SCI_KD1_AXND-P20071130_200652_20020301_000000_20991231_235959:

_BRDF_s_FILE_TYPE           =      ADT V2.2/IFE V0.4
_BRDF_p_FILE_TYPE           =      ADT V2.2/IFE V0.4
_ELEV_s_FILE_TYPE           =     ADT V1.0
_ELEV_p_FILE_TYPE           =     ADT V1.0
_ETA_NAD_FILE_TYPE          =   ADT V3.1
_XI_NAD_FILE_TYPE           =   ADT V3.1
_OBM_s_p_FILE_TYPE          =   ADT V3.1
_ETA_LIMB_FILE_TYPE         =   ADT V3.0
_ZETA_LIMB_FILE_TYPE            =   ADT V3.0
_EL_AZ_p_FILE_TYPE          =      ADT V2.2/IFE V0.4
_EL_AZ_s_FILE_TYPE          =      ADT V2.2/IFE V0.4
_OMEGA_LIMB_FILE_TYPE           =   ADT V3.0
_KAPPA_LIMB_FILE_TYPE       =   ADT V3.0
_XI_LIMB_FILE_TYPE              =   ADT V3.0
_SIGMA_LIMB_FILE_TYPE           =   ADT V3.0
_PSI_LIMB_FILE_TYPE             =   ADT V3.0
_TAU_LIMB_FILE_TYPE         =   ADT V3.0
_SIGMA_NAD_FILE_TYPE            =   ADT V3.1
_PSI_NAD_FILE_TYPE              =   ADT V3.1
_TAU_NAD_FILE_TYPE          =   ADT V3.1
_OMEGA_NAD_FILE_TYPE        =   ADT V3.1
_KAPPA_NAD_FILE_TYPE            =   ADT V3.1
_ZETA_NAD_FILE_TYPE             =   ADT V3.1
_STRAY_UNIFORM_FILE_TYPE        =   ADT V3.0
_STRAY_GHOST_FILE_TYPE      =   ADT V3.1
_STRAY_CH1_FILE_TYPE        =   ADT V2.2
_SPEC_LINE_FILE_TYPE        =      ADT V2.4
_SLIT_F_FILE_TYPE           =      ADT V2.3
_SMALL_AP_SLIT_F_FILE_TYPE  =   ADT V2.3
_ABS_RAD_FILE_TYPE          =   ADT V3.1/IFE V0.1
_ABS_IRR_FILE_TYPE          =   ADT V2.3.1
_NDF_FILE_TYPE              =   ADT V3.0/IFE V0.2
_NDF_s_p_FILE_TYPE          =      ADT V2.2
_MEM_EFFECT_COEF_FILE_TYPE      =   ADT V3.0
_PMD_CROSS_COEF_FILE_TYPE       =      ADT V2.0
_BAD_PIXEL_MASK_FILE_TYPE   =      ADT V2.2
_REF_WLS_FILE_TYPE              =      ADT V2.3
_FRAUNH_LINE_FILE_TYPE      =      ADT V1.0
_NON_LIN_FILE_TYPE          =   ADT V1.0


