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# **ROSETTA - SESAME**

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# ESA PLANETARY SCIENCE ARCHIVE INTERFACE CONTROL DOCUMENT

RLGS-SPEC-SONC\_DPS-SCIE-9241-CNES

RO-LSE-DS-3102

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# **Distribution List**

Recipient	Organisation

# Change Log

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4/12/2015	2.4	Cleaned version	W. Schmidt
17/12/2015	2.5	Layout improvements; CASSE and SESAME corrections	K. J. Seidensticker

# **TBD** Items

Section	Description		



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# 1 Introduction

### 1.1 Purpose and Contents

The purpose of this EAICD (Experiment to Planetary Science Archive Interface Control Document) is twofold. First, it provides users of the SESAME experiment data with a detailed description of the data archive and a description of how it was generated, including data sources and storage destinations. Secondly, the EAICD is the official interface between the SESAME experiment team and the Philae science data archiving authority.

This document describes the data flow of the SESAME experiment on the *Rosetta* lander *Philae* from the spacecraft until the insertion into the PSA for ESA. It includes information on how data were processed, formatted, labeled and uniquely identified. The document discusses general naming schemes for data volumes, data sets, data and label files. Standards used to generate the product are explained. Software that may be used to access the product is explained further on. The design of the data set structure and of the data product is given.

The naming of levels of processing of SESAME housekeeping and science data is based on the CODMAC definition. For details of this definition and for a cross-reference to other schemes see appendix B of [AD4].

The data format presented in this document comprises the commands and data available in SESAME flight software FM-1 [AD7], FM-2 [AD8] and FM-3 [AD9].

### 1.2 Archiving Authorities

The Planetary Data System Standard is used as archiving standard by

- NASA for U.S. planetary missions, implemented by PDS
- ESA for European planetary missions, implemented by the Research and Scientific Support Department (RSSD) of ESA
- ESA's Planetary Science Archive (PSA)

ESA implements an online science archive, the PSA,

- to support and ease data ingestion,
- to offer additional services to the scientific user community and science operations teams as e.g. search queries that allow searches across instruments, missions and scientific disciplines,
- several data delivery options like
  - o direct download of data products, linked files and data sets
  - ftp download of data products, linked files and data sets

The PSA aims for online ingestion of logical archive volumes and will offer the creation of physical archive volumes on request.

### 1.3 Intended Readership

The staff of the archiving authority (SONC and PSA (RSSD, ESA)) and any potential user of the SESAME data.

### **1.4 Applicable Documents**

- AD1 SESAME Flight Software User Manual, FM 1.0, RO-LSE-UG-3401, issue 1, revision 1, August 2001
- AD2 SESAME Flight Software User Manual, FM 2.0, RO-LSE-UG-3401, issue 2, revision 4, February 2008
- AD3 SESAME Flight Software User Manual, FM 3.0, RO-LSE-UG-3404, issue draft, revision 2, September 2009
- AD4 Planetary Data System Preparation Workbook, 1. February 1995, Version 3.1, JPL, D-7669, Part 1
- AD5 Planetary Data System Standards Reference, Aug. 1, 2003, Version 3.6, JPL, D-7669, Part 2

- AD6 ROSETTA Archive Generation, Validation and Transfer Plan, RO-EST-PL-5011, Issue 2.3, 10 January 2006
- AD7 Rosetta Time handling, RO-EST-TN-3165, Issue 1, Rev. 0, February 9, 2004
- AD8 Command and Data Management System (CDMS) Subsystem Specification, RO-LCD-SP-3101, Issue 3, Rev. 5, 29/08/2001
- AD9 ROSETTA Archive Conventions, RO-EST-TN-3372, Issue 8, Rev. 3, 19 August 2015
- AD10 CDMS DDD, RO-LCD-SW-3610, Issue 6 and above
- AD11 CDMS Command and Data Management System Subsystem Specification, RO-LCD-SP-3101 29/08/2001, Issue 3, Rev. 5
- AD12 CDMS Command and Data Management System Operation Manual, RO-LCD-SW-3402, 12/02/2001, Issue 1, Rev. 2
- AD13 Data Delivery Interface Document, RO-ESC-IF-5003, Issue B6, 23/10/2003

#### **1.5** Acronyms and Abbreviations

CASSE CDMS Col DAWG DDS DIM EAICD EGSE ESA HC HK LCC LOBT LSB MSB OOBT PC PCB PDS PI PP PSA RLGS RSOC RSSD S/S SESAME SFDU SIM SLR SONC TBC	Comet Acoustic Surface Sounding Experiment Central Data Management System Co-Investigator Data Archive Working Group Data Distribution System Dust Impact Monitor Experiment (planetary science) Archive Interface Control Document Electrical Ground Support Equipment European Space Agency Health-check Housekeeping Lander Control Centre Lander On-Board Time Least Significant Bit Most Significant Bit Orbiter On-Board Time Payload Check-out Printed Circuit Board Planetary Data System Principal Investigator Permittivity Probe Planetary Science Archive (ESA) Rosetta Lander Ground Segment Rosetta Science Operations Center Research and Scientific Support Department of ESA Sub-system(s) Surface Electric Sounding and Acoustic Monitoring Experiment Standard Formatted Data Unit Lander simulator (software with some hardware) SESAME Local Time Scientific Operation and Navigation Center To Be Confirmed
SONC	
-	
TBD	To Be Defined
тс	Telecommand

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UTC Universal Time Coordinated

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### 1.7 Acknowledgement

The writing of this document was greatly supported by using the CIVA EAICD (LCI-SP-0026-3270-IAS, issue 1.0, 3 October 2005) as a reference document.

# 2 Overview of Scientific Objectives, Experiment Design and Data Products

# 2.1 Scientific Objectives

The activity and evolution of comets is, apart from the magnitude of the solar radiation flux, strongly influenced by the properties of their surfaces. Measurements of surface parameters like composition as well as mechanical and electrical properties and their variation with rotational and orbital phase are of crucial importance. In addition, the knowledge of the local physical, structural and layering properties of cometary surfaces is needed to understand the present processes and the formation history.

These data are required for modeling the gas transport properties of cometary surfaces and related activity phenomena. Describing the gas transport is a necessary prerequisite for a solid interpretation of the gas measurements of, for example, elemental and molecular abundances that are of primary scientific importance for *Rosetta* providing information on the composition of the 'pristine' material of comet nuclei. The diurnal variation of this gas flux is strongly governed by the diffusion properties of upper cometary surface layers. Vice versa, erosion by and recondensation of this gas flux steadily modifies the surface properties.

The *Surface Electric Sounding and Acoustic Monitoring Experiment* (SESAME, Seidensticker et al., 2007) on the lander *Philae* of the ESA *Rosetta* Mission has the goal to determine several of these parameters as well as the properties of released cometary particles. SESAME is a complex of three instruments: The *Comet Acoustic Surface Sounding Experiment* (CASSE), the *Dust Impact Monitor* (DIM) and the *Permittivity Probe* (PP). It is the goal of SESAME to contribute to the understanding of the vertical and lateral structure of a cometary surface and the acting processes by conducting in-situ measurements of mechanical, electrical and particle-related properties.

The analysis of elastic waves that will be generated and recorded by CASSE will allow deducing mechanical parameters as well as the vertical (layered) structure of the cometary surface.

The DIM instrument will measure the properties of impacting ice-dust grains. These data should help to improve our understanding of the lateral variations and how activity can be evoked or choked.

PP will determine the complex permittivity of the surface material beneath *Philae*, which is a measure for the water ice content, thereby constraining the mass fractions of refractory material and other ices.

These measurements shall be performed from touchdown until 67P/Churyumov-Gerasimenko, the target comet, reaches its perihelion. Combining observations from other instruments, both on *Philae* and the *Rosetta* orbiter, with the SESAME data should improve models of cometary activity, layering processes and of the heat and gas transport within cometary surfaces.

SESAME

**CASSE • DIM • PP** 

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### 2.2 Experiment Design

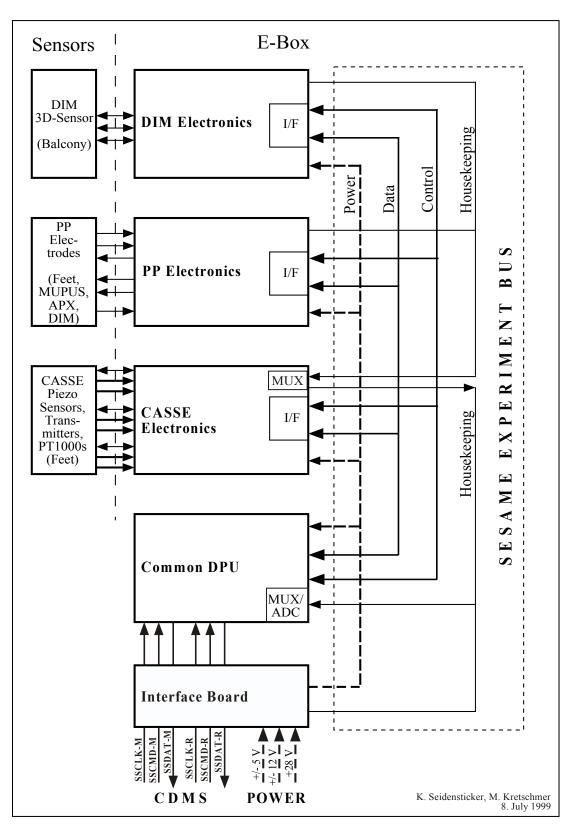


Figure 2.1: The SESAME electronics

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### 2.2.1 CASSE

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CASSE will investigate the outermost surface layers of comet 67P/Churyumov-Gerasimenko by transmitting and receiving vibrations in the range from 100 Hz to 10 kHz (audible frequency range). The elastic properties of the cometary surface will be investigated by recording compressional and shear waves. To guarantee sufficient ground contact in any foreseeable surface topography and composition (dust, sand, ice and their mixtures), the transmitters (actuators) and the receivers of stacked piezoceramics and triaxial piezoelectric accelerometers are integrated into the lander's six soles. The soles thus act as transmitting and receiving antennas. By switching between actuators and accelerometers, an analysis of the surface material and an in-depth sounding for detection of a layered structure or embedded local inhomogeneities are both possible. Two harpoons fired from *Philae* shall provide a fixation force of at least 5 N per sole in order to improve the ground contact of the soles and thereby the transmission and reception of vibrations.

#### Measuring principle

By measuring the propagation time between feet with triaxial accelerometers, the propagation velocities  $c_{\rho}$  and  $c_s$  of the acompressional and the shear waves can be derived. These velocities are related to the physical parameters and structural composition of the surface material. Identifying and measuring the thickness of subsurface layers, by detecting echoes from a steep gradient in reflectivity, is of great interest.

Physical parameters related to material properties are the elastic parameters Young's modulus *E* and Poisson number *v*. They are related to the velocities of the longitudinal and transverse elastic waves, described as compressional p- and shear s-waves in seismic terms, and the density  $\rho$  of the material. The elastic parameters can also be expressed by other mechanical parameters such as the compressional modulus and rigidity; these are related to other properties such as tensile strength and microstructure.

The interface between the soles and the cometary surface is mostly unknown. The required contact with the cometary surface strongly depends on the sole design and the final acoustic properties of the feet and landing gear. To cope with the unknown physical conditions on and in the comet, acoustic wave propagation experiments have been made in various materials simulating different cometary conditions. Laboratory studies of regolithic dust and sand, and hardened ice/dust mixtures demonstrated that acoustic sounding could be applied to cometary surfaces.

#### 2.2.2 DIM

Most of the comet's surface is expected to be freely sublimating ice and embedded dust. When ice is exposed to solar radiation, sublimating gas molecules drag away embedded ice/dust grains of different sizes. The combined action of gas drag and gravitational forces means that the majority of the grains is either ejected into interplanetary space (smaller particles) or falls back to the nucleus (larger particles). DIM, mounted on *Philae's* balcony, will observe those particles that fall back owing to their insufficient velocities.

DIM's data will help to monitor the downward flux of grains as a function of orbital position and cometary activity (along with daily variations). This will allow the development of better models for the distribution and flux of near-surface dust and small particles as a function of their size and velocity. The impact properties will allow the acoustic signals of external and internal origin to be separated. As a bonus, this experiment may help to identify the Lander vibration noise that needs to be removed from the acoustic and seismic measurements.

#### Instrument principle

DIM's piezoelectric sensor on the balcony will detect the impacts of particles having energies of 10<sup>-11</sup>-10<sup>-7</sup> J, radii of 50 µm - 6 mm and speeds of 2.5 cm/s - 0.25 m/s. The sensor's active area is about 75 cm<sup>2</sup>. The low-level electrical output signals pass through a wideband logarithmic amplifier to retain their broad dynamic range. A data acquisition unit (DAU) measures the impact characteristics (peak amplitudes, contact times, averages). The DAU is connected to SESAME's Common Data Processing Unit (DPU) by the SESAME Experiment Bus.

The sensor output is a fast or slow decaying sinusoid transient electric signal (depending on the parameters of the impacting particles). An impact is detected by a threshold detector, where the threshold is the sum of the average of the signal and a margin. The margin is programmable in order to adjust the sensitivity of detection. As the impact rate increases, the average will be increased to reduce sensitivity so that the system is not saturated: fewer impacts will be detected.

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Further, the average value of the amplified signal is sampled. In the case of very low impact rates, this is roughly equivalent to the electronic and background noise average. For very high impact rates, the individual impacts cannot be distinguished so only the average value of the signal is measured. This switchover from measuring individual impacts (Burst Mode) to the average (Continuous Mode) is automatic and is based on the measured average. The default is Burst Mode, but the Continuous Mode can be selected separately on command.

### 2.2.3 PP

The PP instrument is mainly a quadrupole detector using two transmitter and two receiver electrodes at any given time in so-called active mode. An AC-voltage, digitally generated by a sequencer inside the common electronics in the frequency range between 10 Hz and 20 kHz and amplitudes up to  $\pm$  10V, is injected between two transmitter electrodes. The resulting current can be sampled with up to 180kHz sampling frequency on either of the two electrode's driver circuits. This current generates an electrical field inside the comet's surface material, which is picked up by the two receiver electrodes Rx1 and Rx2, placed inside the soles of the +Y and -Y landing gear leg, respectively.

#### Receiver

The measured potentials are amplified by preamplifiers, also inside these soles, by a factor of 8 and buffered to drive the long sensor cables into the Lander compartment. The PP electronics generates automatically the differential voltage between both signals, which is subsequently sampled at exactly the same moment as the corresponding current sample.

The resulting 8-bit values are stored in PP's on memory in alternating order, current values first, followed by the differential potential value. At the end of a measurement with given frequency and amplitude, the SESAME common DPU reads these data into the main memory, sorts them according to type (current or voltage) and places these vectors into the telemetry or use them for further on-board processing.

#### Transmitter

To achieve different geometries and thereby different penetration depths, three transmitter electrodes are implemented, which can be used in any combination. Tx1 is placed as metal mesh on the inside of the +X landing gear foot sole, Tx2 is implemented as an insulated ring lid to the APX detector, which is in contact with the comet surface once APX is lowered. Tx3 is a flexible mesh foil attached to the MUPUS PEN, lying on the comet surface the moment the PEN is deployed, from the beginning of the insertion process. In case none of the other detectors is deployed, an emergency measurement is possible using only the +X landing gear transmitter Tx1 and as return the grounding of the Lander through the harpoons. The precision of the measurements in this case would be severely reduced. The selection of the transmitter electrode pair is done by electronic switches under software control and are one of the active mode's configuration parameters.

The AC-signal is generated from a set of up to 256 8-bit values, stored before each measurement into PP's memory. The value 128 corresponds roughly to 0V, 255 to +10V and 0 to -10V. Using adjustable sequencer timing and a sine wave with different amplitudes as data set, the intended frequency and signal level can be defined. Amplitude control is used to optimize the returned current and potential signals for different material properties to the dynamic range of the digitalization module.

#### Passive mode

If the transmitter part is not used, the receivers are able to pick up potential variations caused e.g. by plasma waves in the vicinity of the Lander. In PP's passive mode, the potential difference is sampled with a fixed frequency of 20 kHz. The resulting data of a 1-second measurement can be sent directly via telemetry to ground for analysis. It is envisaged that a later flight software revision analyses the data directly on board and places only a logarithmic 10-bin power spectrum into the telemetry stream instead.

#### Plasma wave sensor (Langmuir Probe)

An additional sensor wire on top of the DIM sensor cube monitors the electrical field in the vicinity to help interpreting plasma wave like events. Field variations faster than a few Hertz cause a current flow through an integrator of the electronics. Once a minimum total charge is registered, a timer is activated and stopped again when a pre-set total charge is reached. The resulting timer value is transferred as Langmuir Probe value in the housekeeping part of SESAME's telemetry or as science part during a dedicated measurement. If no signal is detected, the timer stops at its maximum value of hexadecimal

FFFF, which then is transmitted. The timer frequency can be adjusted by command to increase the sensitivity of the sensor.

For power conservation, the three electronics groups, receiver, transmitter and Langmuir Probe are powered separately by electronic switches. Additionally, the sequencer's clock is disabled as long as no measurement is performed or the memory has to be accessed.

#### Housekeeping

All analog signals are routed through an 8-channel multiplexer to the same 8-bit Analog-to-Digital-Converter (ADC). The software controlled multiplexer channel selection defines, which analog parameter is digitized to be placed into the position of the first value of each sample pair mentioned above. During the health-check all eight channels are read out, providing information about the three transmitter electrodes' current monitors, the state of each receiver chain separately and the ±5V reference voltages defining the calibration of the analog electronics. Additionally the multiplexer can be disconnected, allowing characterizing the ADC separately. A series resister in the +5V power supply line for the digital part of PP's electronics not only serves as latch-up protection but allows also to monitor the power consumption of the digital part. The voltage after the resistor is divided by 2 and then monitored by the ADC on the CASSE board. The result is part of the SESAME housekeeping data set, the difference to the also returned input voltage is a direct measure for the current and thereby the health of the digital part of the PP electronics board.

#### 2.3 Data Handling Process

SONC is responsible for the generation of the SESAME PDS data sets and the delivery to the PSA. The SESAME team will support this acitivity by delivering the relevant calibration information. The relevant contact information is provided in section 1.6. The SESAME PI is responsible for the distribution to the SESAME team.

#### 2.3.1 Periods

Two operation periods must be distinguished in the SESAME data handling process:

- I. The in-flight activity after the launch including the Commissioning and Cruise phases. Data produced during this period are in most cases (TBD) not scientifically relevant.
- II. The in-flight scientific mission starting with the Close Observation Phase until Lander shutdown. Only this period produces scientific data.

Two data delivery periods to PSA should be distinguished:

- A. Just after the proprietary period, raw data already available at SONC, i.e. up to Level 2.
- B. When ready, calibrated SC data and reduced data (up to Level 5) will be generated and distributed to PSA.

#### 2.3.2 Data Handling

The science data packets are retrieved in SFDU format from ESA's Data Distribution System (DDS) and archived at SONC in CDMS packets format, along with the housekeeping telemetry packets that are necessary to monitor the instruments.

The packet-specific fields are stripped out in order to reconstitute the science raw data, which are also time stamped in UTC, and stored in the SONC database. These data are furthermore converted to physical units.

All these data are electronically accessible to the PI's and Co-I's (<u>http://soncv2-rosetta.cnes.fr</u>) according to data distribution agreements between these people and enforced by access rights at SONC.

The elaboration of PDS files is handled by SONC:

As soon as the science (SC) and housekeeping (HK) data are available at SONC (starting with the commissioning data), the PDS files are directly produced from the archived data at SONC.

After this first formatting, these data are electronically available to the SESAME team in order to be analyzed, and possibly recalibrated under his control, as well as qualified according their quality. SONC will derive the geometry related keyword parameters from the adequate Spice kernel for data sets level 2 and above. Then, just after the proprietary period (six month as a minimum), the SONC team will provide the raw and calibrated data to the PSA.

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At any rate, the long-term archive is constituted at SONC. SONC is responsible for the gathering of the necessary data from the SESAME team and the distribution of the PDS-formatted data to the archive team of the RSOC. The PI's are responsible for the organization of data and their scientific correctness. The SONC controls the archive completeness before handing it over to the archive team of the RSOC, and generates the global indices.

# 2.4 Overview of Data Products

### 2.4.1 Pre-Flight Data Products

There are no pre-flight data archived to PSA.

#### 2.4.2 Sub-System Tests

The various health-checks procedures, implemented e.g. in the SESAME Cruise Functional Test, will be used to check the status of each instrument and its sensor modifications with the changing environment:

#### CASSE Health Check (CAS-HC):

The CAS-HC will be used to follow-up the behavior of the CASSE transmitters and accelerometers with temperature and mechanical environment (in space or fixed to the cometary surface).

#### DIM Health Check (DIM-HC):

The DIM-HC consisting of several sub-tests (Power Check, Noise Test, Calibration and Sensor Test) will be used to check the actual properties of the sensor plates and the operating environment (noise). PP Health Check (PP-HC):

The PP-HC monitors the functioning and long-term stability of all PP electronics sub-systems. The included LP-value shows plasma wave events in case they happened at the time the health-check was performed. The +5V value indicates the current consumption of the digital part, which might be a function of radiation degradation over time.

These tests are described in AD3.

### 2.4.3 Instrument Calibrations

Although most of the SESAME measurements are relative, the following information should be used to calibrate and correct the science data:

#### CASSE

Amplification factors to calculate the signal strength in voltage

Pre-launch Brüel & Kjaer calibration of CASSE accelerometers (transfer from voltage to acceleration) **PP** 

Calibration functions for digital current consumption in mA

Transmitter currents in mA

Potential values in mV

#### DIM

One sub-test (Calibration) of the DIM Health Check (DIM-HC) is for calibrating the log-amplifier (i.e. to determine the <u>actual slope</u> of the log-characteristic of the log-amplifier). The measured U, A values must be corrected according to the result of this calibration.

The SESAME team will provide and update relevant information so that the processing pipeline is up to date with the current understanding of the characteristics of SESAME.

The calibration files will be available at the SESAME laboratories and SONC. A release will be provided to PSA whenever they are refined. The delivery format is described in chap. 3.4.3.2 (Calibration directory).

# 2.4.4 In-Flight Data Products

Most In-Flight (science) data had been produced during mission phases "Post Hibernation Commissioning" to "First Science Sequence". But we intend to deliver also our in-flight sub-system tests (see chap. 2.4.2) as well as other cruise data, which are useful for SESAME calibration as well as

monitoring of Lander and Orbiter vibration. In addition, we are checking whether science data (particle impacts and plasma waves) can be obtained during Cruise and or Fly-Bys.

In flight data products cover four data processing levels:

#### Raw telemetry (CODMAC level 1):

HK and SC SESAME packets (rolbin files) as received from DDS.

These data will be available at ESOC, SONC, SESAME and PSA. They will be delivered to PSA during period A (after the proprietary period).

#### Raw data (CODMAC level 2):

SC raw data (edited data) separated for each instrument (CASSE, DIM, PP). The data will be available at SONC, SESAME and PSA. They will be delivered to PSA during period A (after the proprietary period).

#### Calibrated HK data (CODMAC level 3):

Housekeeping data in scientific units and time tagged. The data will be available at SONC, SESAME and PSA. They will be delivered to PSA during period A (after the proprietary period).

#### Calibrated SC data (CODMAC level 3):

Calibrated science data, time-tagged and separated for the SESAME instruments CASSE and PP. The data will be available at SONC, SESAME and PSA. They will be delivered to PSA in period B (when ready).

The data are produced during following mission phases (

**SESAME** 

CASSE · DIM · PP SESAME EAICD

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Table 2.1).

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	Table 2.	1: Mission phases		
MISSION_PHASE_NAME	Abbreviation	Start Date (dd/mm/yyyy)	End Date (dd/mm/yyyy)	SESAME data (1)
Commissioning (part 1)	CVP1	05/03/2004	06/06/2004	CASSE, DIM, PP
Cruise 1	CR1	07/06/2004	05/09/2004	
Commissioning (part 2)	CVP2	06/09/2004	16/10/2004	CASSE, DIM, PP
Earth Swing-by 1 (including PC#0)	EAR1	17/10/2004	04/04/2005	CASSE, DIM, PP
Cruise 2 (including PC#1,2)	CR2	05/04/2005	28/07/2006	CASSE, DIM, PP
Mars Swing-by (including PC#3,4,5)	MARS	29/07/2006	28/05/2007	CASSE, DIM, PP
Cruise 3	CR3	29/05/2007	12/09/2007	
Earth Swing-by 2 (including PC#6, 7)	EAR2	13/09/2007	27/01/2008	CASSE, DIM, PP
Cruise 4-1 (including PC#8)	CR4A	28/01/2008	03/08/2008	CASSE, DIM, PP
Steins Flyby	AST1	04/08/2008	05/10/2008	CASSE
Cruise 4-2 (including PC#9)	CR4B	06/10/2008	13/09/2009	CASSE, DIM, PP
Earth Swing-by 3 (including PC#10)	EAR3	14/09/2009	13/12/2009	CASSE, DIM, PP
Cruise 5 (including PC#12)	CR5	14/12/2009	06/06/2010	CASSE, DIM, PP
Lutetia Flyby	AST2	07/06/2010	10/09/2010	
RV Manoeuver 1 (including PC#13)	RMV1	11/09/2010	13/07/2011	CASSE, DIM, PP
Cruise 6	CR6	14/07/2011	22/01/2014	

Post Hibernation Commissioning	PHC	09/04/2014	24/04/2014	CASSE, DIM, PP
Pre-delivery calibration Science	PDCS	25/04/2014	11/11/2014	CASSE, DIM, PP

(1) The last column indicates if SESAME data are available, the first one indicates if data can come from a Payload Checkout.

After the release of the Lander, we distinguish four phases, characterized by:

- The Start and Stop dates need to be expressed in seconds
- The Lander has its own Auxiliary data

Separation/Descent/Landing	SDL	2014/11/12 08:35:02	2014/11/12 16:15:00	CASSE, DIM, PP
Rebounds	RBD	2014/11/12 16:15:00	2014/11/12 17:30:20	
First Science Sequence	FSS	2014/11/12 17:30:21	2014/11/15 01:00:00	CASSE, DIM, PP
Long Term Science	LTS	N/A	N/A	N/A

SESAME data can come from three <u>flight software versions</u> (FM-1, FM-2 and FM-3) whose validity periods are given below:

**SESAME EAICD** 

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Flight Software	Begin (Date Time)	End (Date Time)
FM-1	2004/03/02 00:00:00 (launch)	2007/09/24 19:39:59
FM-2	2007/09/24 19:40:01 (PC#6)	2009/09/24 01:59:59
FM-3	2009/09/24 02:00:01 (PC#10)	Today

### 2.4.5 Software

No SESAME software will be delivered.

#### 2.4.6 Documentation

The documentation directory contains the following documents:

- EAICD (This document, PDF file)
- SES\_CAS\_CALIBRATION\_DESC.ASC (ASCII file)
- SES\_DIM\_CALIBRATION\_DESC.ASC (ASCII file)
- SES\_PP\_CALIBRATION\_DESC.ASC (ASCII file)
- RL\_SESAME\_LOGBOOK.ASC, SESAME operations timeline ASCII file (ASCII file)

### 2.4.7 Derived and other Data Products

There are no derived products for SESAME.

#### 2.4.8 Ancillary Data Usage

#### 2.4.8.1 Combined Rosetta / Lander operation

Two periods should be distinguished:

The first period starts after the launch until the close Comet approach. During this period the Lander is fixed to the Orbiter and they share the same auxiliary data that is the FD (Flight Dynamic) files. In order to interpret temperature and vibration data the Orbiter / Lander geometry as well as operational details (e.g. Orbiter gyro operation) should be known.

The next period is the global mapping to close observation phase. In addition to the first period, the geometry w.r.t. the target comet as well as to sun should be known in order to interpret particle impacts on CASSE and DIM sensors. As well these data should support the analysis of PP passive and Langmuir mode measurements.

#### 2.4.8.2 Lander delivery and relay

The third period is Lander delivery and relay (SSP). After the separation from the Orbiter, and particularly during the Comet activity phase, the Lander will have its own auxiliary data:

- Lander orientation
- Localization in space
- Sun direction
- Rosetta/Lander Timeline

The "Rosetta/Lander Timeline" is a text file describing the working context and scheduling (on-off of each experiment, performed commands etc.). This file will be produced by SONC from CDMS and HK telemetries.

#### 2.4.8.3 On-comet operation

The final operation period is the On-comet operation (LOW to PERI). In addition to the data mentioned in chap. 2.4.8.2 the following paramters are needed for SESAME data processing:

- Orientation of the Lander / rotation angle
- Drill status: in contact with the surface or not
- Direction and incident angle of the Sun (separate for Landing Gear and the upper Lander (rotation!))

Distance and position angle of the MUPUS PEN, once deployed

The Sun information is only needed for scientific evaluation of the data later on.

The Lander Auxiliary Data on the comet (Position / Orientation / Illumination at any time + Comet models + Ancillary Data from the instruments) are available in an ANCDR (Ancillary Data Record) data set.

The following special information is needed for processing SESAME instrument data:

CASSE None.

*DIM* None.

NULLE

PP

- APXS status: extended or not
- Impact point of the harpoon(s)

Most of the listed information is needed to translate the measured current and potential values correctly into permittivity and conductivity of the comet surface material.

# 3 Archive Format and Content

### 3.1 Format and Conventions

Throughout this document, the SESAME data processing status will be indicated by the CODMAC code levels (see Table 3.1 and AD6 (Appendix B)).

#### Table 3.1: CODMAC code levels

- 1: Raw Data: Telemetry data with data embedded.
- 2: *Edited Data*: Corrected for telemetry errors and split or decommutated into a data set for a given instrument. Sometimes called Experimental Data Record. Data are also tagged with time and location of acquisition. Corresponds to NASA Level 0 data.
- 3: *Calibrated Data*: Edited data that are still in units produced by instrument, but that have been corrected so that values are expressed in or are proportional to some physical unit such as radiance. No resampling, so edited data can be reconstructed. Corresponds to NASA Level 1A.
- 4: *Re-sampled Data*: Data that have been re-sampled in the time or space domains in such a way that the original edited data cannot be reconstructed. Could be calibrated in addition to being re-sampled. Corresponds to NASA Level 1B.

5: Derived Data: Derived results, as maps, reports, graphics, etc. Corresponds to NASA Levels 2 through

6: *Ancillary Data:* Non-science data needed to generate calibrated or re-sampled data sets. Consists of instrument gains, offsets, pointing information for scan platforms etc.

### 3.1.1 Deliveries and Archive Volume Format

A data set will be delivered for each **simple mission phase.** Each data set will contain **only one level data processing**. The list of simple mission phases is given in AD9 (table 3).

A data set will be level-stamped as below:

Level 1 when it will contain raw telemetry data:

• SC and HK packets as received from DDS and mixed together in binary files (.rolbin).

Level 2 when it will contain raw science data:

- SC edited data (uncalibrated) separated by instrument in ASCII files (.TAB).
- PP SC data will also be separated according to operation mode.

Level 3 when it will contain calibrated data:

- HK calibrated data in ASCII file (.TAB)
- CASSE nominal calibrated time series (acceleration vs. time) (.TAB)
- PP:

Calibrated Health-Check data in ASCII files (.TAB)

Calibrated current / voltage time series for active test measurements in ASCII files (.TAB) Calibrated frequency / current amplitude / voltage amplitude / phase data sets for active measurements in ASCII files (.TAB)

Calibrated electric field densities (electric field density vs. freqency bin) and calibrated potential difference time series (voltage vs time) (passive mode) in ASCII files (.TAB)

Reference: Issue: Date: Page:

In addition a data set will contain:

- Software (in level 1 datasets)
- Calibration files (in level 3 datasets)
- Documents (see chapter 2.4.6)

A new data set release is provided when:

- The calibration information has been refined
- Additional data has been processed
- Data have been processed to a higher CODMAC level.

# 3.1.2 Data Set ID / Name Formation

The following naming formation scheme will be used for the SESAME data sets:

DATA\_SET\_ID = <INSTRUMENT\_HOST\_ID>-<target id>-<INSTRUMENT\_ID>-<data processing level number>-<mission phase abbreviation>-<description>-<version>

DATA\_SET\_NAME = <INSTRUMENT\_HOST\_NAME> <target name> <INSTRUMENT\_ID> <data processing level number> <mission phase abbreviation> <description> <version>

See AD9 (chaps. 2.1.1 and 2.1.2).

The target name will contain the name of the mission phase and the description field (optional) will be used to specify the name of the operation phase during the <u>Cruise (swing-by and flyby)</u>.

Example of DATA\_SET\_ID and DATA\_SET\_NAME for the level 3 <u>Comet phase</u> data: DATA\_SET\_ID = "RL-C-SESAME-3-COM-V1.0" DATA\_SET\_NAME= "ROSETTA-LANDER 67P SESAME 3 COM V1.0"

Example of DATA\_SET\_ID and DATA\_SET\_NAME for the level 2 <u>Mars swing-by data</u>: DATA\_SET\_ID = "RL-M-SESAME-2-MARS-V1.0" DATA\_SET\_NAME= "ROSETTA-LANDER MARS SESAME 2 MARS PC#3-4-5 V1.0"

# 3.1.3 Data Directory Naming Convention

The DATA directory contains data obtained after Rosetta launch, i.e. either flight data or ground reference model data. The data are archived accordingly into two separate sub-directories FLIGHT and GRM. Furthermore, the data in the FLIGHT sub-directory are sorted into sub-directories according to the three SESAME instruments and their modes. An extra sub-directory (SESAME) is used for general SESAME-related data (mainly HK) where applicable.

The top-level sub-directories have names according to the instruments:

#### Reference: RO-LSE-DS-3102 SESAME Issue: 1.0, LSE v2.5 **SESAME EAICD** Date: 17 December 2015 **CASSE • DIM • PP** Page: 24 of 315 SESAME/ HK SESAME general housekeeping data. Data might be extracted and duplicated to other data sets SC Health Check data (from COM HK telecommand), Content of Backup RAM Buffer (from COM RBUF TC), Messages in the science data stream: Ready Message and Error Messages CASSE/ SC First 16 words of Jobcard (from COM\_RDJC TC) LI Data collected during Listening mode TR Data collected during Trigger mode SN Data collected during Sounding mode and CASSE Health Check mode ST Data collected during the Stacking mode DIM/ AV Data collected from Average Continuous and Average Continuous Test modes Continuous data: overlapping impacts (at high flux) gradually prohibit getting data of a single impact: therefore only the Average is measured. Transition limit can be defined between Burst Continuous / Average Continuous. A (Average), Selected Direction (X or Y or Z), Sampling time (i.e. the frequency of sampling from the averaged signal of the sensor. The Average Continuous Test mode is similar to the Average Continuous mode but raw voltage values of average samples are additionally included into TM stream BC Data collected during the Burst Continuous mode. Burst data (data of individual impacts): U (Peak amplitude), T (Contact time), selected Direction (X or Y or Z), selected Margin (i.e. selected sensitivity) CAL Data collected during the Calibration mode HC Data collected during the DIM Health Check NT Data collected during the Noise Test Mode PC Data collected during the Power Check mode ST Data collected during the Sensor Test mode PP/

AM	Active mode data either from AMTEST or AM modes, permittivity data
HC	Data collected during PP Health Check mode
LM	Data collected during the Langmuir Probe Test mode
PM	Data collected during the Passive mode and Passive mode Test for plasma wave measurements

### 3.1.4 File naming Convention

The data levels 2 and 3 depend on instrument mode whereas data level 1 does not. Consequently, there are two different file naming schemes defined according to the data level as follows.

File naming scheme for level 1:

FILE\_NAME = <experiment>\_<data type>\_<begin of observation>.<ext>

#### SES\_XYZ\_ yymmddhhmn.ext

<experiment> (3 characters) = SES

<data type> (3 characters) = XYZ

- X = G for Ground, F for Flight
- Y = S for Science Data, H for Housekeeping Data, <u>B for files with both data types mixed</u> together
- Z = CODMAC level: 1 (for raw packets)

**<br/>begin of observation>** (10 characters) = start time of test or working session. Two sessions will be separated by at least 15 minutes.

yymmddhhmn

- yy = year
- mm = month
- $\circ$  dd = day
- hh = hour
- $\circ$  mn = minute

<ext> (file extension) = ROL

File naming scheme for levels 2 and 3:

FILE\_NAME = <experiment>\_<data type>\_<mode>\_<begin of observation>\_<data description.<ext>

#### SES\_<XYZ>\_<imo>\_<yymmddhhmn>\_<desc>.ext

#### <experiment> (3 characters): SES

- < XYZ > (3 characters):
  - X = G for Ground, F for Flight
  - Y = S for Science Data, H for Housekeeping Data, B for files with both data types mixed together
  - Z = CODMAC level: 2 for raw instrument data, 3 for calibrated data (SC or HK), 5 for derived data

<imo > (3 characters):

- i = instrument (1 character) : S, C, D, P
  - S (SESAME) for common data, C for CASSE data, D for DIM data, P for PP data
- **mo** (2 characters) = mode (see Table 3.2)
  - "\_\_\_" for SESAME

< yymmddhhmn > (10 characters): start time of test or working session. A session corresponds to one instrument and one mode:

- yy = year
- mm = month
- $\circ$  dd = day
- $\circ$  hh = hour
- mn = minute

<desc> (4 characters maximum) = data description (see Table 3.2)

<ext> (file extension) = TAB

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Table 3.2 Values of fields "mode" and "desc" in the SESAME filename

Instrument	Modes (mode field)	Description (desc field)
SESAME	-	HC, HK, RBUF, RDJC, RMES, EMES, WPENZ
CASSE	SN, LI, TR, ST, HC	JOBC, SEQP, DATA, STAT, TAFT
DIM	HC, PC, NT, ST, CA, AV, BC	Depends of DIM mode: HC, PC, NT, CA: ST : X, Y, Z BC : PAR, AM, BM BCTEST, AV, AVTEST: PAR, SIG
PP	HC, AM, AT, PM, PT, LM	HC, LM: AM: PAR, DATA AMTEST: TPAR, TTX, TRX, TDAC PM: PAR, POW PMTEST: TPAR, TPOW, TRX, TCH

Example: SES\_FB1\_0510040300.ROL

This file begins at 2005/10/04 03:00 and contains the SESAME (SC and HK) packets.

The corresponding level 2 data file for a CASSE sounding would be: SES\_FS2\_CSN\_0510040300\_DATA.TAB

# 3.2 Standards Used in Data Product Generation

### 3.2.1 PDS Standards

The PDS standard for the cubes is that of PDS version 3.6 as described in AD5.

### 3.2.2 Time Standards

#### 3.2.2.1 Generalities

This paragraph gives a summary of the different existing formats in the Rosetta Ground segment, from their generation by the instruments to their availability at SONC:

- The Lander CDMS requires the scientific instruments to transmit the data by bursts of 8 or 64 bytes (4 or 32 16-bit words)
- When sufficient data are received, the CDMS builds packets containing 256 bytes of instrument data. The CDMS adds 18 bytes header (unit PID, sequence count, OOBT: Orbiter OBT, data type) and a 2 bytes checksum (DECW) and creates packets with a fixed length of 276 bytes<sup>1</sup>. For transmission between Lander and Orbiter, a 4 bytes synchronization header and a 2 bytes trailing checksum (PECW) are added, increasing the packet size to 282 bytes. The extra bytes are removed by the ESS.

<sup>&</sup>lt;sup>1</sup> The Lander CDMS header and the headers of the telemetry source packets from the Orbiter instruments are quite similar. There is a difference in the data field header. The byte containing PUS version, checksum flag and spare fields is set to zero in the CDMS header. Besides the last byte of the OOBT is set to zero in the CDMS header. The CDMS header has an additional word (2 bytes) after the data field header named "FORMAT ID". This word is mainly used for HK data and it contains the HK scanning period and the SID (structure identification).

To comply with ESA requirements, the time registered in the CDMS packets is the Orbiter On-Board Time (**OOBT**). It is reconstituted from the Lander On-Board Time (LOBT), as shown in **Erreur ! Source du renvoi introuvable.**.

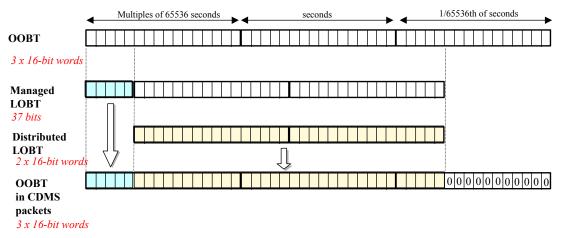


Figure 3.1: Reconstruction of on board time in CDMS packets

- The ESS groups together several packets and passes them to the Orbiter OBDH, which transmits them according to the Space/Ground interface. This part is transparent for the Lander ground segment.
- The data are delivered by the Rosetta Data Distribution System (DDS) to the SONC in SFDU format. A SFDU file is basically a collection of 276-byte packets interspersed with auxiliary information records. An 18 bytes SFDU header is added to the CDMS 276-byte packets. This header contains information added at the ground station (time correlated OBT, ground station id, virtual channel id, service channel, type of data, time quality)
- SONC processes the SFDU files to retrieve the 276-byte packets. This format is available in the SONC database.
- The relationship between both time formats (OOBT and LOBT) is given in AD10. Afterwards, SONC processes science raw packets in order to recompose the science measurement (e.g. an image or a spectrum). Figure 3.1 gives an overview of this data flow.



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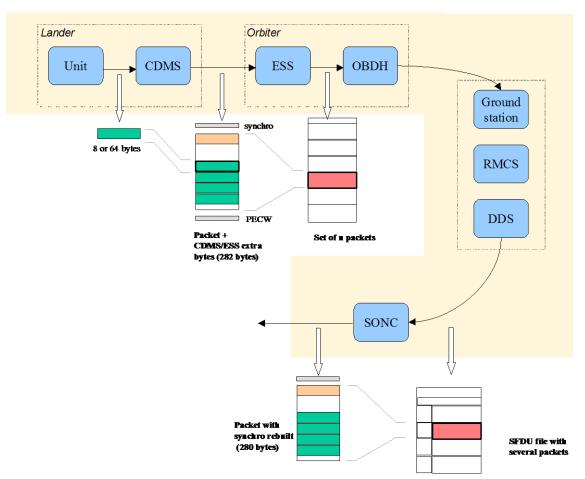


Figure 3.2: On board data flow

The following principles are applied:

- The packet wrapping is removed, and science frames that had to be split into several raw data packets are rebuilt. Basic error detection controls are applied, to recover from possible problems in the transmission chain.
- The Lander On-Board Time (LOBT) (synchronized with OOBT) extracted from the packet, and corresponding UTC time are added.
- UTC time is calculated from the On-Board time taking into account the On-Board clock drift as following:
- UTC (seconds since 01/01/1970) = LOBT (seconds) \* Gradient + Offset

These coefficients are extracted from TCP packets delivered by DDS. LOBT is either the LOBT extracted from CDMS header or the experiment internal clock when it exists (CIVA, COSAC, PTOLEMY, ROMAP, ROLIS, SESAME). In the last case, it must be taken into account that the Internal clock (32 bits) resets all 4 years, 4 months, 3 days (first reset: 03/04/2007 10:42:07).