SCI_KD1_AXND-P20050210_132920_20050210_132920_20991231_235959

_BRDF_s_FILE_TYPE                =       ADT V2.2/IFE V0.4
```

```
_BRDF_p_FILE_TYPE                =       ADT V2.2/IFE V0.4
_ELEV_s_FILE_TYPE                =       ADT V1.0
_ELEV_p_FILE_TYPE                =       ADT V1.0
_ETA_NAD_FILE_TYPE               =       ADT V3.1
_XI_NAD_FILE_TYPE                =       ADT V3.1
_OBM_s_p_FILE_TYPE               =       ADT V3.1
_ETA_LIMB_FILE_TYPE              =       ADT V3.0
_ZETA_LIMB_FILE_TYPE             =       ADT V3.0
_EL_AZ_p_FILE_TYPE               =       ADT V2.2/IFE V0.4
_EL_AZ_s_FILE_TYPE               =       ADT V2.2/IFE V0.4
_OMEGA_LIMB_FILE_TYPE            =       ADT V3.0
_KAPPA_LIMB_FILE_TYPE            =       ADT V3.0
_XI_LIMB_FILE_TYPE               =       ADT V3.0
_SIGMA_LIMB_FILE_TYPE            =       ADT V3.0
_PSI_LIMB_FILE_TYPE              =       ADT V3.0
_TAU_LIMB_FILE_TYPE              =       ADT V3.0
_SIGMA_NAD_FILE_TYPE             =       ADT V3.1
_PSI_NAD_FILE_TYPE               =       ADT V3.1
_TAU_NAD_FILE_TYPE               =       ADT V3.1
_OMEGA_NAD_FILE_TYPE             =       ADT V3.1
_KAPPA_NAD_FILE_TYPE             =       ADT V3.1
_ZETA_NAD_FILE_TYPE              =       ADT V3.1
_STRAY_UNIFORM_FILE_TYPE         =       ADT V2.2
_STRAY_GHOST_FILE_TYPE           =       ADT V3.1
_STRAY_CH1_FILE_TYPE             =       ADT V2.2
_SPEC_LINE_FILE_TYPE             =       ADT V2.4
_SLIT_F_FILE_TYPE                =       ADT V2.3
_SMALL_AP_SLIT_F_FILE_TYPE       =       ADT V2.3
_ABS_RAD_FILE_TYPE               =       ADT V3.1/IFE V0.1
_ABS_IRR_FILE_TYPE               =       ADT V2.3.1
_NDF_FILE_TYPE                   =       ADT V3.0/IFE V0.2
_NDF_s_p_FILE_TYPE               =       ADT V2.2
_MEM_EFFECT_COEF_FILE_TYPE       =       ADT V3.0
_PMD_CROSS_COEF_FILE_TYPE        =       ADT V2.0
_BAD_PIXEL_MASK_FILE_TYPE        =       ADT V2.2
_REF_WLS_FILE_TYPE               =       ADT V2.3
_FRAUNH_LINE_FILE_TYPE           =       ADT V1.0
_NON_LIN_FILE_TYPE               =       ADT V1.0


SCI_KD1_AXND-P20040518_153804_20040518_000000_20991231_235959

_BRDF_s_FILE_TYPE                =       ADT V1.0
_BRDF_p_FILE_TYPE                =       ADT V1.0
_ELEV_s_FILE_TYPE                =       ADT V1.0
_ELEV_p_FILE_TYPE                =       ADT V1.0
_ETA_NAD_FILE_TYPE               =       ADT V2.4
_XI_NAD_FILE_TYPE                =       ADT V2.4
_OBM_s_p_FILE_TYPE               =       ADT V3.0
_ETA_LIMB_FILE_TYPE              =       ADT V3.0
_ZETA_LIMB_FILE_TYPE             =       ADT V3.0
_EL_AZ_p_FILE_TYPE               =       ADT V1.0
_EL_AZ_s_FILE_TYPE               =       ADT V1.0
_OMEGA_LIMB_FILE_TYPE            =       ADT V3.0
_KAPPA_LIMB_FILE_TYPE            =       ADT V3.0
_XI_LIMB_FILE_TYPE               =       ADT V3.0
_SIGMA_LIMB_FILE_TYPE            =       ADT V3.0
_PSI_LIMB_FILE_TYPE              =       ADT V3.0
_TAU_LIMB_FILE_TYPE              =       ADT V3.0
_SIGMA_NAD_FILE_TYPE             =       ADT V2.4
```

```
_PSI_NAD_FILE_TYPE                =       ADT V2.4
_TAU_NAD_FILE_TYPE                =       ADT V2.4
_OMEGA_NAD_FILE_TYPE              =       ADT V2.4
_KAPPA_NAD_FILE_TYPE              =       ADT V2.4
_ZETA_NAD_FILE_TYPE               =       ADT V2.4
_STRAY_UNIFORM_FILE_TYPE          =       ADT V2.2
_STRAY_GHOST_FILE_TYPE            =       ADT V2.2
_STRAY_CH1_FILE_TYPE              =       ADT V2.2
_SPEC_LINE_FILE_TYPE              =       ADT V2.4
_SLIT_F_FILE_TYPE                 =       ADT V2.2
_SMALL_AP_SLIT_F_FILE_TYPE        =       ADT V2.0
_ABS_RAD_FILE_TYPE                =       ADT V2.2
_ABS_IRR_FILE_TYPE                =       ADT V2.3
_NDF_FILE_TYPE                    =       ADT V2.2
_NDF_s_p_FILE_TYPE                =       ADT V2.2
_MEM_EFFECT_COEF_FILE_TYPE        =       LUT.TXT
_PMD_CROSS_COEF_FILE_TYPE         =       ADT V2.0
_BAD_PIXEL_MASK_FILE_TYPE         =       ADT V2.2
_REF_WLS_FILE_TYPE                =       ADT V2.2
_FRAUNH_LINE_FILE_TYPE            =       NA
_NON_LIN_FILE_TYPE                =       IDLPRO V1.2