UTC time-stamped Science and HK data are available in the SONC database and used to generate PDS format.

### 3.2.2.2 SESAME Time standards

The time standards used in the SESAME data products are:

- SESAME Local Time
- Lander On-Board Time
- DDS header time correlated
- Universal Time Coordinated (UTC)

SESAME CASSE • DIM • PP

**SESAME EAICD** 

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#### SESAME Local Time (SLT)

SESAME Local time is the only time available to the instrument during operation. It is synchronized with Lander On-board Time each time a CDMS RTIM message is received by SESAME. SESAME uses a timer with a resolution of 1/32 second to update this time between two successive CDMS RTIM messages. The SESAME flight software writes the SESAME Local Time at generation in the measurement header of each science measurement.

#### 3.2.2.3 Lander On-Board Time (LOBT)

The instruments on board the spacecraft (Orbiter) generate telemetry source packets with an OOBT (orbiter on board time) time stamp in the header. The OOBT written into the packet header specifies the time, when CDMS can complete a packet.

In terms of HK packets this is the time of the last HK word. Using the HK scanning rate, which is given in word #9 of the packet, one can calculate the OBT of every individual word in this packet. Note that this is only valid if packets with SID (word #9) 1 or 2 are generated. Packets with SID 4 and 5 are "snapshots", which means you can apply the packet OOBT for every word in this packet. SID 3 packets have to be analyzed case by case.

In terms of SC packets this is the reception of the last 32 word block by CDMS, which also completes the SC packet. How often 32 word blocks are created (and sent) by the unit, and corresponding to this the delta time between each block, might be different for each unit. So, re-calculation of OOBT for SC words depends on this unit feature.

**The Orbiter On-Board Time (OOBT)** is a linear binary counter having a resolution of 1/65536 second stored in 3 16-bit words.

**The Lander On-Board Time (LOBT)** is a linear binary counter having a resolution of 1/32 sec, kept in 37 bits. Only the 32 least significant bits are distributed to the instruments, in 2 16-bit words. The 5 most significant bits are supposed constant during most of the mission; they are available through a specific service.

The LOBT is derived from the Orbiter On-Board Time (OOBT): the 11 least significant bits of the OOBT are discarded to obtain the LOBT, hence the reduced resolution. A re-synchronization between OOBT and LOBT is performed regularly (see AD11).

The Lander is synchronized prior to Separation and during every RF link after landing. So, during descent and the First Science Sequence this should not be a problem, since LOBT keeps synchronized as long as the Lander is powered.

For a description of time handling in the Rosetta project see AD7 "Rosetta Time handling **RO-EST-TN-3165**, issue 1, rev 0, February 9, 2004".

For a description of Lander on board time handling see AD11 (Command and Data Management System (CDMS) Subsystem Specification 29/08/2001, Issue 3, Rev. 5 **RO-LCD-SP-3101**):

§ 2.3.2.6 Synchronization and Adjustment of Lander On-board Time

§ 2.3.2.6.1 Absolute vs. relative time references

§ 2.3.2.6.2 On-board Time Failure Modes and Recovery Procedures

and AD12 (Command and Data Management System (CDMS) Operation Manual 12/02/2001, Issue 1, Rev. 2 **RO-LCD-SW-3402**): § 6. About Lander On-Board Time.

#### 3.2.2.3.1 The DDS header time correlated

The OOBT is converted to UTC (Coordinated Universal Time) by means of time correlation and included in the additional DDS packet header when the packets are distributed via the DDS server.

The **DDS header time correlated** (SCET field in the DDS header) is the UTC of the start of measurement derived from the OOBT by time correlation.

Its format is the Sun Modified Julian Time (MJT) i.e. two 32 bit integers. The first (MSB) contains the number of seconds since 00:00:00 on 1. January 1970 and the second (LSB) integer the number of Microseconds from seconds in the first field.

Time correlation is described in AD13**Erreur ! Source du renvoi introuvable.** (Data Delivery Interface Document RO-ESC-IF-5003 Issue B6 23/10/2003, Appendix 18 § 18.1.2.1).

### 3.2.2.3.2 The UTC (Universal Time Coordinated)

The UTC is used as a time stamp for SC and HK SESAME data products (from level 2 to level 3).

#### 3.2.2.3.3 Spacecraft Clock Count in PDS Labels

The PDS keywords SPACECRAFT\_CLOCK\_START\_COUNT and

SPACECRAFT\_CLOCK\_STOP\_COUNT refer to LOBT. The LOBT is represented in the following format: SPACECRAFT\_CLOCK\_START/STOP\_COUNT = "<reset number>/<unit seconds>.<fractional seconds>"

The full stop character separates the unit seconds and the fractional seconds. Note that this is not a **decimal point.** The fractional seconds are expressed as multiples of  $2^{-5} = 0.03125$  seconds and count from 0 to  $2^{5} - 1 = 31$ . E.g. in SPACECRAFT\_CLOCK\_START\_COUNT = "3/356281394.21" the 21 fractional seconds correspond to  $21 \times 2^{-5} = 0.65625$  decimal seconds.

The reset number is an integer starting at 1 and defines the epoch related to the counter value. E.g. "1/" means LOBT = 0 at 2003-01-01T00:00:00 UTC. The meaning of the other integer values is defined in the Rosetta time correlation file.

#### 3.2.3 Cartographic Systems

SESAME uses Lander reference polar co-ordinates relative to the landing gear orientation. The center of the Landing Gear is the origin with the +X leg acting as reference direction for angle = 0 deg. The rotation angle increases clock-wise. Units are measured in cm and from 0 to 360 deg. As an example: the -Y leg is pointing in the 120 deg direction.

This Lander centric reference system has to be fixed into an appropriate topographic cometary system, in order to indicate external vibration / seismic sources.

Altitude above ground: TBD

### 3.3 Data Validation

The SESAME data products are delivered to PSA by SONC. The SESAME PI or the SESAME PDS responsible will validate the SC and HK data produced by SONC of all PDS CODMAC levels. These data will be distributed via the W3-SONC server.

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#### 3.4 Archive Content

#### 3.4.1 Volume Set

One volume corresponds to one data set. The possible values of VOLUME keywords can be found in AD9. The volume keyword values for the Commissioning mission phase are given in the following example.

DESCRIPTION	= "This volume contains Rosetta SESAME
	level 2 data products and supporting
	documentation from the
	Commissioning phase"
VOLUME_ID	= "RLSES2_1042"
VOLUME_NAME	= "SESAME RAW DATA FOR THE COMMISSIONING PHASE"
VOLUME_SERIES_NAME	= "ROSETTA SCIENCE ARCHIVE"
VOLUME_SET_ID	= "DE_DLR_PF_RLSES_10XX"
VOLUME_SET_NAME	= "ROSETTA SESAME DATA"
VOLUME_VERSION_ID	= "VERSION 1"
VOLUMES	= 1
VOLUME_FORMAT	= "ISO-9660"
MEDIUM_TYPE	= "ELECTRONIC"
PUBLICATION_DATE	= YYYY-MM-DD

#### 3.4.2 Data Set

The SESAME data will be archived in Data Sets corresponding to mission phase and data level processing. Data Sets will be named according to chap 3.1.2. Each component of the name will match the corresponding component of the Data Set ID. The data set name components are defined in Table 3.3.

Name element	Data Set ID Data Set Name		
INSTRUMENT_HOST_ID / INSTRUMENT_HOST_NAME	RL (Rosetta Lander)	ROSETTA-LANDER	
Target ID / Target name	See AD9 See AD9		
INSTRUMENT_NAME	SESAME – SURFACE ELECTRIC SOUNDING AND ACOUSTIC MONITORING EXPERIMENT		
INSTRUMENT_ID	SESAME		
	Level 1 is delivered directly after the end of the proprietary period and contains level 1 Science and HK data		
Data processing level number	Level 2 is delivered directly after the end of the proprietary period and contains level 2 Science data		
	Level 3 is delivered after the stabilization of the calibration and contains level 3 science and HK data		
Mission phase abbreviation	See AD9		
Description	N/A N/A		
Version	The first version of any Data Set is V1.0		

For mission phases corresponding to Mars and Earth flybys the <description> field of the data set name will contain the name of the operation phase. For example, the operation phases PC#3, PC#4 and PC#5

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(payload checkouts) are part of the mission phase "Mars swing-by". Hence, the name of the SESAME data set containing data from operation phases PC#3, PC#4 and PC#5 would be:

ROSETTA-LANDER MARS SESAME 3 MARS PC#3-4-5 V1.0

#### 3.4.3 Directories

The directory structure of SESAME data sets is shown in

Figure 3.3.

The content of each directory is described in §3.1.3.

#### Level 1 dataset:

```
|-CATALOG-----
|
|
|-DATA------
[
|
|
|
|
|
|-DOCUMENT----
|-GEOMETRY----
|-INDEX------
|-LABEL------
|-SOFTWARE----
```

#### Level 2 and 3 datasets:

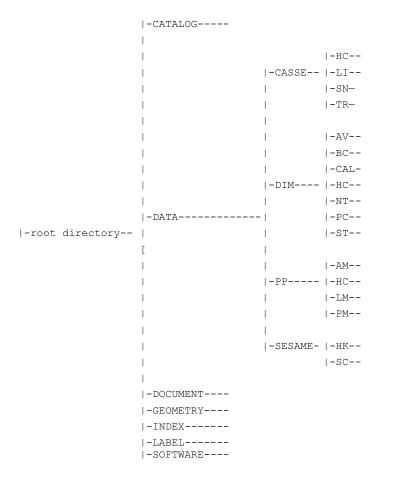


Figure 3.3: SESAME PDS directory structure

#### 3.4.3.1 Root Directory

Files in the Root Directory include an overview of the archive, i.e. a description of the volume for the PDS Catalog. The files are contained in the Root Directory are given in Table 3.4.

File Name	File Contents
AAREADME.TXT	Volume content and format information
	A description of the contents of this volume in a PDS format readable by both humans and computers

Table 3.4: Files in the Root Directory

#### 3.4.3.2 Calibration Directory

There are no calibration files provided in the calibration directory. However, the information needed for transfer from level 2 to level 3 data is provided, for each instrument, in the following files (DOCUMENT directory).

CASSE:	CALIBRATION_DESC_CAS.TXT
DIM :	CALIBRATION_DESC_DIM.TXT
PP:	CALIBRATION_DESC_PP.TXT

#### 3.4.3.3 Catalog Directory

The files in the Catalog Directory provide a top-level understanding of the mission, spacecraft, instruments, and data sets. The files in this directory are coordinated with the PSA team, who is responsible for loading them into the PDS catalog. The following files are found in the Catalog Directory.

File Name	File Contents
CATINFO.TXT	A description of the contents of this directory
DATASET.CAT	Data Set description, one for each Data Set
INSTHOST.CAT	Instrument host (spacecraft) description, provided by the Project
INST.CAT	SESAME instruments description (CASSE,DIM and PP)
MISSION.CAT	Mission description, provided by the Project
PERSON.CAT	PDS personnel catalog information about the instrument team responsible for generating the data products.
REF.CAT	Full citations for references mentioned in any and all of the catalog files, or in any associated label files
SOFTWARE.CAT	Information about the software included in the SOFTWARE directory

Table 3.5	Files in	the Cat	alog Directory

#### 3.4.3.4 Data Directory

DATA directory contains the subdirectories SESAME, CASSE, DIM and PP for SESAME housekeeping and the respective sensor data. Inside these subdirectories the data are organized by observation type. For naming convention, see chapter 3.1.3.

#### 3.4.3.5 Document Directory

The DOCUMENT directory contains SESAME documentation listed in *Table 3.6* 

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Table 3.6 Files in document directory		
File Name	File Contents	
DOCINFO.TXT	A description of the contents of this directory	
SES_EAICD.PDF	The SESAME Experiment Archive Interface Control Document (this document) as a PDF file	
SES_EAICD.LBL	A PDS detached label for SES_EAICD.PDF	
SES_FUM_FM1.PDF	SESAME Flight Software User Manual, FM 1.0, issue 1, revision 1, August 2001, RO-LSE-UG-3401	
SES_FUM_FM1.LBL	PDS label for SESAME Flight Software User Manual, FM1	
SES_FUM_FM2.PDF	SESAME Flight Software User Manual: Flight Software Version FM-2", RO-LSE-UG-3402, v1.0, 24 September 2008	
SES_FUM_FM2.LBL	PDS label for SESAME Flight Software User Manual, FM2	
SES_FUM_FM3.PDF	SESAME Flight Software User Manual, FM 3.0, issue draft, revision 2, September 2009, RO-LSE-UG-3404	
SES_FUM_FM3.LBL	PDS label for SESAME Flight Software User Manual, FM3	
SES_CAS_CALIBRATION_DESC.TXT	Description of CASSE calibration the transfer from level 2 to level 3	
SES_CAS_CALIBRATION_DESC.LBL	PDS label for SES_CAS_CALIBRATION_DESC.TXT	
SES_DIM_CALIBRATION_DESC.TXT	Description of DIM calibration the transfer from level 2 to level 3	
SES_DIM_CALIBRATION_DESC.LBL	PDS label for SES_DIM_CALIBRATION_DESC.TXT	
SES_PP_CALIBRATION_DESC.TXT	Description of PP calibration transfer from level 2 to level 3	
SES_PP_CALIBRATION_DESC.LBL	PDS label for SES_PP_CALIBRATION_DESC.TXT	

### 3.4.3.6 Index Directory

Files in the Index Directory are provided to help the user locate products on this archive volume and on previously released volumes in the archive. The following files are contained in the Index Directory.

Table 3.7: Files in the Index Directory
---

File Name	File Contents
INDXINFO.TXT	A description of the contents of this directory
INDEX.TAB	A tabular listing all data products on this volume
INDEX.LBL	A PDS detached label that describes INDEX.TAB

#### 3.4.3.7 Software Directory

There is no software provided in the SOFTWARE directory.

#### 3.4.3.8 Label Directory

The LABEL directory contains format container files (see

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Table 3.8) used by SESAME labels.

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Table 3.8: Files for levels 2 and 3 in the Label Directory. The flight software versions are named FM1, FM2, FM3 and the CODMAC levels are named L2, L3.

File Name	File Contents
JOB_CARD.FMT	Data objects definitions for CASSE jobcard products (FM1, FM2, L2, L3)
JOB_CARD_FM3.FMT	Data objects definitions for CASSE jobcard products (FM3, L2, L3)
SEQ_PARAM_BURST2.FMT	Data objects definitions for CASSE sequence parameters products in burst mode (FM1, FM2, L2)
SEQ_PARAM_BURST3.FMT	Data objects definitions for CASSE sequence parameters products in burst mode (FM1, FM2, L3)
SEQ_PARAM_TRIG2.FMT	Data objects definitions for CASSE sequence parameters products in triggered mode (FM1, FM2, L2)
SEQ_PARAM_TRIG3.FMT	Data objects definitions for CASSE sequence parameters products in triggered mode (FM1, FM2, L3)
SEQ_PARAM_BURST2_FM3.FMT	Data objects definitions for CASSE sequence parameters products in burst mode (FM3, L2)
SEQ_PARAM_BURST3_FM3.FMT	Data objects definitions for CASSE sequence parameters products in burst mode (FM3, L3)
SEQ_PARAM_TRIG2_FM3.FMT	Data objects definitions for CASSE sequence parameters products in triggered mode (FM3, L2)
SEQ_PARAM_TRIG3_FM3.FMT	Data objects definitions for CASSE sequence parameters products in triggered mode (FM3, L3)
DATA2.FMT	Data objects definitions for CASSE data products (FM1, FM2, FM3, L2)
DATA3.FMT	Data objects definitions for CASSE data products (FM1, FM2, FM3, L3)
TAFT2.FMT	Data objects definitions for CASSE temperatures after measurement products (FM1, FM2, L2)
TAFT3.FMT	Data objects definitions for CASSE temperatures after measurement products (FM1, FM2, L3)
TAFT2_FM3.FMT	Data objects definitions for CASSE temperatures after measurement products (FM3, L2)
TAFT3_FM3.FMT	Data objects definitions for CASSE temperatures after measurement products (FM3, L3)
STAT2_FM3.FMT	Statistics block (FM3, L2 and L3)
DIM_BC_AM.FMT	Data objects definitions for DIM Burst Continuous Average Mode products (FM1, FM2, FM3)
DIM_BC_BM.FMT	Data objects definitions for DIM Burst Continuous Burst Mode products (FM1, FM2, FM3)
DIM_BC_BM_FM1.FMT	Data objects definitions for DIM Burst Continuous Burst Mode products (FM1)
DIM_BC_PAR.FMT	Data objects definitions for DIM Burst Continuous Parameters products (FM1, FM2, FM3)
DIM_BCT_PAR.FMT	Data objects definitions for DIM Burst Continuous Test Parameters products (FM1, FM2, FM3)
DIM_BCT_SIG.FMT	Burst Continuous Test (FM1, FM2)
DIM_BCTEST2_SIG_FM3.FMT	Burst Continuous Test 2 (FM3)
DIM_BCTEST2_PAR_FM3.FMT	Data objects definitions for DIM Burst Continuous Test 2 Parameters products (FM3)
DIM_AV_PAR.FMT	Data objects definitions for DIM Average Continuous

File Name	File Contents
	Parameters products (FM1, FM2, FM3)
DIM_AV_SIG.FMT	Data objects definitions for DIM Average mode products (FM1, FM2, FM3)
DIM_AVT_PAR.FMT	Data objects definitions for DIM Average Test mode parameters (FM1, FM2)
DIM_AVT_SIG.FMT	Data objects definitions for DIM Average Test mode products (FM1, FM2)
DIM_CA.FMT	Data objects definitions for DIM Health Check Calibration products (FM1, FM2, FM3)
DIM_NT.FMT	Data objects definitions for DIM Health Check Noise Test products (FM1, FM2, FM3)
DIM_PC.FMT	Data objects definitions for DIM Health Check Power Check products (FM1, FM2, FM3)
DIM_ST.FMT	Data objects definitions for DIM Health Check Sensor Test products (FM1, FM2, FM3)
PP_AM2_DATA.FMT	Data objects definitions for PP Active Mode products (FM2, FM3)
PP_AM2_PAR.FMT	Data objects definitions for PP Active Mode Parameters products (FM2, FM3)
PP_AMT_DAC.FMT	Data objects definitions for PP Active Mode Test DAC products (FM1, FM2, FM3)
PP_AMT_PAR.FMT	Calibrated data objects definitions for PP Active Mode Test Parameters products (FM1)
PP_AMT_PARC.FMT	Data objects definitions for PP Active Mode Test Parameters products (FM1)
PP_AMT2_PAR.FMT	Data objects definitions for PP Active Mode Test 2 Parameters products (FM2, FM3)
PP_AMT2_PARC.FMT	Calibrated data objects definitions for PP Active Mode Test 2 Parameters products (FM2, FM3)
PP_AMT_RX.FMT	Data objects definitions for PP Active Mode Test RX products (FM1, FM2, FM3)
PP_AMT_TX.FMT	Data objects definitions for PP Active Mode Test TX products (FM1, FM2, FM3)
PP_HC.FMT	Data objects definitions for PP Health Check products (FM1, FM2, FM3)
PP_LM.FMT	Data objects definitions for PP Langmuir Mode products (FM1, FM2, FM3)
PP_PM2_PAR.FMT	Data objects definitions for PP Passive Mode Parameters products (FM2, FM3)
PP_PM2_POW.FMT	Data objects definitions for PP Passive Mode Power spectrum products (FM2, FM3)
PP_PMT2_POW.FMT	Data objects definitions for PP Passive Mode Test 2 Power spectrum products (FM2, FM3)
PP_PMT2_POWC.FMT	Data objects definitions for PP Passive Mode Test 2 Power spectrum products (FM2, FM3)
PP_PMT2_PAR.FMT	Data objects definitions for PP Passive Mode Test Parameter products (FM2, FM3)
PP_PMT_RX.FMT	Data objects definitions for PP Passive Mode Test RX products (FM1, FM2, FM3)
PP_AM2_PARC.FMT	Calibrated data objects definitions for PP Active Mode parameters (FM2, FM3)
PP_AM2_DATAC.FMT	Calibrated data objects definitions for PP Active Mode products (FM2, FM3)
PP_AMT_TXC.FMT	Calibrated data objects definitions for PP Active Mode Test TX products (FM1, FM2, FM3)

File Name	File Contents				
PP_AMT_RXC.FMT	Calibrated data objects definitions for PP Active Mode Test RX products (FM1, FM2, FM3)				
PP_AMT_DACC	Calibrated data objects for PP Active Mode DAC values (FM1, FM2, FM3)				
PP_PM2_PARC.FMT	Calibrated data objects definitions for PP Passive Mode Parameters products (FM2, FM3)				
PP_PM2_POW.FMT	Calibrated data objects definitions for PP Passive Mode Power spectrum products (FM2, FM3)				
PP_PMT2_PARC.FMT	Calibrated data objects definitions for PP Passive Test Mode Parameters products (FM2, FM3)				
PP_PMT2_RXC.FMT	Calibrated data objects definitions for PP Passive Mode Test RX products (FM2, FM3)				
PP_HCC.FMT	Calibrated data objects definitions for PP Health Check (FM1, FM2, FM3)				
PP_LMC.FMT	Calibrated data objects definitions for PP LM (FM1, FM2, FM3)				
SESAME_EMES.FMT	Data objects definitions for common SESAME products: error messages				
SESAME_HK.FMT	Data objects definitions for common SESAME products: housekeeping				
SESAME_HK_FM3.FMT	Data objects definitions for common SESAME products: housekeeping (FM3)				
SESAME_HC.FMT	Data objects definitions for common SESAME products: health check				
SESAME_HC_FM3.FMT	Data objects definitions for common SESAME products: health check (FM3)				
SESAME_RBUF.FMT	Data objects definitions for common SESAME products: read backup RAM buffer				
SESAME_RDJC.FMT	Data objects definitions for common SESAME products: read stored TC buffer				
SESAME_RMES.FMT	Data objects definitions for common SESAME products: Ready Message (FM1, FM2, FM3)				

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### 4 Detailed Interface Specifications

This chapter gives detailed information on the dataset, directory and file naming of the SESAME archive design at instrument and detector/sensor level.