SCI_KD1_AXVIEC20040309_092921_20020301_000000_20991231_235959

_BRDF_s_FILE_TYPE                 =       ADT V1.0
_BRDF_p_FILE_TYPE                 =       ADT V1.0
_ELEV_s_FILE_TYPE                 =       ADT V1.0
_ELEV_p_FILE_TYPE                 =       ADT V1.0
_ETA_NAD_FILE_TYPE                =       ADT V2.4
_XI_NAD_FILE_TYPE                 =       ADT V2.4
_OBM_s_p_FILE_TYPE                =       ADT V3.0
_ETA_LIMB_FILE_TYPE               =       ADT V3.0
_ZETA_LIMB_FILE_TYPE              =       ADT V3.0
_EL_AZ_p_FILE_TYPE                =       ADT V1.0
_EL_AZ_s_FILE_TYPE                =       ADT V1.0
_OMEGA_LIMB_FILE_TYPE             =       ADT V3.0
_KAPPA_LIMB_FILE_TYPE             =       ADT V3.0
_XI_LIMB_FILE_TYPE                =       ADT V3.0
_SIGMA_LIMB_FILE_TYPE             =       ADT V3.0
_PSI_LIMB_FILE_TYPE               =       ADT V3.0
_TAU_LIMB_FILE_TYPE               =       ADT V3.0
_SIGMA_NAD_FILE_TYPE              =       ADT V2.4
_PSI_NAD_FILE_TYPE                =       ADT V2.4
_TAU_NAD_FILE_TYPE                =       ADT V2.4
_OMEGA_NAD_FILE_TYPE              =       ADT V2.4
_KAPPA_NAD_FILE_TYPE              =       ADT V2.4
_ZETA_NAD_FILE_TYPE               =       ADT V2.4
_STRAY_UNIFORM_FILE_TYPE          =       ADT V2.2
_STRAY_GHOST_FILE_TYPE            =       ADT V2.2
_STRAY_CH1_FILE_TYPE              =       ADT V2.2
_SPEC_LINE_FILE_TYPE              =       ADT V2.4
_SLIT_F_FILE_TYPE                 =       ADT V2.2
_SMALL_AP_SLIT_F_FILE_TYPE        =       ADT V2.0
_ABS_RAD_FILE_TYPE                =       ADT V2.2
_ABS_IRR_FILE_TYPE                =       ADT V2.3
_NDF_FILE_TYPE                    =       ADT V2.2
_NDF_s_p_FILE_TYPE                =       ADT V2.2
_MEM_EFFECT_COEF_FILE_TYPE        =       ADT V2.2
_PMD_CROSS_COEF_FILE_TYPE         =       ADT V2.0
```

```
_BAD_PIXEL_MASK_FILE_TYPE        =       ADT V2.2
_REF_WLS_FILE_TYPE               =       ADT V2.2
_FRAUNH_LINE_FILE_TYPE           =       NA