### 4.1 Structure and Organization Overview

The SESAME data files will be archived in a data set on the basis of the mission phase relative to the production of the data.

Each .ROL (rolbin) file containing the raw data (telemetry packets, CODMAC level 1) will be placed in the DATA directory of the corresponding dataset (with level 1 data files, HK and SC mixed).

Each .TAB file containing uncalibrated SC data (CODMAC level 2) will be archived in the DATA directory of the corresponding dataset (with level 2 SC data files).

Each .TAB file containing calibrated SC data (CODMAC level 3) and each .CSV file containing calibrated HK (CODMAC level 3) data will be archived in the DATA directory of the corresponding datasets (with level 3 HK data files and level 3 SC data files).

The file names and directories names follow the rules explained in this document (chap 3.1.4 and 3.1.3).

### 4.2 Data Sets, Definition and Content

The Table 4.1 gives the definition of the name and ID of the SESAME data sets.

Data Set ID	Data Set Name
RL-CAL-SESAME-1-CVP1-V1.0	ROSETTA-LANDER CAL SESAME 1 CVP1 V1.0
RL-CAL-SESAME-1-CVP2-V1.0	ROSETTA-LANDER CAL SESAME 1 CVP2 V1.0
RL-CAL-SESAME-1-CR2-V1.0	ROSETTA-LANDER CAL SESAME 1 CR2 V1.0
RL-CAL-SESAME-1-CR4A-V1.0	ROSETTA-LANDER CAL SESAME 1 CR4A V1.0
RL-CAL-SESAME-1-CR4B-V1.0	ROSETTA-LANDER CAL SESAME 1 CR4B V1.0
RL-CAL-SESAME-1-CR5-V1.0	ROSETTA-LANDER CAL SESAME 1 CR5 V1.0
RL-E-SESAME-1-EAR1-V1.0	ROSETTA-LANDER EARTH SESAME 1 EAR1 V1.0
RL-E-SESAME-1-EAR2-V1.0	ROSETTA-LANDER EARTH SESAME 1 EAR2 V1.0
RL-E-SESAME-1-EAR3-V1.0	ROSETTA-LANDER EARTH SESAME 1 EAR3 V1.0
RL-M-SESAME-1-MARS-V1.0	ROSETTA-LANDER MARS SESAME 1 MARS V1.0
RL-A-SESAME-1-AST1-V1.0	ROSETTA-LANDER STEINS SESAME 1 AST1 V1.0
RL-CAL-SESAME-1-RVM1-V1.0	ROSETTA-LANDER CAL SESAME 1 RVM1 V1.0
RL-CAL-SESAME-1-PHC-V1.0	ROSETTA-LANDER CAL SESAME 1 PHC V1.0
RL-CAL-SESAME-1-PDCS-V1.0	ROSETTA-LANDER CAL SESAME 1 PDCS V1.0
RL-C-SESAME-1-SDL-V1.0	ROSETTA-LANDER 67P SESAME 1 SDL V1.0
RL-C-SESAME-1-FSS-V1.0	ROSETTA-LANDER 67P SESAME 1 FSS V1.0
RL-CAL-SESAME-2-CVP1-V1.0	ROSETTA-LANDER CAL SESAME 2 CVP1 V1.0
RL-CAL-SESAME-2-CVP2-V1.0	ROSETTA-LANDER CAL SESAME 2 CVP2 V1.0
RL-CAL-SESAME-2-CR2-V1.0	ROSETTA-LANDER CAL SESAME 2 CR2 V1.0
RL-CAL-SESAME-2-CR4A-V1.0	ROSETTA-LANDER CAL SESAME 2 CR4A V1.0
RL-CAL-SESAME-2-CR4B-V1.0	ROSETTA-LANDER CAL SESAME 2 CR4B V1.0
RL-CAL-SESAME-2-CR5-V1.0	ROSETTA-LANDER CAL SESAME 2 CR5 V1.0
RL-E-SESAME-2-EAR1-V1.0	ROSETTA-LANDER EARTH SESAME 2 EAR1 V1.0
RL-E-SESAME-2-EAR2-V1.0	ROSETTA-LANDER EARTH SESAME 2 EAR2 V1.0

Table 4.1: Name and ID of SESAME data sets

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Data Set ID	Data Set Name
RL-E-SESAME-2-EAR3-V1.0	ROSETTA-LANDER EARTH SESAME 2 EAR3 V1.0
RL-M-SESAME-2-MARS-V1.0	ROSETTA-LANDER MARS SESAME 2 MARS V1.0
RL-A-SESAME-2-AST1-V1.0	ROSETTA-LANDER STEINS SESAME 2 AST1 V1.0
RL-CAL-SESAME-2-RVM1-V1.0	ROSETTA-LANDER CAL SESAME 2 RVM1 V1.0
RL-CAL-SESAME-2-PHC-V1.0	ROSETTA-LANDER CAL SESAME 2 PHC V1.0
RL-CAL-SESAME-2-PDCS-V1.0	ROSETTA-LANDER CAL SESAME 2 PDCS V1.0
RL-C-SESAME-2-SDL-V1.0	ROSETTA-LANDER 67P SESAME 2 SDL V1.0
RL-C-SESAME-2-FSS-V1.0	ROSETTA-LANDER 67P SESAME 2 FSS V1.0
RL-CAL-SESAME-3-CVP1-V1.0	ROSETTA-LANDER CAL SESAME 3 CVP1 V1.0
RL-CAL-SESAME-3-CVP2-V1.0	ROSETTA-LANDER CAL SESAME 3 CVP2 V1.0
RL-CAL-SESAME-3-CR2-V1.0	ROSETTA-LANDER CAL SESAME 3 CR2 V1.0
RL-CAL-SESAME-3-CR4A-V1.0	ROSETTA-LANDER CAL SESAME 3 CR4A V1.0
RL-CAL-SESAME-3-CR4B-V1.0	ROSETTA-LANDER CAL SESAME 3 CR4B V1.0
RL-CAL-SESAME-3-CR5-V1.0	ROSETTA-LANDER CAL SESAME 3 CR5 V1.0
RL-E-SESAME-3-EAR1-V1.0	ROSETTA-LANDER EARTH SESAME 3 EAR1 V1.0
RL-E-SESAME-3-EAR2-V1.0	ROSETTA-LANDER EARTH SESAME 3 EAR2 V1.0
RL-E-SESAME-3-EAR3-V1.0	ROSETTA-LANDER EARTH SESAME 3 EAR3 V1.0
RL-M-SESAME-3-MARS-V1.0	ROSETTA-LANDER MARS SESAME 3 MARS V1.0
RL-A-SESAME-3-AST1-V1.0	ROSETTA-LANDER STEINS SESAME 3 AST1 V1.0
RL-CAL-SESAME-3-RVM1-V1.0	ROSETTA-LANDER CAL SESAME 3 RVM1 V1.0
RL-CAL-SESAME-3-PHC-V1.0	ROSETTA-LANDER CAL SESAME 3 PHC V1.0
RL-CAL-SESAME-3-PDCS-V1.0	ROSETTA-LANDER CAL SESAME 3 PDCS V1.0
RL-C-SESAME-3-SDL-V1.0	ROSETTA-LANDER 67P SESAME 3 SDL V1.0
RL-C-SESAME-3-FSS-V1.0	ROSETTA-LANDER 67P SESAME 3 FSS V1.0

#### 4.3 Data Product Design

SESAME data products have PDS detached labels. Some of them have combined detached labels. Details are given in the following chapters.

#### 4.3.1 SESAME raw data product (Level 1)

Level 1 contains mixed raw housekeeping and science data packets delivered by the Rosetta Lander with detached PDS labels.

#### 4.3.1.1 File Characteristics Data Elements

PDS minimal detached labels describe the raw files (level 1). The file characteristic data elements are RECORD\_TYPE, PRODUCT\_TYPE and FILE\_NAME. The PRODUCT\_TYPE is UDR. The RECORD\_TYPE for raw data is UNDEFINED, i.e. the structure of records is not described in the PDS labels since these data are intended to be processed with the EGSE software. The file contains telemetry packets, which are described in AD1.

#### 4.3.1.2 Instrument and Detector Descriptive Data Elements

INSTRUMENT_HOST_NAME	= "ROSETTA-LANDER"	
INSTRUMENT_HOST_ID	= RL	
INSTRUMENT_ID	= SESAME	
INSTRUMENT_NAME	= "SURFACE ELECTRIC SOUNDING AND ACOUSTI	C
	MONITORING EXPERIMENT"	
INSTRUMENT_TYPE = { "ACOUS"	STIC SENSOR", "DUST IMPACT DETECTOR",	

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"PERMITTIVITY PROBE" }

#### 4.3.1.3 Description of Instrument

The description of the instrument is done in above and as a brief overview in the INST.CAT catalog file.

#### 4.3.1.4 Data quality definition (level 1)

The data quality is defined (in the label) by the DATA\_QUALITY\_ID keyword.

The criterion is the data loss (missing data or damaged data (zero packets)) by telemetry system compared to expected amount.

The DATA\_QUALITY\_ID scheme is described by the associated DATA\_QUALITY\_DESC element as follows:

DATA\_QUALITY\_DESC = -1: NOT QUALIFIED

- 0: Data complete, 0% telemetry loss
- 1: data loss < 5%
- 2: 5% ≤ data loss < 10%
- 3: 10% ≤ data loss < 20%
- 4: data loss ≥ 20%

#### 4.3.2 SESAME science level 2 data product design

Level 2 contains raw (uncalibrated) CASSE and PP time series and DIM tables. The level 2 products have PDS detached labels and combined detached labels.

The SESAME subdirectory contains calibrated housekeeping (HK) and health check data all with the appropriate time-stamp.

#### 4.3.2.1 File Characteristics Data Elements

PDS data product **labels** contain data element information that describes important attributes of the physical structure of a data product file. The PDS file characteristic data elements for SEAME science level 2 data are:

RECORD\_TYPE = FIXED\_LENGTH RECORD\_BYTES = ... FILE\_RECORDS = ...

The RECORD\_TYPE data element identifies the record characteristics of the data product file. Physical records are always fixed-length. The RECORD\_BYTES data element identifies the number of bytes in each physical record in the data product file. The FILE\_RECORDS data element identifies the number of physical records in the file.

#### 4.3.2.2 Data Object Pointers Identification Data Elements

The SESAME data have combined detached labels. A single PDS detached data product label file is used to describe the contents of more than one data product file (the products belong to the same working session of a SESAME instrument). The combined detached label contains pointers to individual data products. The labels refer to FILE objects.

#### 4.3.2.3 Instrument and Detector Descriptive Data Elements

The following data identification elements provide additional information about the SESAME data product.

INSTRUMENT_HOST_NAME	=	"ROSETTA LANDER"
INSTRUMENT_HOST_ID	=	RL
INSTRUMENT_ID	=	SESAME
INSTRUMENT_NAME	=	"SURFACE ELECTRIC SOUNDING AND ACOUSTIC
		MONITORING EXPERIMENT"
INSTRUMENT_TYPE	=	{"ACCELEROMETER", "DUST IMPACT DETECTOR",
		"PERMITTIVITY PROBE", "UNK"}
<pre>FLIGHT_SOFTWARE_VERSION_ID</pre>	=	
CHANNELS	=	

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#### 4.3.2.4 Data Object Definition

There are 14 scientific data products defined for SESAME according to the instrument modes (see §3.1.3 and Table 3.2) and flight software version.

#### 4.3.2.4.1 CASSE Data object definition

The CASSE data are organized as tables with 24 columns containing 12 times and 12 channel values (accelerometers or transmitters): time 1 channel1 time2 channel2 ... time 12 channel12.

The association axis-channel is fixed and it is given in the label. The « Job cards » and « sequence parameters » are kept in separated files (combined detached labels).

The structures of CASSE measurements differ according to flight software version. The details concerning the telemetry formats can be found in [AD1] for flight software version 1, in [AD2] for flight software version 2 and in [AD3] for flight software version 3. The FM2 software was uploaded on 2007-09-24 at 19h40 UTC (during payload checkout #6). The FM3 software was uploaded on 2009-09-24 at 02h00 UTC (during PC#10).

Examples: CASSE sounding, FM2, level 2 (1 label file pointing to 4 data files) SES\_FS2\_CSN\_0510040300.LBL SES\_FS2\_CSN\_0510040300\_JOBC.TAB JOBCARD.FMT)

SES FS2 CSN 0510040300 SEQP.TAB (sequence parameters, described in SEQ PARAM BURST L2.FMT for BURST mode or SEQ PARAM TRIG2 for TRIGGER mode) SES FS2 CSN 0510040300 DATA.TAB (data, ACC or TX described in DATA L2.FMT) SES FS2 CSN 0510040300 TAFT.TAB (foot temperatures, described in TAFT L2.FMT)

(label)

(parameters of jobcard, described in

CASSE sounding, FM3, level 2 (1 label file pointing to 5 data files)

SES FS2 CSN 0510040300.LBL (label) SES FS2 CSN 0510040300 JOBC.TAB (parameters of jobcard, described in JOBCARD\_FM3.FMT) SES FS2\_CSN\_0510040300\_SEQP.TAB (sequence parameters, described in SEQ PARAM BURST L2 FM3.FMT for BURST mode or SEQ\_PARAM\_TRIG2\_FM3 for TRIGGER mode) SES FS2 CSN 0510040300 DATA.TAB (data, ACC or TX described in DATA L2.FMT or DATA\_STACKED\_L2.FMT for STACKING mode) SES FS2 CSN 0510040300 TAFT.TAB (foot temperatures, described in TAFT L2 FM3.FMT) SES\_FS2\_CSN\_0510040300\_STAT.TAB (measurement statistics described in STAT FM3.FMT)

The label contains the start and stop times as LOBT and UTC. The data files contain time in ms relative to the start time.

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4.3.2.4.1.1.1 CASSE Jobcard definition

#### A TABLE object describes the jobcard.

OBJECT	= JOBC_TABLE
NAME	= "JOB_CARD"
INTERCHANGE	FORMAT = ASCII
ROWS	= 1
COLUMNS	= 29
ROW_BYTES	= 176
^STRUCTURE	= "JOB_CARD_FM3.FMT"
END_OBJECT	= JOBC_TABLE

The structure of the TABLE object is defined in the file JOB\_CARD.FMT.

```
OBJECT
                  = COLUMN
                   = "SESAME_SEQ_ID"
   NAME
   DATA_TYPE
                  = ASCII INTEGER
   START_BYTE
                   = 1
   BYTES
                   = 6
                   = "I6"
   FORMAT
   UNIT
                    = "N/A"
   DESCRIPTION = "Sequence ID in the current data file"
END OBJECT
                 = COLUMN
                  = COLUMN
= "JOB_ID"
OBJECT
  NAME
   DATA_TYPE
                 = CHARACTER
   START BYTE
                   = 9
   BYTES
                   = 2
                   = "A2"
   FORMAT
   UNIT
                   = "N/A"
   DESCRIPTION = "Jobcard identifier (hex value)"
END_OBJECT = COLUMN
                  = COLUMN
= "SAVE_FULL"
OBJECT
   NAME
   DATA_TYPE
                   = ASCII INTEGER
   _ _
START_BYTE
                  = 13
   BYTES
                   = 1
                  = "I1"
   FORMAT
                   = "N/A"
   UNIT
   DESCRIPTION = "Possible values :
                     0 : Save ID Only
                      1 : Save Full"
END OBJECT = COLUMN
OBJECT
                   = COLUMN
                   = "MORE JOBS"
  NAME
   DATA_TYPE
                 = ASCII_INTEGER
= 15
   START BYTE
   BYTES
                    = 1
```

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= "I1" FORMAT = "N/A" UNIT DESCRIPTION = "Possible values : 0 : Last Job 1 : More Jobs" END OBJECT = COLUMN OBJECT = COLUMN = "SUB ID" NAME DATA TYPE = CHARACTER START\_BYTE = 18 BYTES = 2 = "A2" FORMAT UNIT = "N/A" DESCRIPTION = "Hex value" END\_OBJECT = COLUMN DATA\_TYPE = "START\_CONDITION" START\_BYTE = 23 BYTES OBJECT NAME FORMAT = "A2" UNIT = "N/A" DESCRIPTION = "Hex value" END\_OBJECT = COLUMN NAME = COLUMN OBJECT NAME = "REPETITIONS" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 27 BYTES = 3 = "I3" FORMAT UNIT = "N/A" DESCRIPTION = " Number of repetitions" END OBJECT = COLUMN = COLUMN OBJECT NAME = "SOUND FREQ" = ASCII\_INTEGER = 31 DATA\_TYPE START\_BYTE = 5 BYTES FORMAT = "I5" UNIT = "HERTZ" DESCRIPTION = " transmitter sound frequency" END\_OBJECT = COLUMN OBJECT = COLUMN NAME = "SND\_DURATION" DATA\_TYPE = ASCII\_REAL START\_BYTE = 37 BYTES = 9 = "F9.1" FORMAT

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UNIT	= "MILLISECOND"
MISSING_CONSTANT	= 9999999.9
DESCRIPTION	= "Sounding duration in sounding mode"
END_OBJECT :	= COLUMN
OBJECT	= COLUMN
	= "TRIGGER_TIMEOUT"
DATA_TYPE	
START_BYTE	= 47
BYTES	= 5
	= "I5"
UNIT	
MISSING_CONSTANT	
	= "Time-out duration, after which listening stops
	r signal occured"
END_OBJECT :	= COLUMN
	= COLUMN
NAME	= "SAMPLING_FREQ"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 53
BYTES	
FORMAT	
	= "HERTZ"
DESCRIPTION = "Sa	ampling frequency per channel"
END_OBJECT :	= COLUMN
	= COLUMN
NAME	= "TX_STATUS"
DATA_TYPE	= CHARACTER
START_BYTE	
BYTES	
FORMAT	
01111	= "N/A"
DESCRIPTION	= "Selection of transmitters to be used in
	Sounding Mode. If TX_cycle is set, after a
	measurement the transmitter selection is
	(cyclically) shifted by one position up to
	yield the transmitters to be used for the next
	measurement. If Tx_reverse is additionally set,
	the selection of active transmitters is shifted
	one position downwards instead.
	Bit field represented as 5 characters, the rightmost
	character corresponds to bit #0 and the leftmost to bit #4.
	Each character can be 1 (active sensor or cycle on or
	reversed on) or 0 (sensor not used) and have the
	following meaning.
	bit 0: TRM -Y
	bit 1: TRM +X
	bit 2: TRM +Y
	bit 3: TX cycle
	bit 4: TX reverse "
	—

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END\_OBJECT = COLUMN

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OBJECT	= COLUMN
NAME	= "AGC"
DATA_TYPE	= CHARACTER
START_BYTE	
BYTES	= 2
FORMAT	= "A2"
UNIT	= "N/A"
DESCRIPTION =	"Amplification gain selection in hexadecimal format
Value to b	e written to the Amplifier Gain
Control re	gister of CASSE electronics. Decimal value
ranges from	m O (maximal gain) to 15 (minimal gain).
Note (a) t	he gain is not a monotone function of the
AGC value,	(b) the actually adjusted gain can
deviate, i	f automatic gain setting (AGS) is enabled."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TRIGGER_SRC"
DATA_TYPE	= CHARACTER
START_BYTE	= 74
BYTES	= 13
FORMAT	= "A13"
UNIT	= "N/A"
DESCRIPTION =	"Subset of active sensor channels used as trigger
	sources. Bit field represented as 12 characters,
	the rightmost character corresponds to bit $\#0$
	and the leftmost to bit #11.
	Each character can be 1 (active sensor used as a
	trigger source) or O (sensor not used as a trigger
	source) and have the following meaning.
	bit 0: ACC -Y, x-axis
	bit 1: ACC -Y, y-axis
	bit 2: ACC -Y, z-axis
	bit 3: ACC +X, x-axis
	bit 4: ACC +X, y-axis
	bit 5: ACC +X, z-axis
	bit 6: ACC +Y, x-axis
	bit 7: ACC +Y, y-axis
	bit 8: ACC +Y, z-axis
	bit 9: TRM -Y
	bit 10: TRM +X
	bit 11: TRM +Y
bit 12: AUTO	RANGE"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TRIGGER_DELAY"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 89
BYTES	= 9
FORMAT	= "F9.1"