SCI_KD1_AXND-P20031014_164522_20020301_000000_20991231_235959

_BRDF_s_FILE_TYPE                =       ADT V1.0
_BRDF_p_FILE_TYPE                =       ADT V1.0
_ELEV_s_FILE_TYPE                =       ADT V1.0
_ELEV_p_FILE_TYPE                =       ADT V1.0
_ETA_NAD_FILE_TYPE               =       ADT V3.0
_XI_NAD_FILE_TYPE                =       ADT V3.0
_OBM_s_p_FILE_TYPE               =       ADT V3.0
_ETA_LIMB_FILE_TYPE              =       ADT V3.0
_ZETA_LIMB_FILE_TYPE             =       ADT V3.0
_EL_AZ_p_FILE_TYPE               =       ADT V1.0
_EL_AZ_s_FILE_TYPE               =       ADT V1.0
_OMEGA_LIMB_FILE_TYPE            =       ADT V3.0
_KAPPA_LIMB_FILE_TYPE            =       ADT V3.0
_XI_LIMB_FILE_TYPE               =       ADT V3.0
_SIGMA_LIMB_FILE_TYPE            =       ADT V3.0
_PSI_LIMB_FILE_TYPE              =       ADT V3.0
_TAU_LIMB_FILE_TYPE              =       ADT V3.0
_SIGMA_NAD_FILE_TYPE             =       ADT V3.0
_PSI_NAD_FILE_TYPE               =       ADT V3.0
_TAU_NAD_FILE_TYPE               =       ADT V3.0
_OMEGA_NAD_FILE_TYPE             =       ADT V3.0
_KAPPA_NAD_FILE_TYPE             =       ADT V3.0
_ZETA_NAD_FILE_TYPE              =       ADT V3.0
_STRAY_UNIFORM_FILE_TYPE         =       ADT V2.2
_STRAY_GHOST_FILE_TYPE           =       ADT V2.2
_STRAY_CH1_FILE_TYPE             =       ADT V2.2
_SPEC_LINE_FILE_TYPE             =       ADT V2.4
_SLIT_F_FILE_TYPE                =       ADT V2.2
_SMALL_AP_SLIT_F_FILE_TYPE       =       ADT V2.0
_ABS_RAD_FILE_TYPE               =       ADT V2.2
_ABS_IRR_FILE_TYPE               =       ADT V2.3
_NDF_FILE_TYPE                   =       ADT V2.2
_NDF_s_p_FILE_TYPE               =       ADT V2.2
_MEM_EFFECT_COEF_FILE_TYPE       =       ADT V2.2
_PMD_CROSS_COEF_FILE_TYPE        =       ADT V2.0
_BAD_PIXEL_MASK_FILE_TYPE        =       ADT V2.2
_REF_WLS_FILE_TYPE               =       ADT V2.2
_FRAUNH_LINE_FILE_TYPE           =       NA

SCI_KD1_AXND-P20020905_172502_20020301_000000_20991231_235959

_BRDF_s_FILE_TYPE                =       ADT V1.0
_BRDF_p_FILE_TYPE                =       ADT V1.0
_ELEV_s_FILE_TYPE                =       ADT V1.0
_ELEV_p_FILE_TYPE                =       ADT V1.0
_ETA_NAD_FILE_TYPE               =       ADT V2.2
_XI_NAD_FILE_TYPE                =       ADT V2.2
_OBM_s_p_FILE_TYPE               =       ADT V2.2
_ETA_LIMB_FILE_TYPE              =       ADT V2.2
_ZETA_LIMB_FILE_TYPE             =       ADT V2.2
_EL_AZ_p_FILE_TYPE               =       ADT V1.0
_EL_AZ_s_FILE_TYPE               =       ADT V1.0
_OMEGA_LIMB_FILE_TYPE            =       ADT V2.2
```

```
_KAPPA_LIMB_FILE_TYPE            =       ADT V2.2
_XI_LIMB_FILE_TYPE               =       ADT V2.2
_SIGMA_LIMB_FILE_TYPE            =       ADT V2.2
_PSI_LIMB_FILE_TYPE              =       ADT V2.2
_TAU_LIMB_FILE_TYPE              =       ADT V2.2
_SIGMA_NAD_FILE_TYPE             =       ADT V2.2
_PSI_NAD_FILE_TYPE               =       ADT V2.2
_TAU_NAD_FILE_TYPE               =       ADT V2.2
_OMEGA_NAD_FILE_TYPE             =       ADT V2.2
_KAPPA_NAD_FILE_TYPE             =       ADT V2.2
_ZETA_NAD_FILE_TYPE              =       ADT V2.2
_STRAY_UNIFORM_FILE_TYPE         =       ADT V2.2
_STRAY_GHOST_FILE_TYPE           =       ADT V2.2
_STRAY_CH1_FILE_TYPE             =       ADT V2.2
_SPEC_LINE_FILE_TYPE             =       ADT V2.4
_SLIT_F_FILE_TYPE                =       ADT V2.2
_SMALL_AP_SLIT_F_FILE_TYPE       =       ADT V2.0
_ABS_RAD_FILE_TYPE               =       ADT V2.2
_ABS_IRR_FILE_TYPE               =       ADT V2.3
_NDF_FILE_TYPE                   =       ADT V2.2
_NDF_s_p_FILE_TYPE               =       ADT V2.2
_MEM_EFFECT_COEF_FILE_TYPE       =       ADT V2.2
_PMD_CROSS_COEF_FILE_TYPE        =       ADT V2.0
_BAD_PIXEL_MASK_FILE_TYPE        =       ADT V2.2
_REF_WLS_FILE_TYPE               =       ADT V2.2
_FRAUNH_LINE_FILE_TYPE           =       NA