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UNIT	= "MILLISECOND"		
DESCRIPTION	<pre>= " Determines the time range before (neg value) or after (positive value) a event, which shall be included in Absolute value of TrgDelay must be LIS_DURATION."</pre>	trigger the time se	
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "TRIGGER LEVEL POS"		
DATA_TYPE	= ASCII INTEGER		
– START BYTE	= 99		
BYTES	= 4		
FORMAT	= "I4"		
UNIT	= "N/A"		
DESCRIPTION	= "Positive trigger level.		
	Value to be written to the UTT har	dware regis	ter,
	which fixes the upper (always posi	tive) trigg	er
	threshold. Note that the actually	adjusted va	lue
	can be different, if automatic tri	gger level	setting
	is enabled."		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "TRIGGER_LEVEL_NEG"		
DATA_TYPE	= ASCII_INTEGER		
START_BYTE	= 104		
BYTES	= 4		
FORMAT	= "I4"		
UNIT	= "N/A"		
DESCRIPTION	= "Negative trigger level.		
	Value to be written to the LTT har	dware regis	ter,
	which fixes the lower (always nega		
	threshold. Note that the actually	adjusted va	lue
	can be different, if automatic tri	gger level	setting
	is enabled."		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "RX_DURATION"		
DATA_TYPE	= ASCII_REAL		
START_BYTE	= 109		
BYTES	= 9		
FORMAT	= "F9.1"		
UNIT	= "MILLISECOND"		
DESCRIPTION	= "Measurement duration "		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "RX_STATUS"		
DATA_TYPE	= CHARACTER		
	= 120		
BYTES	= 16		

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FORMAT	= "A16"
UNIT	= "N/A"
DESCRIPTION	= "Selection of sensor channels to be used. If cycle
	is set, after a measurement the receiver selection
	is (cyclically) shifted by one position (in the same
	direction as the transmitters, as indicated in
	TX STATUS. If the reversed flag is additionally set,
	the receiver cycling shall take place in the opposite
	direction as the transmitter cycling.
	Bit field represented as 15 characters, the rightmost
	character corresponds to bit #0 and the leftmost to
	bit #13.
	Each character can be 1 (active sensor or cycle on or
	reversed on) or 0 (sensor not used) and have the
	following meaning.
	bit 0: ACC -Y, x-axis
	bit 1: ACC -Y, y-axis
	bit 2: ACC -Y, z-axis
	bit 3: ACC +X, x-axis
	bit 4: ACC +X, y-axis
	bit 5: ACC +X, z-axis
	bit 6: ACC +Y, x-axis
	bit 7: ACC +Y, y-axis
	bit 8: ACC +Y, z-axis
	bit 9: TRM -Y bit 10: TRM +X
	bit 11: TRM +Y
	bit 12: cycle bit 13: sort
bit 14 : r	
	ustom seq "
END OBJECT	= COLUMN
	COLORIN
OBJECT	= COLUMN
NAME	= "GPW1"
DATA_TYPE	= CHARACTER
START_BYTE	= 139
BYTES	= 16
FORMAT	= "A16"
UNIT	= "N/A"
DESCRIPTION	= "General Purpose Word 1, binary"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "GPW2"
—	= CHARACTER
START_BYTE	
BYTES	= 16
FORMAT	= "A16" - "N / A "
UNIT	= "N/A"
	= "General Purpose Word 2, binary"
END_OBJECT	= COLUMN

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OBJECT = COLUMN = "GPW3" NAME DATA TYPE = CHARACTER START BYTE = 177 BYTES = 16 = "A16" FORMAT = "N/A" UNIT DESCRIPTION = "General Purpose Word 3, in binary" END OBJECT = COLUMN OBJECT = COLUMN NAME = "FOOT TEMP" DATA TYPE = CHARACTER START BYTE = 196 BYTES = 8 = "A8" FORMAT = "N/A" UNTT DESCRIPTION = "Active foot temperature channels. Bit field represented as 15 characters, the rightmost character corresponds to bit #0 and the leftmost to bit #6. The Temperature and Radiation Dose Data Block will be generated by flight software, if at least one foot temperature channel is selected in FOOT TEMP. It will additionally be included at the end of a measuring sequence, if the Additional after job flag is set. Each character can be 1 (channel selected) or 0 (channel not selected) and have the following meaning. bit 0: Temperature -Y, TRM bit 1: Temperature -Y, ACC bit 2: Temperature +X, TRM bit 3: Temperature +X, ACC bit 4: Temperature +Y, TRM bit 5: Temperature +Y, ACC bit 6: Additional after job temperatures bit 7 : Do additional housekeeping" END OBJECT = COLUMN OBJECT = COLUMN = "OUTBUFFER\_PAGE" NAME DATA TYPE = CHARACTER START BYTE = 207 BYTES = 2 = "A2" FORMAT = "N/A" UNIT = "hex value" DESCRIPTION = COLUMN END OBJECT OBJECT = COLUMN NAME = "OUTBUFFER ADDRESS" DATA TYPE = CHARACTER

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S	TART_BYTE		=	212	
В	YTES		=	4	
F	ORMAT		=	"A4"	
U	NIT		=	"N/A'	
D	ESCRIPTION		=	"hex	value"
END_O	BJECT	=	СС	LUMN	

4.3.2.4.1.1.2 CASSE Sequence Parameters definition for burst mode The sequence parameters are described by a TABLE object.

OBJECT	= SEQ_PARAM_TABLE
NAME	= "SEQ_PARAM"
INTERCHANGE_FORMAT	r = Ascii
ROWS	= 6
COLUMNS	= 17
ROW_BYTES	= 149
^STRUCTURE	= "SEQ_PARAM_BURST2.FMT"
END_OBJECT	= SEQ_PARAM_TABLE

#### The structure of the Sequence parameters TABLE object is defined in the file SEQ\_PARAM\_BURST2.FMT.

OBJECT	= COLUMN		
NAME	= "SESAME_SEQ_ID"		
DATA_TYPE	= ASCII_INTEGER		
START_BYTE	= 1		
BYTES			
UNIT	= "N/A"		
FORMAT	= "I6"		
DESCRIPTION	= "Sequence ID in the current data file"		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME			
DATA_TYPE	= ASCII_INTEGER		
START_BYTE	= 8		
BYTES	= 6		
FORMAT	= "I6"		
UNIT	= "N/A"		
DESCRIPTION	= "Measurement ID in the current sequence"		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "UTC"		
DATA_TYPE	= TIME		
START_BYTE	= 15		
BYTES			
DESCRIPTION	= "Measurement start time (UTC in PDS standard		
<pre>format YYYY-MM-DDThh:mm:ss.sss)"</pre>			
END_OBJECT = COLUM	IN		

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OBJECT	= COLUMN
	= "SESAME LOCAL TIME SEQ"
	= ASCII INTEGER
START_BYTE	= 39
BYTES	= 15
FORMAT	= "I15"
	<pre>= "Start time of sequence. SESAME local time  (SLT) runs with a resolution of 1/32 seconds.  SLT represents the least significant 32 bits of  LOBT. The most significant 5 bits are in  CDMS RSST (see SESAME Ready Message)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "FREQUENCY_DIVIDER"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	
	= 3
FORMAT	= "I3"
UNIT	= "N/A"
DESCRIPTION	= "Adjusted transmitter frequency register value"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "FREQUENCY_INCREMENT"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 59
BYTES	= 5
FORMAT	= "I5"
UNIT	= "N/A"
DESCRIPTION	= "Adjusted sampling rate registers value"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CHANNELS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 65
BYTES	= 3
FORMAT	= "I3"
UNIT	= "N/A"
DESCRIPTION	= "Number of sensor channels minus one"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "ADJ_SOUND_FREQ"
	= ASCII_INTEGER
START_BYTE	
BYTES	
FORMAT	
UNIT	= "HERTZ"
DESCRIPTION	= "Transmitter frequency.
	Equals zero in Listening mode"
END_OBJECT	= COLUMN

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OBJECT	= COLUMN
NAME	= "ADJ_SAMPLING_FREQ"
	= ASCII_INTEGER
START_BYTE	
BYTES	
FORMAT	
	= "HERTZ"
DESCRIPTION	= "Sampling frequency per sensor channel"
END_OBJECT	= COLUMN
	= COLUMN
	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 86
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	= "Start time of measurement. SESAME local time
	(SLT) runs with a resolution of $1/32$ seconds.
	SLT represents the least significant 32 bits of
	LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "TOTAL_MEAS_LENGTH"
DATA_TYPE	= CHARACTER
START_BYTE	= 103
BYTES	= 8
FORMAT	= "A8"
UNIT	= "N/A"
DESCRIPTION	= "FIFO RAM address when recording stopped
	4 bytes, hexadecimal representation"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT-Y_TRM"
_	= ASCII_INTEGER
START_BYTE	= 113
BYTES	= 5
FORMAT	= "I5"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT-Y_ACC"
—	= ASCII_INTEGER
START_BYTE	= 119
BYTES	= 5
FORMAT	= "I5"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature before measurement"

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END_OBJECT	= COLUMN
NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT DESCRIPTION END_OBJECT	<pre>= 125 = 5 = "I5" = "N/A" = "Foot temperature before measurement" = COLUMN</pre>
NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT	= 131 = 5
NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT	= 137 = 5 = "I5"
OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT DESCRIPTION END_OBJECT	<pre>= COLUMN = "TEMP_FOOT+Y_ACC" = ASCII_INTEGER = 143 = 5 = "I5" = "I5" = "N/A" = "Foot temperature before measurement" = COLUMN</pre>

4.3.2.4.1.1.3 CASSE Sequence Parameters definition for trigger mode The sequence parameters are described by a TABLE object.

OBJECT	= SEQ_PARAM_TABLE
NAME	= "SEQ_PARAM"
INTERCHANGE_FORMA	T = ASCII
ROWS	= 3
COLUMNS	= 21
ROW_BYTES	= 204
^STRUCTURE	= "SEQ_PARAM_TRIG2.FMT"
END_OBJECT	= SEQ_PARAM_TABLE

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#### The structure of the Sequence parameters TABLE object is defined in the file SEQ\_PARAM\_TRIG2.FMT-

OBJECT	=	COLUMN
		"SESAME_SEQ_ID"
		ASCII_INTEGER
START_BYTE	=	1
BYTES	=	6
FORMAT	=	"16"
UNIT		
DESCRIPTION	=	"Sequence ID in the current data file"
END_OBJECT		
_		
OBJECT	=	COLUMN
NAME	=	"MEAS_ID"
DATA_TYPE	=	ASCII_INTEGER
START_BYTE	=	8
BYTES	=	6
FORMAT	=	"I6"
UNIT	=	"N/A"
DESCRIPTION	=	"Measurement ID in the current sequence"
END_OBJECT	=	COLUMN
OBJECT		
NAME	=	"UTC"
DATA_TYPE	=	TIME
START_BYTE	=	15
BYTES	=	23
DESCRIPTION	=	"This column represents the UTC Time
		for start of the sequence"
END_OBJECT	=	COLUMN
		COLUMN
		"SESAME_LOCAL_TIME"
_		ASCII_INTEGER
START_BYTE	=	39
BYTES		
FORMAT		
DESCRIPTION	=	"Start time of measurement. SESAME local time
		(SLT) runs with a resolution of 1/32 seconds.
		SLT represents the least significant 32 bits of
		LOBT. The most significant 5 bits are in
		CDMS RSST (see SESAME Ready Message)"
END_OBJECT	=	COLUMN
OBJECT		
NAME	=	"ERROR_INIT"
DATA_TYPE		
START_BYTE	=	56
BYTES		
FORMAT	=	"A4 "
DESCRIPTION	=	"Error status after initialisation
		in hexadecimal format (2 bytes).

#### SESAME CASSE • DIM • PP SESAME EAICD Reference: Issue: 1.0, LSE v2.5 Date: 17 December 2015 Page: 55 of 315 Possible values:

0001 EB FREQ Invalid frequency increment (adjustment of sampling

frequency); default (= 1312) used. 0002 EB\_DIVRAT Invalid frequency divider (adjustment of sounding frequency); default (= 1) used. 0004 EB\_CDPU\_ADC Error during temperature A/D conversion. 4008 EB\_NCHAN Fatal: Invalid number of sensor channels 4010 EB\_TIMEO Fatal: Time-out during triggered mode. 4020 EB\_NOSTRT Fatal: Measurement start condition not fulfilled. 8040 EB\_RAMOVR Fatal: Allocated SESAME SRAM space exhausted. 4000 EB\_FATAL\_MES Fatal error or time-out; current measurement will be aborted. Columns are filled by missing\_constant if the last case occurs (4000), for the concerned mesurement" END\_OBJECT = COLUMN

OBJECT = COLUMN = "FREQUENCY DIVIDER" NAME DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 62 = 3 BYTES FORMAT = "I3" = "N/A" UNIT MISSING\_CONSTANT = 999 DESCRIPTION = "Adjusted transmitter frequency register value" END OBJECT = COLUMN OBJECT = COLUMN NAME = "FREQUENCY INCREMENT" DATA\_TYPE = ASCII INTEGER DATA\_TYPE START\_BYTE = 66 BYTES = 5 = "I5" FORMAT = "N/A" UNIT MISSING CONSTANT = 99999 DESCRIPTION = "Adjusted sampling rate registers value" = COLUMN END OBJECT OBJECT = COLUMN = "CHANNELS" NAME DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 72 BYTES = 3 = "I3" FORMAT UNIT = "N/A" MISSING\_CONSTANT = 999 DESCRIPTION = "Number of sensor channels minus one" END OBJECT = COLUMN OBJECT = COLUMN NAME = "TRIGGER STATUS" DATA TYPE = ASCII INTEGER

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START BYTE	= 76
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
—	= "Contents of Trigger Status Register at
	time of trigger (0 - 4095)"
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "TIME_BURST_ON"
DATA_TYPE	= CHARACTER
START_BYTE	= 82
BYTES	= 15
FORMAT	= "A15"
MISSING_CONSTANT	= "99999999999999999
DESCRIPTION	= "SESAME Local Time at start of recording
	of measurement represented as :
	Reset number (integer starting at 1) / seconds
	The time resolution is 0.03125 s"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TIME_TRIGGER"
DATA_TYPE	= CHARACTER
START_BYTE	= 100
BYTES	= 15
FORMAT	= "A15"
MISSING CONSTANT	= "9999999999999999"
DESCRIPTION	= "SESAME Local Time when trigger occurred
	represented as :
	Reset number (integer starting at 1) / seconds
	The time resolution is 0.03125 s"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TIME_BURST_OFF"
DATA_TYPE	= CHARACTER
START_BYTE	= 118
BYTES	= 15
FORMAT	= "A15"
MISSING_CONSTANT	= "9999999999999999"
DESCRIPTION	= "SESAME Local Time at stop of recording
	represented as :
	Reset number (integer starting at 1) / seconds
	The time resolution is 0.03125 s"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "FIFO_TRIGGER"
DATA_TYPE	= CHARACTER
START_BYTE	= 136
BYTES	= 8

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FORMAT	= "A8"
MISSING_CONSTANT	= "999999999"
DESCRIPTION	= "FIFO RAM address when trigger occurred
	in hexadecimal format (4 bytes)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "FIFO_BURST_OFF"
DATA_TYPE	= CHARACTER
START_BYTE	= 147 = 8
BYTES	- o = "A8"
FORMAT	- Ao = "999999999"
MISSING_CONSTANT	
DESCRIPTION	= "FIFO RAM address when recording stopped in hexadecimal format (4 bytes)"
END_OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "FIFO_FIRST_DAT"
DATA_TYPE	= CHARACTER
START_BYTE	= 158
BYTES	= 8
FORMAT	= "A8"
MISSING_CONSTANT	= "99999999"
DESCRIPTION	= "FIFO RAM address of very first channel data
	in hexadecimal format (4 bytes)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP FOOT-Y TRM"
DATA TYPE	= ASCII INTEGER
	= 168
_ BYTES	= 5
FORMAT	= "15"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT-Y_ACC"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 174
BYTES	= 5
FORMAT	= "I5"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP FOOT+X TRM"
DATA_TYPE	= ASCII INTEGER
START_BYTE	= 180
BYTES	= 5
-	

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FORMAT	= "15"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+X_ACC"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 186
BYTES	= 5
FORMAT	= "I5"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+Y_TRM"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 192
BYTES	= 5
FORMAT	= "I5"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+Y_ACC"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 198
BYTES	= 5
FORMAT	= "I5"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN

#### 4.3.2.4.1.1.4 CASSE Data definition

The data produced in sounding or listening modes are described by the following TABLE object.

OBJECT	= DATA_TABLE
NAME	= "DATA"
INTERCHANGE_FORMAT	= ASCII
ROWS	= 3852
COLUMNS	= 26
ROW_BYTES	= 231
^STRUCTURE	= "DATA2.FMT"
END_OBJECT	= DATA_TABLE

#### The structure of the measured data TABLE object is defined in the file DATA2.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER

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START_BYTE	= 1
—	= 6
	= "N/A"
FORMAT	
	= "Sequence ID in the current data file"
	= COLUMN
	COLDIN,
OBJECT	= COLUMN
	= "MEAS ID"
DATA_TYPE	=
START_BYTE	—
	= 6
	= "I6"
UNIT	
	- N/A = "Measurement ID in the current sequence"
END_OBJECT	= COLUMN
	= COLUMN
	= "RELATIVE_TIME_1"
DATA_TYPE	—
START_BYTE	
	= 10
	= "MILLISECOND"
FORMAT	
MISSING_CONSTANT	
DESCRIPTION	= "Channel 1 time relative to
	start time of the measurement"
END_OBJECT	= COLUMN
	= COLUMN
	= "CHANNEL_1"
DATA_TYPE	
START_BYTE	
BYTES	= 6
FORMAT	= "I6"
	= "N/A"
MISSING_CONSTANT	= 999999
DESCRIPTION	= "Channel data :
	- non-linear ADC units for regular (non-stacked)
	channel data block
	- linearized stacked ADC units for stacked channel
	data block
	The mode (stacked or regular) is given in the
	job card file (JOBC)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RELATIVE_TIME_2"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 33
BYTES	= 10
UNIT	= "MILLISECOND"
FORMAT	= "F10.3"

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MISSING_CONSTANT	= 99999.999
	= "Channel 2 time relative to
	start time of the measurement"
END OBJECT	= COLUMN
-	
OBJECT	= COLUMN
NAME	= "CHANNEL_2"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 44
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
MISSING_CONSTANT	
	= "Channel data :
	- non-linear ADC units for regular (non-stacked)
	channel data block
	- linearized stacked ADC units for stacked channel
	data block
	The mode (stacked or regular) is given in the
	job card file (JOBC)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "RELATIVE_TIME_3"
DATA_TYPE	
—	= 51
	= 10
UNIT	
FORMAT	
MISSING_CONSTANT	
_	= "Channel 3 time relative to
DIDCITITION	start time of the measurement"
END OBJECT	= COLUMN
	COTONIA.
OBJECT	= COLUMN
NAME	= "CHANNEL 3"
DATA TYPE	_
- START BYTE	—
—	= 6
FORMAT	= "16"
UNIT	= "N/A"
MISSING CONSTANT	= 999999
DESCRIPTION	= "Channel data :
	- non-linear ADC units for regular (non-stacked)
	channel data block
	- linearized stacked ADC units for stacked channel
	data block
	The mode (stacked or regular) is given in the
	job card file (JOBC)"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RELATIVE TIME 4"

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DATA_TYPE	= ASCII REAL
START BYTE	
BYTES	
	= "MILLISECOND"
	= "F10.3"
MISSING_CONSTANT	
—	
DESCRIPTION	= "Channel 4 time relative to
END OD TECH	start time of the measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "CHANNEL 4"
DATA TYPE	—
—	
START_BYTE BYTES	= 6
FORMAT	
UNIT	
MISSING_CONSTANT	
DESCRIPTION	= "Channel data :
	- non-linear ADC units for regular (non-stacked)
	channel data block
	- linearized stacked ADC units for stacked channel
	data block
	The mode (stacked or regular) is given in the
	job card file (JOBC)"
END_OBJECT	= COLUMN
	= COLUMN
NAME	= "RELATIVE_TIME_5"
NAME DATA_TYPE	<pre>= "RELATIVE_TIME_5" = ASCII_REAL</pre>
NAME DATA_TYPE START_BYTE	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87</pre>
NAME DATA_TYPE START_BYTE BYTES	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND"</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3"</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to     start time of the measurement"</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to    start time of the measurement" = COLUMN</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to    start time of the measurement" = COLUMN = COLUMN</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = "CHANNEL_5"</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER = 98</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER = 98 = 6</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER = 98 = 6 = "I6"</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER = 98 = 6 = "I6" = "N/A"</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT MISSING_CONSTANT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER = 98 = 6 = "I6" = "N/A" = 999999</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 999999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER = 98 = 6 = "I6" = "N/A" = 999999 = "Channel data :</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT MISSING_CONSTANT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER = 98 = 6 = "I6" = "N/A" = 999999 = "Channel data : - non-linear ADC units for regular (non-stacked)</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT MISSING_CONSTANT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER = 98 = 6 = "I6" = "N/A" = 999999 = "Channel data : - non-linear ADC units for regular (non-stacked) channel data block</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT MISSING_CONSTANT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER = 98 = 6 = "I6" = "N/A" = 999999 = "Channel data : - non-linear ADC units for regular (non-stacked) channel data block - linearized stacked ADC units for stacked channel</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT MISSING_CONSTANT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER = 98 = 6 = "I6" = "N/A" = 999999 = "Channel data : - non-linear ADC units for regular (non-stacked) channel data block - linearized stacked ADC units for stacked channel data block</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT MISSING_CONSTANT	<pre>= "RELATIVE_TIME_5" = ASCII_REAL = 87 = 10 = "MILLISECOND" = "F10.3" = 99999.999 = "Channel 5 time relative to start time of the measurement" = COLUMN = COLUMN = "CHANNEL_5" = ASCII_INTEGER = 98 = 6 = "I6" = "N/A" = 999999 = "Channel data : - non-linear ADC units for regular (non-stacked) channel data block - linearized stacked ADC units for stacked channel</pre>

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	job card file (JOBC)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RELATIVE_TIME_6"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 105
—	= 10
UNIT	= "MILLISECOND"
FORMAT	
MISSING_CONSTANT	= 99999.999
	= "Channel 6 time relative to
	start time of the measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "CHANNEL 6"
DATA_TYPE	—
START_BYTE	
BYTES	
FORMAT	
	= "N/A"
MISSING_CONSTANT	
	= "Channel data :
DESCRIPTION	
	- non-linear ADC units for regular (non-stacked)
	channel data block
	- linearized stacked ADC units for stacked channel
	data block
	The mode (stacked or regular) is given in the
	job card file (JOBC)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "RELATIVE_TIME_7"
DATA_TYPE	—
START_BYTE	
	= 10
	= "MILLISECOND"
FORMAT	
MISSING_CONSTANT	
DESCRIPTION	= "Channel 7 time relative to
	start time of the measurement"
END_OBJECT	= COLUMN
	= COLUMN
	= "CHANNEL_7"
DATA_TYPE	—
START_BYTE	
	= 6
FORMAT	
UNIT	= "N/A"
MISSING_CONSTANT	= 999999
DESCRIPTION	= "Channel data :

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	<ul> <li>non-linear ADC units for regular channel data block</li> <li>linearized stacked ADC units for data block</li> <li>The mode (stacked or regular) is g job card file (JOBC)"</li> </ul>	stacked char	
END_OBJECT	= COLUMN		
DATA_TYPE START_BYTE BYTES UNIT FORMAT MISSING_CONSTANT	= 141 = 10 = "MILLISECOND" = "F10.3"		
	start time of the measurement"		
END_OBJECT	= COLUMN		
DATA_TYPE START_BYTE BYTES FORMAT UNIT MISSING_CONSTANT	= 152 = 6 = "I6" = "N/A"	stacked char	
NAME DATA_TYPE START_BYTE BYTES UNIT	= 159 = 10 = "MILLISECOND" = "F10.3" = 99999.999		
END_OBJECT	= COLUMN		
OBJECT NAME DATA_TYPE START_BYTE	= "CHANNEL_9" = ASCII_INTEGER		

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FORMAT	
UNIT	
MISSING_CONSTANT	
DESCRIPTION	= "Channel data :
	- non-linear ADC units for regular (non-stacked)
	channel data block
	- linearized stacked ADC units for stacked channel
	data block
	The mode (stacked or regular) is given in the
	job card file (JOBC)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "RELATIVE_TIME_10"
DATA_TYPE	
START_BYTE	
BYTES	
	= "MILLISECOND"
FORMAT	
MISSING_CONSTANT	
	= "Channel 10 time relative to
	start time of the measurement"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CHANNEL 10"
DATA TYPE	—
	—
—	= 6
FORMAT	= "I6"
UNIT	= "N/A"
MISSING CONSTANT	= 999999
DESCRIPTION	= "Channel data :
	- non-linear ADC units for regular (non-stacked)
	channel data block
	- linearized stacked ADC units for stacked channel
	data block
	The mode (stacked or regular) is given in the
	job card file (JOBC)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RELATIVE_TIME_11"
DATA_TYPE	—
START_BYTE	= 195
BYTES	= 10
UNIT	
FORMAT	
MISSING_CONSTANT	
DESCRIPTION	= "Channel 11 time relative to
	start time of the measurement"
END_OBJECT	= COLUMN

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OBJECT	= COLUMN
	= "CHANNEL 11"
DATA_TYPE	—
_ START_BYTE	—
BYTES	
FORMAT	= "I6"
UNIT	= "N/A"
MISSING_CONSTANT	= 999999
DESCRIPTION	= "Channel data :
	- non-linear ADC units for regular (non-stacked)
	channel data block
	<ul> <li>linearized stacked ADC units for stacked channel data block</li> </ul>
	The mode (stacked or regular) is given in the
END OBJECT	job card file (JOBC)" = COLUMN
END_ODDECI	
OBJECT	= COLUMN
	= "RELATIVE_TIME_12"
DATA TYPE	
	—
BYTES	
UNIT	
FORMAT	
MISSING_CONSTANT	= 99999.999
DESCRIPTION	= "Channel 12 time relative to
	start time of the measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CHANNEL_12"
DATA_TYPE	—
START_BYTE	= 224
BYTES	
FORMAT	= "I6"
UNIT	= "N/A"
MISSING_CONSTANT	
DESCRIPTION	= "Channel data :
	- non-linear ADC units for regular (non-stacked)
	channel data block - linearized stacked ADC units for stacked channel
	- Inearized stacked ADC units for stacked channel data block
	The mode (stacked or regular) is given in the
	job card file (JOBC)"
END OBJECT	= COLUMN
	0010111

#### CASSE temperatures after measurement

The feet temperatures (accelerometers and transmitters) can be acquired also after a measurement (sounding or listening). They will be stored in ASCII table described by a TABLE object.

OBJECT NAME = TAFT\_TABLE = "TAFT"

INTERCHANGE\_FORMAT = ASCII ROWS = COLUMNS = 8 ROW\_BYTES = 52 ^STRUCTURE = "TAFT2.FMT" END\_OBJECT = TAFT\_TABLE

The structure of the "after measurement temperatures" TABLE object is defined in the file TAFT2.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "MEAS_ID"
DATA_TYPE	—
START_BYTE	
BYTES	
	= "I6"
	= "N/A"
	= "Measurement ID in the current sequence"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "TEMP_FOOT-Y_TRM"
DATA_TYPE	
START_BYTE	—
BYTES	
	= "15"
	= "N/A"
	= "Foot temperature after measurement"
END OBJECT	
_	
OBJECT	= COLUMN
NAME	= "TEMP_FOOT-Y_ACC"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 21
BYTES	= 5
FORMAT	= "I5"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature after measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+X_TRM"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 27

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BYTES	= 5
FORMAT	= "15"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature after measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "TEMP_FOOT+X_ACC"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 33
BYTES	= 5
FORMAT	= "15"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature after measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+Y_TRM"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 39
BYTES	= 5
FORMAT	= "15"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature after measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "TEMP_FOOT+Y_ACC"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 45
BYTES	= 5
FORMAT	= "I5"
UNIT	= "N/A"
DESCRIPTION	= "Foot temperature after measurement"
END_OBJECT	= COLUMN

#### 4.3.2.4.1.2 Flight software version FM3

4.3.2.4.1.2.1 CASSE job card definition The job card is described by a TABLE object.

OBJECI	. =	= JOBC_TABLE
	NAME	= "JOB_CARD"
	INTERCHANGE_FORMAT	C = ASCII
	ROWS	= 12
	COLUMNS	= 29
	ROW_BYTES	= 176
	^STRUCTURE	= "JOB_CARD_FM3.FMT"
END	OBJECT	= JOBC_TABLE

#### The structure of the TABLE object is defined in the file JOB\_CARD\_FM3.FMT.

OBJECT = COLUMN

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NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "JOB_ID"
DATA_TYPE	= CHARACTER
START_BYTE	= 9
BYTES	= 2
FORMAT	= "A2"
UNIT	= "N/A"
DESCRIPTION	= "Jobcard identifier (hex value)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "JOB_VERSION"
DATA_TYPE	= CHARACTER
START_BYTE	= 14
	= 1
FORMAT	= "A1"
UNIT	= "N/A"
DESCRIPTION	= "The possible values are:
	0 for FM-1 and FM-2
	B for FM-3"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "NMEAS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 17
BYTES	= 3
FORMAT	= "I3"
UNIT	= "N/A"
DESCRIPTION	= "Number of measurements (1 to 127)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "STACK"
DATA_TYPE	= CHARACTER
START_BYTE	= 22
BYTES	= 3
FORMAT	= "A3"
UNIT	= "N/A"
DESCRIPTION	
	be stacked on board. The possible values are YES or NO."
END OBJECT	= COLUMN
	COLORIN .

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OBJECT	= COLUMN
NAME	= "SOUND_FREQ"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 27
BYTES	= 5
FORMAT	= "15"
UNIT	= "HERTZ"
DESCRIPTION	= "Nominal sounding frequency"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SND_DURATION"
DATA_TYPE	
—	= 33
BYTES	= 9
FORMAT	= "F9.1"
UNIT	
MISSING_CONSTANT	
DESCRIPTION	= "Sounding duration in sounding mode"
END_OBJECT	= COLUMN
	COLORIN
OBJECT	= COLUMN
NAME	= "TRIGGER_TIMEOUT"
DATA_TYPE	
_ START_BYTE	
BYTES	
FORMAT	
UNIT	
MISSING CONSTANT	
—	= "Time-out duration, after which listening stops
DEDCIVITION	if no trigger signal occurred"
END OBJECT	= COLUMN
	OCTORN
OBJECT	= COLUMN
NAME	= "SAMPLING FREQ"
DATA TYPE	= ASCII INTEGER
_ START BYTE	—
_ BYTES	= 6
FORMAT	= "16"
	= "HERTZ"
	= "Sampling frequency per channel"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TX_STATUS"
DATA_TYPE	
START_BYTE	= 57
BYTES	= 5
FORMAT	= "A5"
UNIT	= "N/A"
DESCRIPTION	= "Selection of transmitters to be used in
	Sounding Mode. If TX_cycle is set, after a
	measurement the transmitter selection is

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	<pre>(cyclically) shifted by one position yield the transmitters to be used f measurement. If Tx_reverse is addit the selection of active transmitter one position downwards instead. Bit field represented as 5 character character corresponds to bit #0 and bit #4. Each character can be 1 (active sen reversed on) or 0 (sensor not used) following meaning: bit 0: TRM -Y bit 1: TRM +X bit 2: TRM +Y bit 3: TX_cycle bit 4: TX reverse"</pre>	for the next ionally set is is shifte ers, the rig the leftmo	t, ed ghtmost ost to le on or
END_OBJECT	bit 4: TX_reverse" = COLUMN		
OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT DESCRIPTION	<pre>= COLUMN = "AGC" = CHARACTER = 65 = 2 = "A2" = "N/A" = "Amplification gain selection (hex Value to be written to the Amplific Control register of CASSE electron ranges from 0 (maximal gain) to 15 Note (a) the gain is not a monoton AGC value, (b) the actually adjust deviate, if automatic gain setting</pre>	er Gain ics. Decima (minimal q e function ed gain car	gain). of the n
END_OBJECT	= COLUMN	(1100) 20	
OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT DESCRIPTION	<pre>= COLUMN = "TRIGGER_SRC" = CHARACTER = 70 = 12 = "A12" = "N/A" = "Subset of active sensor channels of sources. Bit field represented as 1 the rightmost character corresponds and the leftmost to bit #11. Each character can be 1 (active sen trigger source) or 0 (sensor not us source) and have the following mean bit 0: ACC -Y, x-axis bit 1: ACC -Y, y-axis bit 2: ACC -Y, z-axis bit 3: ACC +X, x-axis bit 4: ACC +X, y-axis</pre>	2 character to bit #0 sor used as red as a tr	rs, s a

#### Reference: RO-LSE-DS-3102 **SESAME** Issue: 1.0, LSE v2.5 **SESAME EAICD** Date: 17 December 2015 **CASSE • DIM • PP** Page: 71 of 315 bit 5: ACC +X, z-axis bit 6: ACC +Y, x-axis bit 7: ACC +Y, y-axis bit 8: ACC +Y, z-axis bit 9: TRM -Y bit 10: TRM +X bit 11: TRM +Y" END\_OBJECT = COLUMN OBJECT = COLUMN = "TRIGGER DELAY" NAME DATA TYPE = ASCII REAL START BYTE = 84 = 9 BYTES FORMAT = "F9.1" UNIT = "MILLISECOND" DESCRIPTION = "Determines the time range before (negative value) or after (positive value) a trigger event, which shall be included in the time series. Absolute value of TrgDelay must be less or equal LIS\_DURATION." END OBJECT = COLUMN OBJECT = COLUMN NAME = "TRIGGER LEVEL POS" = ASCII INTEGER DATA TYPE START BYTE = 94 BYTES = 4 FORMAT = "I4" UNIT = "N/A" DESCRIPTION = "Positive trigger level. Value to be written to the UTT hardware register, which fixes the upper (always positive) trigger threshold. Note that the actually adjusted value can be different, if automatic trigger level setting is enabled." = COLUMN END OBJECT OBJECT = COLUMN = "TRIGGER LEVEL NEG" NAME DATA TYPE = ASCII INTEGER = 99 START BYTE BYTES = 4 FORMAT = "I4" UNIT = "N/A" DESCRIPTION = "Negative trigger level. Value to be written to the LTT hardware register, which fixes the lower (always negative) trigger threshold. Note that the actually adjusted value can be different, if automatic trigger level setting is enabled."

END OBJECT

= COLUMN

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OBJECT	= COLUMN	
NAME	= "LIS DURATION"	
DATA TYPE	—	
- START BYTE	—	
BYTES	= 9	
FORMAT	= "F9.1"	
UNIT	= "MILLISECOND"	
DESCRIPTION	= "Listening duration"	
END OBJECT	= COLUMN	
—		
OBJECT	= COLUMN	
NAME	= "RX_STATUS"	
DATA TYPE	—	
—	= 14	
FORMAT	= "A14"	
UNIT	= "N/A"	
DESCRIPTION		
	is set, after a measurement the receiver selection	
	is (cyclically) shifted by one position (in the same	
	direction as the transmitters, as indicated in	
	TX STATUS. If the reversed flag is additionally set,	
	the receiver cycling shall take place in the opposite	
	direction as the transmitter cycling.	
	Bit field represented as 15 characters, the rightmost	
	character corresponds to bit #0 and the leftmost to	
	bit #13.	
	Each character can be 1 (active sensor or cycle on or	
	reversed on) or 0 (sensor not used) and have the	
	following meaning:	
	bit 0: ACC -Y, x-axis	
	bit 1: ACC -Y, y-axis	
	bit 2: ACC -Y, z-axis	
	bit 3: ACC +X, x-axis	
	bit 4: ACC +X, y-axis	
	bit 5: ACC +X, z-axis	
	bit 6: ACC +Y, x-axis	
	bit 7: ACC +Y, y-axis	
	bit 8: ACC +Y, z-axis	
	bit 9: TRM -Y	
	bit 10: TRM +X	
	bit 11: TRM +Y	
	bit 12: cycle	
	bit 13: reversed"	
END OBJECT	= COLUMN	
	002011	
OBJECT	= COLUMN	
NAME	= "G GEN"	
DATA TYPE	= ASCII INTEGER	
START BYTE	= 131	
BYTES	= 1	
FORMAT	= "I1"	
UNIT	= "N/A"	
01.11	, -*	

#### Reference: RO-LSE-DS-3102 **SESAME** Issue: 1.0, LSE v2.5 **SESAME EAICD** Date: 17 December 2015 **CASSE • DIM • PP** Page: 73 of 315 DESCRIPTION = "Values 1 or 0 1: prepare data for automatic gain adjustment" END OBJECT = COLUMN OBJECT = COLUMN = "G COMP" NAME = ASCII INTEGER DATA TYPE START\_BYTE = 133 BYTES = 1 = "I1" FORMAT UNIT = "N/A" = "0: Do not calculate optimized gain DESCRIPTION 1: Optimize for lower 1/3 of channels 2: Optimize for lower 2/3 of channels 3: Optimize for strongest channel" END OBJECT = COLUMN OBJECT = COLUMN = "TL GEN" NAME DATA\_TYPE = ASCII INTEGER DATA\_TYPE START\_BYTE = 135 BYTES = 1 FORMAT = "I1" = "N/A" UNIT DESCRIPTION = "Values 1 or 0 1: prepare data for automatic trigger level adjustment" END\_OBJECT = COLUMN OBJECT = COLUMN NAME = "TL COMP" DATA\_TYPE = ASCII INTEGER START BYTE = 137 BYTES = 1 = "I1" FORMAT UNIT = "N/A" DESCRIPTION = "Values 1 or 0 1: adjust optimized trigger levels" END OBJECT = COLUMN OBJECT = COLUMN = "STATS" NAME DATA TYPE = ASCII INTEGER START\_BYTE = 139 BYTES = 1 FORMAT = "I1" = "N/A" UNIT = "Values 1 or 0 DESCRIPTION 1: include channels statistics for each measurement" END OBJECT = COLUMN

OBJECT

= COLUMN

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NAME	= "SKIP TS"
DATA TYPE	= ASCII INTEGER
	= 141
BYTES	= 1
FORMAT	= "I1"
UNIT	= "N/A"
DESCRIPTION	= "Values 1 or 0
	If 1 time series not included into telemetry
	(ignored in Stacking Mode)"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "G TAR VAL"
DATA TYPE	= ASCII INTEGER
	—
BYTES	= 3
FORMAT	= "I3"
UNIT	= "N/A"
	= "Target value for automatic gain adjustment.
52501111101	Linearized ADC units in the range 1 to 255.
	In combination with the value of G COMP,
	gain is adjusted such that the absolute
	values of the samples of 1/3, 2/3 or all
	channels are close to, but below, G TAR VAL."
END OBJECT	= COLUMN
END_ODOFC1	
OBJECT	= COLUMN
NAME	= "TL FACTOR"
	= ASCII INTEGER
START BYTE	—
BYTES	= 4
FORMAT	= 14
UNIT	= "N/A"
DESCRIPTION	= "Factor for calculating the trigger levels from
52501121201	10 to 2550%.
	Distance of trigger level from mean of time
	series (of selected trigger channels) relative
	to the distance between mean and the extreme
	sample values; TL FACTOR equals 10 (100 %)
	means that trigger level are set equal to the
	maximum deviation from mean during the
	pre-measurement.
	A TLFactor value less than or equal 10 would
	have caused a trigger signal during the
	pre-measurement. For each sensor channel
	-
	marked as trigger channel, flight software
	calculates preliminary trigger levels based on
	statistical values (Max, Min, Mean) of a
	pre-measurement with
	trglevneg = (Min-Mean) * TLFactor / 10 + Mean
	trglevpos = (Max-Mean) * TLFactor / 10 + Mean
	The smallest value of the trglevneg obtained
	this way is adjusted as negative trigger level

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	(TrgLevNeg), and the highest trgle positive trigger level (TrgLevPos) after correcting different gain se the pre-measurement and the Trigge measurement."	, possible ttings duri	ing
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "AMP_SETUP"		
DATA_TYPE	= ASCII_REAL		
START_BYTE	= 152		
BYTES	= 4		
FORMAT	= "F4.1"		
UNIT	= "SECOND"		
DESCRIPTION	= "Amplifier setup time in sounding n	mode.	
	It represents the Duration after st	art	
	of time series recording used for a	mplifier	
	setup (to yield constant base lines		
	of 1 s should normally be used, beca	ause	
	it enables the correct identification		
	channels for all possible sampling	frequencies	3
	(no wrap-around of FIFO buffer)."		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "FIFO_LAG"		
DATA_TYPE	= ASCII_INTEGER		
START_BYTE	= 157		
BYTES	= 4		
FORMAT	= I4		
UNIT	= "N/A"		
DESCRIPTION	= "Optional corrective offset of the	e address o	of
	the first sample to be transferred.		
	Range from -127 to 127"		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "FOOT_TEMP"		
DATA_TYPE	= CHARACTER		
START_BYTE	= 163		
BYTES	= 7		
FORMAT	= "A7"		
UNIT	= "N/A"		
DESCRIPTION	= "Active foot temperature channels		
	Bit field represented as 7 character		
	rightmost character corresponds to	bit #0	
	and the leftmost to bit #6.	Data Di - 1	-
	The Temperature and Radiation Dose		
	will be generated by flight softwar		LEDSL
	one foot temperature channel is se		×+
	FOOT_TEMP. It will additionally be		11
	the end of a measuring sequence, i	r clie	

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	additional 'after job temperature'	flag is se	et.
	Each character can be 1 (channel se	lected) or	
	0 (channel not selected) and have t	he	
	following meaning:		
	bit 0: Temperature -Y, TRM		
	bit 1: Temperature -Y, ACC		
	bit 2: Temperature +X, TRM		
	bit 3: Temperature +X, ACC		
	bit 4: Temperature +Y, TRM		
	bit 5: Temperature +Y, ACC		
	bit 6: Additional after job temper	atures"	
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "ADD DELAY"		
DATA TYPE	-		
- START BYTE	= 172		
_ BYTES	= 3		
UNIT	= "SECOND"		
FORMAT	= I3		
DESCRIPTION	= "Additional delay between measurem	ents of	
	a measurement sequence"		
END_OBJECT	= COLUMN		

## 4.3.2.4.1.2.2 CASSE Sequence Parameters definition for burst mode (level 2, FM3) The sequence parameters are described by a TABLE object.