SCI_KD1_AXND-P20091016_154930_20020301_000000_20991231_235959

_BRDF_s_FILE_TYPE                =       ADT V2.2
_BRDF_p_FILE_TYPE                =       ADT V2.2
_ELEV_s_FILE_TYPE                =       ADT V1.0
_ELEV_p_FILE_TYPE                =       ADT V1.0
_ETA_NAD_FILE_TYPE               =       ADT V3.2
_XI_NAD_FILE_TYPE                =       ADT V3.2
_OBM_s_p_FILE_TYPE               =       ADT V3.2
_ETA_LIMB_FILE_TYPE              =       ADT V3.2
_ZETA_LIMB_FILE_TYPE             =       ADT V3.2
_EL_AZ_p_FILE_TYPE               =       ADT V2.2
_EL_AZ_s_FILE_TYPE               =       ADT V2.2
_OMEGA_LIMB_FILE_TYPE            =       ADT V3.2
_KAPPA_LIMB_FILE_TYPE            =       ADT V3.2
_XI_LIMB_FILE_TYPE               =       ADT V3.2
_SIGMA_LIMB_FILE_TYPE            =       ADT V3.2
_PSI_LIMB_FILE_TYPE              =       ADT V3.2
_TAU_LIMB_FILE_TYPE              =       ADT V3.2
_SIGMA_NAD_FILE_TYPE             =       ADT V3.2
_PSI_NAD_FILE_TYPE               =       ADT V3.2
_TAU_NAD_FILE_TYPE               =       ADT V3.2
_OMEGA_NAD_FILE_TYPE             =       ADT V3.2
_KAPPA_NAD_FILE_TYPE             =       ADT V3.2
_ZETA_NAD_FILE_TYPE              =       ADT V3.2
_STRAY_UNIFORM_FILE_TYPE         =       ADT V4.1
_STRAY_GHOST_FILE_TYPE           =       ADT V4.0
_STRAY_CH1_FILE_TYPE             =       ADT V2.2
_SPEC_LINE_FILE_TYPE             =       ADT V2.4
_SLIT_F_FILE_TYPE                =       ADT V2.3
_SMALL_AP_SLIT_F_FILE_TYPE       =       ADT V2.3
_ABS_RAD_FILE_TYPE               =       ADT V3.1
```

```
_ABS_IRR_FILE_TYPE                =       ADT V2.3.1
_NDF_FILE_TYPE                    =       ADT V3.0
_NDF_s_p_FILE_TYPE                =       ADT V2.2
_MEM_EFFECT_COEF_FILE_TYPE        =       ADT V3.0
_PMD_CROSS_COEF_FILE_TYPE         =       ADT V2.0
_BAD_PIXEL_MASK_FILE_TYPE         =       ADT V2.2
_REF_WLS_FILE_TYPE                =       ADT V2.3
_FRAUNH_LINE_FILE_TYPE            =       ADT V1.0
_NON_LIN_FILE_TYPE                =      ADT V1.0
```

5.2 SCI_LIC_AXND Contents

The following calibration parameter calculation constants are defined:

```
SCI_LIC_AXND-P20051001_194500_20000101_000000_20991231_235959

------------------------------------------------------------------------
      general constants

SCI_CAL - init_version - version of this file
1.1

SCI_CAL - polling_interval - waiting time in seconds between checking
L0_ingestion and IECF_TO_SCICAL directory
10

 # SCICAL_TO_EXPERT for testing or IECF_TO_SCICAL for routinely operations
SCI_CAL - adf_output_destination - directory where to copy newly calculated
ADFs to be picked up by IECF
SCICAL_TO_EXPERT

 # region might be narrowed down during commissioning phase - review
SCI_CAL - saa_region - corner longitudes and latitudes of south atlantic
anomaly region : left/top, left/bottom, right/top, right/bottom [degrees]
-120.0  10.0  -120.0  -60.0  50.0  10.0  50.0  -60.0

------------------------------------------------------------------------
constants for bad-/dead-pixel mask detection

 # t (true) if the algorithm shall be done and the PE1 file with new DBPM
shall be generated or f if not
BAD_PIXEL_MASK - do_bad_pixel_calculation - flag indicating if algorithm
shall be processed
f

 # channels 1, 2, .., 6a, 6b, 7, 8
BAD_PIXEL_MASK - n_channels - number of channels with specific limits for
bad-pixel detection
9

 # channel configuration for bad-pixel-mask detetection
BAD_PIXEL_MASK - limit_index_to_ch - assignment of limit to SCIA-channel
(in combination to limit_ch_start and limit_ch_end)
0      1      2      3      4      5      5      6     7

BAD_PIXEL_MASK - limit_ch_start - assignment of limit start-pixel in SCIA-
channel (in combination to limit_ch_start and limit_ch_end)
0      0      0      0      0      0    795      0     0
```

```
BAD_PIXEL_MASK - limit_ch_end - assignment of limit end-pixel in SCIA-
channel (in combination to limit_ch_start and limit_ch_end)
1023   1023   1023   1023   1023    794   1023   1023  1023

 # threshold values bad-pixel-mask detetection
BAD_PIXEL_MASK - noise_limit - limit of dark signal mean noise
5.    5.    5.    5.    5.   50.   100.   100.  100.

 #lc_err_limit is the maximum relative error allowed
BAD_PIXEL_MASK - lc_err_limit - limit of leakage current error
250.   250.   50.   50.   16.   25.   0.35   0.35   0.35

 #lc_limit: saturation time allowed for channels [s]
BAD_PIXEL_MASK - lc_limit - limit of leakage current
10.   10.   10.   10.   10.   10.   2.   3.   4.

 #fpn_lower/upper is an absolute value
BAD_PIXEL_MASK - fpn_lower_limit - lower limit of fixed-pattern-noise
1920   2780   3520   2340   2520   2000  1000   1000   1000

BAD_PIXEL_MASK - fpn_upper_limit - upper limit of fixed-pattern-noise
2020   2890   3600   2480   2640   7000   6000    6000   6000

 #fpn_err_limit is the relative error maximum allowed
BAD_PIXEL_MASK - fpn_err_limit - upper limit of error of fixed-pattern-
noise
5.0   5.0   8.75   8.75   4.25   80.   16.   16.   1.2

BAD_PIXEL_MASK - residual_limit - limit of dark-signal-corrected dark
signal
25.   25.   25.   25.   25.   75.   600.   600.   600.


#BAD_PIXEL_MASK - residual_lower_limit - lower limit of dark-signal-
corrected dark signal
#25.   25.   25.   25.   25.   25.   25.   10.   10.

#BAD_PIXEL_MASK - residual_upper_limit - upper limit of dark-signal-
corrected dark signal
#-25.   -25.   -25.   -25.   -25.   -25.   -25.   -10.   -10.

 #absolute lower limits [BU] new from wls
BAD_PIXEL_MASK - wls_limit - lower limit of white-light-signal
10.   10.   10.   10.   10.   10.   100.   100.   100.

 #absolute lower limits (we use 'E' SPECTRUM) new from sunhistogram
BAD_PIXEL_MASK - sun_limit - lower limit of sun-diffuser-signal
130.   500.   600.   6000.   1500.   400.   2300.   2300.   2300.

BAD_PIXEL_MASK - ppg_lower_limit - lower limit of pixel-to-pixel-gain-
signal
0.8    0.8    0.8    0.8    0.8    0.8    0.8    0.8   0.8

BAD_PIXEL_MASK - ppg_upper_limit - upper limit of pixel-to-pixel-gain-
signal
1.2    1.2    1.2    1.2    1.2    1.2    1.2    1.2   1.2

 # the amount of time before the calibration measurement(s) in UTC
processing format
```

```
 # (if negative do not modify the ones from SCI_PE1_AX input)
BAD_PIXEL_MASK - start_validity_offset_bad_pixel_mask - start validity time
as offset to subtract from measurement time
0.0

 # the amount of time after the calibration measurement(s) in UTC
processing format
 # (if negative do not modify the ones from SCI_PE1_AX input)
BAD_PIXEL_MASK - stop_validity_offset_bad_pixel_mask - stop validity time
as offset to add from measurement time
14.0