OBJECT	= SEQ_PARAM_TABLE
NAME	= "SEQ_PARAM"
INTERCHANGE_FOR	MAT = ASCII
ROWS	= 12
COLUMNS	= 22
ROW_BYTES	= 189
^STRUCTURE	= "SEQ_PARAM_BURST2_FM3.FMT"
END_OBJECT	= SEQ_PARAM_TABLE

## The structure of the Sequence parameters TABLE object is defined in the file SEQ\_PARAM\_BURST2\_FM3.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "MEAS_ID"
DATA_TYPE	= ASCII_INTEGER

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START_BYTE= 8BYTES= 6FORMAT= "I6"UNIT= "N/A"DESCRIPTION= "Measurement index, i.e. the number of the measurement in the file. Starts from 1."END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNNAME= "UTC"DATA_TYPE= TIME START_BYTESTART_BYTE= 15BYTES= 23DESCRIPTION= "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)"END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNDATA_TYPE= ASCII_INTEGER START_BYTESTART_BYTE= 39BYTES= 15FORMAT= "I15"DESCRIPTION= "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.ss)" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.ss)" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
Starts from 1."END_OBJECT= COLUMNOBJECT= COLUMNNAME= "UTC"DATA_TYPE= TIMESTART_BYTE= 15BYTES= 23DESCRIPTION= "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "SESAME_LOCAL_TIME"DATA_TYPE= ASCII_INTEGERSTART_BYTE= 39BYTES= 15FORMAT= "I15"DESCRIPTION= "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
<pre>END_OBJECT = COLUMN OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits</pre>	
<pre>END_OBJECT = COLUMN OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits</pre>	
<pre>- OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits</pre>	
<pre>NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits</pre>	
DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
START_BYTE= 15BYTES= 23DESCRIPTION= "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "SESAME_LOCAL_TIME" DATA_TYPEDATA_TYPE= ASCII_INTEGERSTART_BYTE= 39BYTES= 15FORMAT= "I15" DESCRIPTIONDESCRIPTION= "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
format YYYY-MM-DDThh:mm:ss.sss)"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "SESAME_LOCAL_TIME"DATA_TYPE= ASCII_INTEGERSTART_BYTE= 39BYTES= 15FORMAT= "I15"DESCRIPTION= "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
BYTES = 15 FORMAT = "I15" DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
(SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	
(SLT) runs with a resolution of 1/32 seconds SLT represents the least significant 32 bits	3
	3.
	3 of
LOBT. The most significant 5 bits are in	
CDMS RSST (see SESAME Ready Message)"	
END OBJECT = COLUMN	
-	
OBJECT = COLUMN	
NAME = "FREQUENCY_DIVIDER"	
DATA TYPE = ASCII INTEGER	
START BYTE = 55	
BYTES = 3	
FORMAT = "I3"	
UNIT = $"N/A"$	
DESCRIPTION = "Value of transmitter frequency control regi	ster"
END_OBJECT = COLUMN	
OBJECT = COLUMN	
NAME = "FREQUENCY_INCREMENT"	
DATA_TYPE = ASCII_INTEGER	
START_BYTE = 59	
BYTES = 5	
FORMAT = "I5"	
UNIT = $"N/A"$	
DESCRIPTION = "Value of sampling rate control registers"	
END_OBJECT = COLUMN	
OBJECT = COLUMN	
NAME = "CHANNELS"	

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START_BYTE BYTES FORMAT UNIT	= 3
END_OBJECT	
START_BYTE BYTES FORMAT	= 5 = "I5"
	<pre>= "N/A" = "Value of amplifier gain control register" = COLUMN</pre>
OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT	<pre>= COLUMN = "POWER_SETTING" = CHARACTER = 76 = 8</pre>
	= COLUMN = "TIME_BURST_ON" = ASCII_INTEGER
FORMAT UNIT DESCRIPTION END OBJECT	<pre>= "I10" = "N/A" = "SESAME High Resolution Time at start of recording with a resolution of 1/1024 s" = COLUMN</pre>
- OBJECT NAME	= COLUMN = "TIME_BURST_OFF" = ASCII_INTEGER

#### **SESAME SESAME EAICD** CASSE • DIM • PP = "I10" FORMAT DESCRIPTION = "SESAME High Resolution Time when recording with a resolution of 1/1024 s" END OBJECT = COLUMN OBJECT = COLUMN = "FIFO BURST OFF" NAME DATA\_TYPE = CHARACTER START\_BYTE = 109 BYTES = 8 = "N/A" FORMAT = "A8" DESCRIPTION = "FIFO address of the final sample after recording stored." UNIT END OBJECT = COLUMN OBJECT = COLUMN = "FIFO\_FIRST\_DAT" NAME DATA TYPE = CHARACTER START\_BYTE = 120 = 8 BYTES = "N/A" UNIT FORMAT = "A8" DESCRIPTION = "FIFO address of the first sample included in telemetry (hex value)" = COLUMN END OBJECT OBJECT = COLUMN = "NSAMP" NAME = ASCII\_INTEGER DATA TYPE START BYTE = 130 BYTES = 10 = "I10" = "N/A" FORMAT UNIT DESCRIPTION = "Number of samples per channel in telemetry" END OBJECT = COLUMN OBJECT = COLUMN NAME = "TEMP FOOT-Y TRM" DATA\_TYPE = ASCII INTEGER START BYTE = 141 = 5 BYTES = "I5" FORMAT UNIT = "MILLIVOLT" MISSING\_CONSTANT = 99999 DESCRIPTION = "-Y Foot TRM temperature before measurement" END OBJECT = COLUMN OBJECT = COLUMN = "TEMP FOOT-Y ACC" NAME = ASCII\_INTEGER = 147 DATA TYPE START BYTE BYTES = 5

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FORMAT	= "15"
	= "MILLIVOLT"
MISSING_CONSTANT	
DESCRIPTION	= "-Y Foot ACC temperature before measurement"
END OBJECT	<pre>= "-Y_Foot ACC temperature before measurement" = COLUMN</pre>
-	
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+X_TRM"
	= ASCII_INTEGER
START_BYTE	
BYTES	= 5
FORMAT	= "15"
UNIT	= "MILLIVOLT"
MISSING CONSTANT	= 99999
DESCRIPTION	= "+X_Foot TRM temperature before measurement"
END_OBJECT	<pre>= "+X_Foot TRM temperature before measurement" = COLUMN</pre>
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+X_ACC"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	
BYTES	
FORMAT	= "15"
UNIT	= "MILLIVOLT"
MISSING_CONSTANT	= 99999
DESCRIPTION	<pre>= "+X_Foot ACC temperature before measurement"</pre>
END_OBJECT	<pre>= "+X_Foot ACC temperature before measurement" = COLUMN</pre>
	= COLUMN
	= "TEMP_FOOT+Y_TRM"
	= ASCII_INTEGER
START_BYTE	
BYTES	
FORMAT	= "15"
	= "MILLIVOLT"
MISSING_CONSTANT	
	= "+Y_Foot TRM temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	- COLUMN
	= COLUMN = "TEMP_FOOT+Y_ACC"
	= ASCII_INTEGER
START_BYTE	
BYTES	
FORMAT	
UNIT	
MISSING_CONSTANT	
	= "+Y_Foot ACC temperature before measurement"
END OBJECT	
_	
OBJECT	= COLUMN
NAME	= "CASSE_PCB_TEMP"
DATA_TYPE	
—	-

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START_BYTE	= 177
BYTES	= 5
FORMAT	= "I5"
UNIT	= "MILLIVOLT"
MISSING_CONSTANT	= 99999
DESCRIPTION	= "CASSE PCB temperature"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RADFET_VOLTAGE"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 183
BYTES	= 5
FORMAT	= "15"
UNIT	= "MILLIVOLT"
MISSING_CONSTANT	= 99999
DESCRIPTION	= "RadFET voltage (0.002 V/mV)"
END_OBJECT	= COLUMN

4.3.2.4.1.2.3 CASSE Sequence Parameters definition for trigger mode The sequence parameters are described by a TABLE object.

OBJECT =	= SEQ_PARAM_TABLE
NAME	= "SEQ_PARAM"
INTERCHANGE_FORMA	F = ASCII
ROWS	= 7
COLUMNS	= 25
ROW_BYTES	= 220
^STRUCTURE	= "SEQ_PARAM_TRIG2_FM3.FMT"
END_OBJECT	= SEQ_PARAM_TABLE

The structure of the Sequence parameters TABLE object is defined in the file SEQ\_PARAM\_TRIG2\_FM3.FMT.

OBJECT	= COLUMN
NAME	= "SESAME SEQ ID"
NAME	
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "MEAS_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 8
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
DESCRIPTION	= "Measurement index, i.e. the number



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	of the measurement in the file.
	Starts from 1."
END_OBJECT = COLUM	IN
OBJECT	= COLUMN
NAME	= "UTC"
DATA TYPE	= TIME
	= 15
_ BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT = COLUM	IN
OBJECT	= COLUMN
	= "SESAME LOCAL TIME"
	= ASCII INTEGER
START BYTE	= 39
BYTES	= 15
FORMAT	
	= "Start time of measurement. SESAME local time
22001111101	(SLT) runs with a resolution of 1/32 seconds.
	SLT represents the least significant 32 bits of
	LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END OBJECT	= COLUMN
	002000
OBJECT	= COLUMN
NAME	= "FREQUENCY DIVIDER"
DATA TYPE	= ASCII INTEGER
START BYTE	= 55
_ BYTES	= 3
FORMAT	= "I3"
UNIT	= "N/A"
DESCRIPTION	= "Value of transmitter frequency control register"
END OBJECT	= COLUMN
—	
OBJECT	= COLUMN
NAME	= "FREQUENCY_INCREMENT"
DATA TYPE	= ASCII INTEGER
START_BYTE	= 59
	= 5
	= "I5"
UNIT	= "N/A"
	= "Value of sampling rate control registers"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CHANNELS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 65
BYTES	= 3
FORMAT	= "I3"
UNIT	= "N/A"

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word (sensor lookup table length and		
= COLUMN		
= COLUMN		
= "AGC"		
= ASCII_INTEGER		
= 69		
= 5		
= "I5"		
= "N/A"		
= "Value of amplifier gain control regi	ster"	
= COLUMN		
= COLUMN		
= "POWER_SETTING"		
= CHARACTER		
= 76		
= 8		
= "A8"		
= "N/A"		
= "Power register setting / mode (hex w	value):	
Bits 4 to 7 = 0: power set during mean initialization	asurement	
—		
		(s)
which triggered (hex value as 16#xxxx = COLUMN	s#)"	
= COLUMN		
= "TIME_BURST_ON"		
= ASCII_INTEGER		
= 95		
= 10		
= "N/A"		
= "I10"		
	c of record	ing
with a resolution of 1/1024 s" = COLUMN		
	<pre>= "Number of sensor channels, derived f word (sensor lookup table length and register)" = COLUMN = "AGC" = ASCII_INTEGER = 69 = 5 = "I5" = "N/A" = "Value of amplifier gain control register = COLUMN = COLUMN = COLUMN = COLUMN = "POWER_SETTING" = CHARACTER = 76 = 8 = "A8" = "N/A" = "Power register setting / mode (hex v Bits 0 to 3: value of power control r Bits 4 to 7 = 0: power set during meat initialization Bits 4 to 7 = 1: power set by previous CAS_PWRSW command" = COLUMN = COLUMN = COLUMN = "TRIGGER_STATUS" = ASCII_INTEGER = 86 = 8 = "I8" = "N/A" = 16#FFFF# = "Trigger status register indicating to which triggered (hex value as 16#xxxx = COLUMN = COLUMN = COLUMN = COLUMN = COLUMN = COLUMN = TIME_BURST_ON" = ASCII_INTEGER = 95 = 10 = "N/A" = "I10" = "SESAME High Resolution Time at start with a resolution of 1/1024 s"</pre>	<pre>SESAME EAICD Page = "Number of sensor channels, derived from SLTLA word (sensor lookup table length and address register)" = COLUMN = COLUMN = COLUMN = 'AGC" = ASCII_INTEGER = 69 = 5 = "I5" = "N/A" = "Value of amplifier gain control register" = COLUMN = COLUMN = COLUMN = 'POWER_SETTING" = CHARACTER = 76 = 8 = "A8" = "N/A" = "Power register setting / mode (hex value): Bits 0 to 3; value of power control register Bits 4 to 7 = 0: power set during measurement initialization Bits 4 to 7 = 1: power set by previous CAS_PWRSW command" = COLUMN = COLUMN = 'TAREGER_STATUS" = ASCII_INTEGER = 86 = 8 = "I8" = "N/A" = "Trigger status register indicating the channel which triggered (hex value as 16#xxx#)" = COLUMN = COLUMN = 'TIME_BURST_ON" = ASCII_INTEGER = 95 = 10 = "N/A". = "I10" = "SESAME High Resolution Time at start of record with a resolution of 1/1024 s"</pre>

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OBJECT	= COLUMN
NAME	= "TIME_TRIGGER"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 106
BYTES	= 10
FORMAT	= "I10"
UNIT	= "N/A"
DESCRIPTION	= "SESAME High Resolution Time when trigger
	occurred with a resolution of 1/1024 s"
END OBJECT	= COLUMN
-	
OBJECT	= COLUMN
NAME	= "TIME_BURST_OFF"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 117
BYTES	= 10
UNIT	= "N/A"
FORMAT	= "I10"
DESCRIPTION	= "SESAME High Resolution Time when recording
	with a resolution of 1/1024 s"
END OBJECT	= COLUMN
-	
OBJECT	= COLUMN
NAME	= "FIFO_TRIGGER"
	= CHARACTER
	= 129
_ BYTES	= 8
	= "A8"
	= "FIFO RAM address when trigger occurred
	(hex value, 4 bytes)"
END OBJECT	= COLUMN
-	
OBJECT	= COLUMN
NAME	= "FIFO_BURST_OFF"
DATA_TYPE	= CHARACTER
START_BYTE	= 140
	= 8
UNIT	= "N/A"
FORMAT	= "A8"
DESCRIPTION	= "FIFO RAM address when recording stopped
	(hex value, 4 bytes)"
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "FIFO_FIRST_DAT"
DATA_TYPE	= CHARACTER
START_BYTE	= 151
BYTES	
UNIT	= "N/A"
FORMAT	= "A8"
	= "FIFO RAM address of very first channel
	data (hex value, 4 bytes)"
END_OBJECT	= COLUMN
—	

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	= COLUMN
NAME	
DATA_TYPE	
START_BYTE	= 161
BYTES	= 10
FORMAT	= "I10"
UNIT	= "N/A"
DESCRIPTION	= "Number of samples per channel in telemetry"
	= COLUMN
OBJECT	= COLUMN
	= "TEMP FOOT-Y TRM"
DATA_TYPE	
START_BYTE	
	= 5
FORMAT	
UNIT	= "MILLIVOLT"
MISSING_CONSTANT	
DESCRIPTION	= "-Y_Foot TRM temperature before measurement"
	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT-Y_ACC"
DATA TYPE	
START_BYTE	—
BYTES	
FORMAT	
UNIT	
MISSING_CONSTANT	
	= "-Y_Foot ACC temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+X_TRM"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 184
BYTES	= 5
FORMAT	= "I5"
UNIT	= "MILLIVOLT"
MISSING_CONSTANT	
	= "+X Foot TRM temperature before measurement"
END OBJECT	—
END_OBOLCI	
	- COLIMNI
	= COLUMN
	= "TEMP_FOOT+X_ACC"
DATA_TYPE	
START_BYTE	
BYTES	
FORMAT	
UNIT	= "MILLIVOLT"
MISSING_CONSTANT	= 99999
DESCRIPTION	= "+X_Foot ACC temperature before measurement"
	-

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END	OBJECT	=	COLUMN
OBJE	CT	=	COLUMN
	NAME	=	"TEMP_FOOT+Y_TRM"
	DATA_TYPE		
	_ START_BYTE		
	BYTES		
	FORMAT		
	UNIT		
	MISSING CONSTANT		
	—		"+Y_Foot TRM temperature before measurement"
	OBJECT		
OBJE	CT	=	COLUMN
			"TEMP_FOOT+Y_ACC"
	DATA_TYPE		
	_ START_BYTE		
	BYTES		
	FORMAT		
	UNIT		
	MISSING CONSTANT		
	—		"+Y_Foot ACC temperature before measurement"
	OBJECT		
OBJE	СТ	=	COLUMN
	NAME	=	"CASSE_PCB_TEMP"
	DATA_TYPE	=	ASCII_INTEGER
	START_BYTE	=	208
	BYTES		
	FORMAT	=	"I5"
	UNIT	=	"MILLIVOLT"
	MISSING_CONSTANT	=	99999
			"CASSE PCB temperature"
	OBJECT		
OBJE	CT	=	COLUMN
	NAME	=	"RADFET_VOLTAGE"
	DATA_TYPE	=	ASCII_INTEGER
	START_BYTE	=	214
	BYTES	=	5
	FORMAT	=	"15"
	UNIT	=	"MILLIVOLT"
	MISSING_CONSTANT	=	99999
			"RadFET voltage (0.002 V/mV)"
END_	OBJECT	=	COLUMN

#### 4.3.2.4.1.2.4 CASSE Data definition

The data produced in sounding or listening modes are described by the following TABLE object.

OBJECT	= DATA_TABLE
NAME	= "DATA"
INTERCHANGE_FORMAT	= ASCII
ROWS	= 16438



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COLUMNS ROW\_BYTES ^STRUCTURE END\_OBJECT

= 26 = 231 = "DATA2.FMT" = DATA\_TABLE

#### The structure of the measured data TABLE object is defined in the file DATA2.FMT-

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "MEAS_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 8
BYTES	= 6
FORMAT	= "I6"
	= "N/A"
DESCRIPTION	= "Measurement ID in the current sequence"
END_OBJECT	= COLUMN
	= COLUMN
	= "RELATIVE_TIME_1"
DATA_TYPE	—
-	= 15
	= 10
	= "MILLISECOND"
FORMAT	
MISSING_CONSTANT	
DESCRIPTION	= "Channel 1 time relative to
	start time of the measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CHANNEL 1"
DATA TYPE	—
START BYTE	—
—	= 6
FORMAT	= "I6"
UNIT	= "N/A"
MISSING_CONSTANT	
—	= "Channel data :
	linear ADC units for regular (non-stacked)
	nnel data block
	arized stacked ADC units for stacked channel
	a block
	de (stacked or regular) is given in the

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job card file (JOBC)" = COLUMN END OBJECT OBJECT = COLUMN = "RELATIVE TIME 2" NAME DATA TYPE = ASCII REAL START BYTE = 33 = 10 BYTES UNIT = "MILLISECOND" = "F10.3" FORMAT MISSING CONSTANT = 99999.999 DESCRIPTION = "Channel 2 time relative to start time of the measurement" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CHANNEL 2" DATA TYPE = ASCII\_INTEGER START BYTE = 44 BYTES = 6 FORMAT = "I6" = "N/A" UNIT MISSING CONSTANT = 999999 DESCRIPTION = "Channel data : - non-linear ADC units for regular (non-stacked) channel data block - linearized stacked ADC units for stacked channel data block The mode (stacked or regular) is given in the job card file (JOBC)" = COLUMN END OBJECT OBJECT = COLUMN NAME = "RELATIVE TIME 3" DATA TYPE = ASCII REAL START BYTE = 51 BYTES = 10 UNIT = "MILLISECOND" = "F10.3" FORMAT MISSING CONSTANT = 99999.999 DESCRIPTION = "Channel 3 time relative to start time of the measurement" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 3" NAME = ASCII\_INTEGER DATA TYPE START BYTE = 62 BYTES = 6 = "I6" FORMAT UNIT = "N/A" MISSING\_CONSTANT = 999999 DESCRIPTION = "Channel data :

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- non-	linear ADC units for regular (non-stacked)
cha	nnel data block
- line	arized stacked ADC units for stacked channel
dat	a block
The mo	de (stacked or regular) is given in the
job ca	rd file (JOBC)"
END_OBJECT	= COLUMN
	= COLUMN
	= "RELATIVE_TIME_4"
DATA_TYPE	—
START_BYTE	
	= 10
	= "MILLISECOND"
FORMAT	
MISSING_CONSTANT	
DESCRIPTION	= "Channel 4 time relative to
	start time of the measurement"
END_OBJECT	= COLUMN
	= COLUMN
	= "CHANNEL_4"
DATA_TYPE	—
START_BYTE	
BYTES	
FORMAT	
	= "N/A"
MISSING_CONSTANT	
	= "Channel data :
	linear ADC units for regular (non-stacked) nnel data block
	arized stacked ADC units for stacked channel
	a block
	de (stacked or regular) is given in the
	rd file (JOBC)"
END OBJECT	= COLUMN
END_ODOLCI	
OBJECT	= COLUMN
	= "RELATIVE_TIME_5"
DATA TYPE	
START BYTE	—
—	= 10
	= "MILLISECOND"
FORMAT	
MISSING CONSTANT	
—	= "Channel 5 time relative to
	start time of the measurement"
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "CHANNEL_5"
	= ASCII_INTEGER
- START BYTE	—
—	

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BYTES = 6 = "I6" FORMAT UNIT = "N/A" MISSING CONSTANT = 999999 DESCRIPTION = "Channel data : - non-linear ADC units for regular (non-stacked) channel data block - linearized stacked ADC units for stacked channel data block The mode (stacked or regular) is given in the job card file (JOBC)" END OBJECT = COLUMN OBJECT = COLUMN NAME = "RELATIVE TIME 6" DATA TYPE = ASCII REAL START BYTE = 105 BYTES = 10 UNIT = "MILLISECOND" = "F10.3" FORMAT MISSING\_CONSTANT = 99999.999 DESCRIPTION = "Channel 6 time relative to start time of the measurement" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 6" NAME DATA\_TYPE = ASCII\_INTEGER START BYTE = 116 BYTES = 6 FORMAT = "I6" UNIT = "N/A" MISSING CONSTANT = 999999 DESCRIPTION = "Channel data : - non-linear ADC units for regular (non-stacked) channel data block - linearized stacked ADC units for stacked channel data block The mode (stacked or regular) is given in the job card file (JOBC)" END OBJECT = COLUMN OBJECT = COLUMN = "RELATIVE TIME 7" NAME DATA TYPE = ASCII REAL START BYTE = 123 BYTES = 10 = "MILLISECOND" UNIT = "F10.3" FORMAT MISSING\_CONSTANT = 99999.999 DESCRIPTION = "Channel 7 time relative to start time of the measurement" END OBJECT = COLUMN