 # number of days (float 0.5 mean half day) to average (0 means building
orbital mask)
BAD_PIXEL_MASK - bad_mask_period - period over which to average the bad
pixel mask
7.0

 ------------------------------------------------------------------
      constants for leakage ADF generation

 # t (true) if the algorithm shall be done and the LK1 file shall be
generated or f if not
LEAKAGE - do_leakage_calculation - flag indicating if algorithm shall be
processed
t

 # the amount of time before the calibration measurement(s) in UTC
processing format
LEAKAGE - start_validity_offset_leakage - start validity time as offset to
subtract from measurement time
0.0

 # the amount of time after the calibration measurement(s) in UTC
processing format (if negative take 1.1.2099)
LEAKAGE - stop_validity_offset_leakage - stop validity time as offset to
add from measurement time
60.0

 # use this interval in orbit-phase for averaging constant leakage values
in LKII
LEAKAGE - eclipse_phase_range - interval of orbit_phases belonging to
eclipse
0.0 0.3

 # number of days (float 0.5 mean half day) to average (0 means building
orbital leakage ADFs)
LEAKAGE - leakage_period - period over which to average the leakage data
0.5

 # minimum number of input L0 or L1b files from which a monthly leakage ADF
shall be built
LEAKAGE - min_LK1_input_files - minimum number of input files for LKI
generation
1

 # minimum number of input averaged dark records in the given product from
which a monthly leakage ADF shall be built
LEAKAGE - min_LK1_dark_records - minimum number averaged dark records
required for LKI generation
```

```
40

 ---------------------------------------------------------------------
      constants for PPG-/etalon ADF generation

 # t (true) if the algorithm shall be done and the PE1 file shall be
generated or f if not
PPG_ETALON - do_ppg_etalon_calculation - flag indicating if algorithm shall
be processed
f

 # the amount of time before the calibration measurement(s) in UTC
processing format
PPG_ETALON - start_validity_offset_ppg - start validity time as offset to
subtract from measurement time
0.0

 # the amount of time after the calibration measurement(s) in UTC
processing format (if negative take 1.1.2099)
PPG_ETALON - stop_validity_offset_ppg - stop validity time as offset to add
from measurement time
-1.0

 # number of days (float 0.5 mean half day) to average (0 means building
orbital PPG-/etalon ADFs)
PPG_ETALON - ppg_period - period over which to average the PPG-/etalon data
0.0

 ---------------------------------------------------------------------
      constants for spectral ADF generation

 # t (true) if the algorithm shall be done and the SP1 file shall be
generated or f if not
SPECTRAL - do_spectral_calculation - flag indicating if algorithm shall be
processed
f

 # the amount of time before the calibration measurement(s) in UTC
processing format
SPECTRAL - start_validity_offset_spectral - start validity time as offset
to subtract from measurement time
0.0

 # the amount of time after the calibration measurement(s) in UTC
processing format (if negative take 1.1.2099)
SPECTRAL - stop_validity_offset_spectral - stop validity time as offset to
add from measurement time
90.0

 # 0: only sls, 1: only sun, 2: average sls and sun
SPECTRAL - par_apt - which input source to take, SLS, SUN or both
0

 # number of days (float 0.5 mean half day) to average (0 means building
orbital spectral ADFs)
SPECTRAL - spectral_period - period over which to average the spectral data
0.4

 # minimum number of input L0 or L1b files from which a spectral ADF shall
be built
```

```
SPECTRAL - min_spectral_input_files - minimum number of input files for
spectral ADF generation
1

 ---------------------------------------------------------------------
      constants for sun ADF generation

 # t (true) if the algorithm shall be done and the SU1 file shall be
generated or f if not
SUN - do_sun_calculation - flag indicating if algorithm shall be processed
t

 # the amount of time before the calibration measurement(s) in UTC
processing format
SUN - start_validity_offset_sun - start validity time as offset to subtract
from measurement time
0.0

 # the amount of time after the calibration measurement(s) in UTC
processing format (if negative take 1.1.2099)
SUN - stop_validity_offset_sun - stop validity time as offset to add from
measurement time
15.0

 # number of days (float 0.5 mean half day) to collect (0 means building
orbital sun ADFs)
SUN - sun_period - period over which sun data shall be collected for ADF
generation
0.4

 # minimum number of input L0 or L1b files from which a sun ADF shall be
built
SUN - min_sun_input_files - minimum number of input files for sun ADF
generation
1
```