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OBJECT		COLUMN
NAME		"CHANNEL_7"
		ASCII_INTEGER
START_BYTE		
BYTES	=	
FORMAT	=	"16"
UNIT	=	"N/A"
MISSING_CO	ISTANT =	999999
DESCRIPTION	1 =	"Channel data :
	- non-li	near ADC units for regular (non-stacked)
	chann	el data block
	- linear	ized stacked ADC units for stacked channel
	data	block
	The mode	(stacked or regular) is given in the
	job card	file (JOBC)"
END OBJECT	=	COLUMN
_		
OBJECT	=	COLUMN
NAME	=	"RELATIVE_TIME_8"
		ASCII_REAL
BYTES		
		"MILLISECOND"
FORMAT		
MISSING_CO		
DESCRIPTION	· –	"Channel 8 time relative to start time of the measurement"
END OD TECH	=	
END_OBJECT	-	COLOMN
OBJECT	=	COLUMN
NAME		"CHANNEL 8"
		ASCII INTEGER
START_BYTE		—
	_	
BYTES		"16"
FORMAT		
UNIT		"N/A"
MISSING_CO		
DESCRIPTIO		"Channel data :
		near ADC units for regular (non-stacked)
		el data block
		ized stacked ADC units for stacked channel
	data	
		(stacked or regular) is given in the
	job card	file (JOBC)"
END_OBJECT	=	COLUMN
OBJECT		COLUMN
NAME		"RELATIVE_TIME_9"
DATA_TYPE		ASCII_REAL
START_BYTE	=	159
BYTES	=	10
UNIT	=	"MILLISECOND"

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= "F10.3" FORMAT MISSING CONSTANT = 99999.999 DESCRIPTION = "Channel 9 time relative to start time of the measurement" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 9" NAME DATA TYPE = ASCII INTEGER START\_BYTE = 170BYTES = 6 = "I6" FORMAT UNIT = "N/A" MISSING CONSTANT = 999999 DESCRIPTION = "Channel data : - non-linear ADC units for regular (non-stacked) channel data block - linearized stacked ADC units for stacked channel data block The mode (stacked or regular) is given in the job card file (JOBC)" = COLUMN END OBJECT OBJECT = COLUMN NAME = "RELATIVE TIME 10" DATA\_TYPE = ASCII REAL START\_BYTE = 177 BYTES = 10 UNIT = "MILLISECOND" FORMAT = "F10.3" MISSING CONSTANT = 99999.999 DESCRIPTION = "Channel 10 time relative to start time of the measurement" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 10" NAME DATA TYPE = ASCII\_INTEGER START BYTE = 188 BYTES = 6 FORMAT = "I6" = "N/A" UNIT MISSING CONSTANT = 999999 DESCRIPTION = "Channel data : - non-linear ADC units for regular (non-stacked) channel data block - linearized stacked ADC units for stacked channel data block The mode (stacked or regular) is given in the job card file (JOBC)" END OBJECT = COLUMN OBJECT = COLUMN

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NAME	= "RELATIVE TIME 11"
DATA TYPE	
START BYTE	—
—	= 10
UNIT	= "MILLISECOND"
FORMAT	= "F10.3"
MISSING_CONSTANT	
	= "Channel 11 time relative to
	start time of the measurement"
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "CHANNEL_11"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 206
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
MISSING_CONSTANT	
	= "Channel data :
- non-	linear ADC units for regular (non-stacked)
	nnel data block
- line	arized stacked ADC units for stacked channel
	a block
	de (stacked or regular) is given in the
	rd file (JOBC)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "RELATIVE TIME 12"
DATA TYPE	
START BYTE	—
—	= 10
-	= "MILLISECOND"
FORMAT	= "F10.3"
MISSING_CONSTANT	
—	= "Channel 12 time relative to
	start time of the measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CHANNEL_12"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 224
BYTES	= 6
FORMAT	= "I6"
	= "N/A"
MISSING_CONSTANT	
	= "Channel data :
- non-	
	linear ADC units for regular (non-stacked)
cha	nnel data block
cha - line	



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The mode (stacked or regular) is given in the job card file (JOBC)" = COLUMN

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END OBJECT

#### 4.3.2.4.2 DIM object definitions

The structures of DIM measurements differ according to flight software versions. The details concerning the telemetry formats can be found in [AD1] for flight software version 1 (FM1), in [AD2] for flight software version 2 (FM2) and in [AD3] for flight software version 3 (FM3). The FM2 software was uploaded on 2007-09-24 at 19h40 UTC (during Payload Checkout #6). The FM3 software was uploaded on 2009-09-24 at 02h00 UTC (during PC#10).

#### 4.3.2.4.2.1 Flight software versions FM1 and FM2

#### 4.3.2.4.2.1.1 DIM Health Check object definition

The DIM Health Check (HC) data are organized as tables corresponding to different modes: "calibration", "noise test", "power check" and "sensor test".

#### 4.3.2.4.2.1.1.1 DIM HC Calibration mode

The calibration mode is described by a TABLE object.

OBJECT	= CAL_TABLE
NAME	= "CAL"
INTERCHANGE_FORMA	AT = ASCII
ROWS	= 4
COLUMNS	= 9
ROW_BYTES	= 74
^STRUCTURE	= "DIM_CA.FMT"
END_OBJECT	= CAL_TABLE

#### The structure of the TABLE object is defined in the file DIM\_CA.FMT.

OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 1
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 25
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	<pre>= "Measurement start time. SESAME local time   (SLT) runs with a resolution of 1/32 seconds   SLT represents the least significant 32 bits   of LOBT. The most significant 5 bits are in   CDMS RSST (see SESAME Ready Message)"</pre>
END_OBJECT	= COLUMN

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OBJECT	= COLUMN
NAME	= "MARGIN"
DATA_TYPE	= ASCII INTEGER
_	= 41
—	= 2
FORMAT	= "I2"
UNIT	= "DECIBEL"
MISSING_CONSTANT	
	= "DIM calibration margin"
END OBJECT	
_	
OBJECT	= COLUMN
NAME	= "LEVEL"
DATA_TYPE	= CHARACTER
START_BYTE	
	= 4
FORMAT	= "A4"
UNIT	= "N/A"
MISSING_CONSTANT	= "9999"
	= "DIM calibration level values can be: low or high"
END OBJECT	
-	
OBJECT	= COLUMN
NAME	= "COUNTS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 51
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
MISSING CONSTANT	= 999999
DESCRIPTION	= "DIM calibration timer counts"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "PEAK_MV"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 58
BYTES	= 4
UNIT	= "MILLIVOLT"
FORMAT	= "I4"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Peak voltage in mV"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TIME_DB"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 63
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
MISSING_CONSTANT	= 99
DESCRIPTION	= "Timer counts in compressed format"

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END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "PEAK_DB"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 66
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
MISSING_CONSTANT	= 99
DESCRIPTION	= "Peak voltage in dB"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "ERROR_CODE"
DATA_TYPE	= CHARACTER
START_BYTE	= 70
BYTES	= 2
FORMAT	= "A2"
UNIT	= "N/A"
MISSING CONSTANT	= "99"
DESCRIPTION	= "DIM calibration error code,
	2 hexadecimal characters"
END_OBJECT	= COLUMN

#### 4.3.2.4.2.1.1.2 DIM HC Noise Test mode

The noise test mode is described by the following TABLE object.

JECT	=	NT_TABLE
NAME	=	"NT"
INTERCHANGE_FORMAT	=	ASCII
ROWS	=	2
COLUMNS	=	4
ROW_BYTES	=	49
^STRUCTURE	=	"DIM_NT.FMT"
D_OBJECT	=	NT_TABLE
	NAME INTERCHANGE_FORMAT ROWS COLUMNS ROW_BYTES ^STRUCTURE	NAME = INTERCHANGE_FORMAT = ROWS = COLUMNS = ROW_BYTES = ^STRUCTURE =

The structure of the "Noise Test" TABLE object is defined in the file DIM\_NT.FMT.

OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 1
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 25

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BYTES	= 15		
FORMAT	= "I15"		
DESCRIPTION	<pre>= "Measurement start time. SESAM (SLT) runs with a resolution SLT represents the least sign of LOBT. The most significant CDMS RSST (see SESAME Ready M</pre>	of 1/32 see nificant 32 t 5 bits are	conds. bits
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "MARGIN"		
DATA_TYPE	= ASCII_INTEGER		
START_BYTE	= 41		
BYTES	= 2		
FORMAT	= "12"		
UNIT	= "DECIBEL"		
MISSING_CONSTANT	= 99		
DESCRIPTION	= "Noise test margin"		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "ERROR_CODE"		
DATA_TYPE	= CHARACTER		
START_BYTE	= 45		
BYTES	= 2		
FORMAT	= "A2"		
UNIT	= "N/A"		
MISSING_CONSTANT	= "99"		
DESCRIPTION	= "DIM NT error code, 2 hexaded	cimal chara	cters"
END_OBJECT	= COLUMN		

#### 4.3.2.4.2.1.1.3 DIM HC Power Check mode

The data produced in power check mode are described by the following TABLE object.

OBJECT	= PC_TABLE
NAME	= "PC"
INTERCHANGE_FORMA	r = Ascii
ROWS	= 2
COLUMNS	= 5
ROW_BYTES	= 64
^STRUCTURE	= "DIM_PC.FMT"
END_OBJECT	= PC_TABLE

The structure of the power check TABLE object is defined in the file DIM\_PC.FMT.

OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 1
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"

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END_OBJECT	= COLUMN	
OBJECT	= COLUMN	
NAME	= "SESAME LOCAL TIME"	
DATA TYPE	= ASCII INTEGER	
START_BYTE	= 25	
BYTES	= 15	
FORMAT	= "I15"	
DESCRIPTION	<pre>= "Measurement start time. SESAME local time  (SLT) runs with a resolution of 1/32 second:   SLT represents the least significant 32 bits   of LOBT. The most significant 5 bits are in   CDMS RSST (see SESAME Ready Message)"</pre>	s
END_OBJECT	= COLUMN	
OBJECT	= COLUMN	
NAME	= "+5V"	
-	= ASCII_REAL	
START_BYTE	= 41	
BYTES	= 8	
FORMAT	= "F8.3"	
UNIT	= VOLT	
MISSING_CONSTANT	= 9999.999	
DESCRIPTION	= "DIM +5V voltage"	
END OBJECT	= COLUMN	
_		
OBJECT	= COLUMN	
NAME	= "-5V"	
DATA TYPE	= ASCII REAL	
START BYTE	= 50	
BYTES	= 8	
-	= "F8.3"	
UNIT	= VOLT	
MISSING_CONSTANT	= 9999.999	
DESCRIPTION	= "DIM -5V voltage"	
END_OBJECT = COLUMN		
	0011001	
OBJECT	= COLUMN	
NAME	= "ERROR_CODE"	
DATA_TYPE	= CHARACTER	
START_BYTE	= 60	
BYTES	= 2	
FORMAT	= "A2"	
UNIT	= "N/A"	
MISSING_CONSTANT	= "99"	
DESCRIPTION	= "DIM PC error code, 2 hexadecimal characters	"
END_OBJECT	= COLUMN	

#### 4.3.2.4.2.1.1.4 DIM HC Sensor Test mode

Data acquired during sensor tests (X segment, Y segment and Z segment) are stored in ASCII tables with a common format. The segment name (X, Y or Z) appears in the label name.

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The data produced in sensor test modes are described by the following TABLE object.

OBJECT	= ST_TABLE
NAME	= "ST"
INTERCHANGE_F	'ORMAT = ASCII
ROWS	= 2
COLUMNS	= 11
ROW_BYTES	= 79
^STRUCTURE	= "DIM_ST.FMT"
END_OBJECT	= ST_TABLE

The structure (format) of the "sensor test mode" TABLE object is defined in the file DIM\_ST.FMT.

OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 1
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 25
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	= "Measurement start time. SESAME local time
	(SLT) runs with a resolution of $1/32$ seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "DIRECTION"
	= CHARACTER
DATA_TYPE	= 42
START_BYTE	
BYTES	= 1
FORMAT	= "A1"
UNIT	= "N/A"
MISSING_CONSTANT	= "9"
DESCRIPTION	<pre>= "DIM sensor direction, can be X, Y or Z. Echoed command parameter."</pre>
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "MARGIN"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 45
BYTES	= 2
FORMAT	= "12"

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UNIT	= "DECIBEL"
MISSING CONSTANT	= 99
—	= "DIM noise test margin"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "ERROR_CODE"
DATA_TYPE	= CHARACTER
START_BYTE	= 49
BYTES	= 2
FORMAT	= "A2"
UNIT	= "N/A"
MISSING_CONSTANT	= "99"
DESCRIPTION	= "DIM sensor test error code,
	2 hexadecimal characters"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "AVG_MV"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 53
BYTES	= 4
FORMAT	= "I4"
UNIT	= "MILLIVOLT"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "DIM Average signal in mV"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "PEAK MV"
DATA TYPE	= ASCII INTEGER
	= 58
BYTES	= 4
FORMAT	= "I4"
UNIT	= "MILLIVOLT"
MISSING CONSTANT	= 9999
DESCRIPTION	= "DIM Signal Peak voltage in mV"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "COUNTS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 63
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
MISSING_CONSTANT	= 999999
DESCRIPTION	= "DIM Timer counts"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "AVG DB"
DATA TYPE	= AVG_DB = ASCII_INTEGER
DATA_TTED	VOCIT_INIEGEN

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START_BYTE	= 70
BYTES	= 2
FORMAT	= "I2"
UNIT	= "DECIBEL"
MISSING_CONSTANT	= 99
DESCRIPTION	= "DIM Average signal in dB"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "PEAK DB"
DATA TYPE	= ASCII INTEGER
START_BYTE	= 73
BYTES	= 2
FORMAT	= "I2"
UNIT	= "DECIBEL"
MISSING CONSTANT	= 99
DESCRIPTION	
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TIME DB"
DATA_TYPE	= ASCII INTEGER
	= 76
BYTES	= 2
FORMAT	= "I2"
UNIT	= "DECIBEL"
MISSING_CONSTANT	= 99
DESCRIPTION	= "DIM impact time in compressed format"
END_OBJECT	= COLUMN

#### 4.3.2.4.2.1.2 DIM Average Test mode

During Average Test mode, average values of the signals for one sensor direction are taken at regular time intervals are stored in ASCII tables. The data are organized as ASCII tables. The measurement parameters are kept in a separate file (combined detached labels).

The measurement parameters in average test modes are described by the following TABLE object.

OBJECT	=	DIM_AV_TEST_PAR_TABLE
NAME	=	"DIM_AV_TEST_PAR"
INTERCHANGE_FORMAT	=	ASCII
ROWS	=	22
COLUMNS	=	11
ROW_BYTES	=	103
^STRUCTURE	=	"DIM_AVT_PAR.FMT"
END_OBJECT	=	DIM_AV_TEST_PAR_TABLE

The structure of the "average test mode" TABLE object is defined in the file DIM\_AVT\_PAR.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6

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= "I6" FORMAT = "N/A" UNIT DESCRIPTION = "Sequence ID in the current data file" OBJECT = COLUMN END OBJECT = COLUMN OBJECT = COLUMN = "UTC" NAME DATA\_TYPE = TIME START BYTE = 8 = 23 BYTES DESCRIPTION = "This column represents the UTC Time for start of measurement" END OBJECT = COLUMN OBJECT = COLUMN = "SESAME LOCAL TIME" NAME DATA\_TYPE = CHARACTER START BYTE = 33 BYTES = 15 = "A15" FORMAT UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END OBJECT = COLUMN OBJECT = COLUMN NAME = "DIRECTION" DATA\_TYPE = CHA START\_BYTE = 51 = CHARACTER = 1 BYTES UNIT = "N/A" FORMAT = "A1" DESCRIPTION = "Direction in DIM coordinate system, X, Y or Z. Echoed command parameter." END OBJECT = COLUMN OBJECT = COLUMN = "ENERGY CTRL" NAME DATA TYPE = CHARACTER START BYTE = 55 BYTES = 2 UNIT = "N/A" FORMAT = "A2" DESCRIPTION = "Energy control, 00, 01 or 02. Echoed command parameter." END OBJECT = COLUMN OBJECT = COLUMN NAME = "MEAS\_DURATION" DATA TYPE = ASCII INTEGER

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START BYTE = 59 STARI\_\_\_\_ BYTES = 5 = "SECOND" FORMAT = "I5" DESCRIPTION = "Measurement duration. Echoed command parameter." END OBJECT = COLUMN OBJECT = COLUMN NAME = "N\_SAMPLES" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 65 STAKI\_\_\_ BYTES = 5 = "N/A" FORMAT = "I5" DESCRIPTION = "Number of samples. " END OBJECT = COLUMN OBJECT = COLUMN NAME = "TIME\_STEP\_ECHOED" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 71 BYTES = 5 = "SECOND" UNIT FORMAT = "I5" DESCRIPTION = "Time step. Echoed parameter." END OBJECT = COLUMN OBJECT = COLUMN NAME = "TIME\_STEP\_USED" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 77 BYTES = 5 = "SECOND" UNIT FORMAT FORMAT = "I5" DESCRIPTION = "Time step really used." END OBJECT = COLUMN

The data produced in average test modes (signal) are described by the following TABLE object.

= DIM\_AV\_TEST\_SIG\_TABLE OBJECT = "DIM AVT SIG" NAME INTERCHANGE FORMAT = ASCII ROWS = COLUMNS = ROW BYTES = ^STRUCTURE = " DIM\_AVT\_SIG.FMT" ND\_OBJECT = DIM\_AV\_TEST\_SIG\_TA END OBJECT = DIM AV TEST SIG TABLE

The structure of the "average test mode" TABLE object is defined in the file DIM\_AVT\_SIG.FMT-

OBJECT = COLUMN NAME = "SESAME SEQ ID"

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DATA TYPE = ASCII INTEGER START BYTE = 1 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Sequence ID in the current data file" END OBJECT = COLUMN OBJECT = COLUMN NAME = "DIM AM TIME" DATA TYPE = ASCII INTEGER START BYTE = 8 BYTES = 4 = "SECOND" UNIT FORMAT = "I4" DESCRIPTION = "Time relative to start time in DIM AV PAR.FMT file" END\_OBJECT = COLUMN OBJECT = COLUMN NAME = "U AV" DATA TYPE = ASCII INTEGER START BYTE = 13 BYTES = 3 = "DECIBEL" UNIT FORMAT = "I3" DESCRIPTION = "Average sample" END OBJECT = COLUMN

#### 4.3.2.4.2.1.3 DIM Average mode

During Average mode, samples of the average signal voltage of one sensor face are taken at specified time intervals. The data are organized as ASCII tables. The measurement parameters are kept in a separate file (combined detached labels).

The measurement parameters in average modes are described by the following TABLE object.

OBJECT	=	DIM_AV_PAR_TABLE
NAME	=	"DIM_AV_PAR"
INTERCHANGE_FORMAT	=	ASCII
ROWS	=	
COLUMNS	=	
ROW_BYTES	=	
^STRUCTURE	=	"DIM_AV_PAR.FMT"
END_OBJECT	=	DIM_AV_PAR_TABLE

The structure of the "average test mode" TABLE object is defined in the file DIM AV PAR.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
FORMAT	= "I6"

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= "N/A" UNTT DESCRIPTION = "Sequence ID in the current data file" END OBJECT = COLUMN = COLUMN OBJECT = "UTC" NAME DATA TYPE = TIME START\_BYTE = 8 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of measurement" END OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME\_LOCAL\_TIME" DATA TYPE = CHARACTER START BYTE = 33 BYTES = 15 FORMAT = "A15" = "N/A" UNIT DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END OBJECT = COLUMN OBJECT = COLUMN NAME = "DIRECTION" DATA\_TYPE = CHARACTER START BYTE = 51 BYTES = 1 UNIT = "N/A" FORMAT = "A1" DESCRIPTION = "Direction in DIM coordinate system, X, Y or Z. Echoed command parameter." END OBJECT = COLUMN = COLUMN OBJECT NAME = "ENERGY\_CTRL" DATA\_TYPE = CHARACTER START BYTE = 55 BYTES = 2 = "N/A" UNIT FORMAT = "A2" DESCRIPTION = "Energy control, 00, 01 or 02. Echoed command parameter." END OBJECT = COLUMN = COLUMN OBJECT NAME = "MEAS DURATION" DATA TYPE = ASCII\_INTEGER START BYTE = 59

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= 5 BYTES = "SECOND" = "I5" UNIT FORMAT DESCRIPTION = "Measurement duration. Echoed command parameter." END OBJECT = COLUMN OBJECT = COLUMN NAME = "N\_SAMPLES" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 65 BYTES = 5 UNIT = "N/A" FORMAT = "15" DESCRIPTION = "Number of samples. " END OBJECT = COLUMN OBJECT NAME = COLUMN = "TIME STEP ECHOED" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 71 BYTES = 5 UNIT = "SECOND" FORMAT = "15" DESCRIPTION = "Time step. Echoed parameter." END OBJECT = COLUMN OBJECT = COLUMN NAME = "TIME STEP USED" DATA TYPE = ASCII INTEGER START BYTE = 77 BYTES = 5 UNIT = "SECOND" FORMAT = "15" DESCRIPTION = "Time step really used." END OBJECT = COLUMN

The data produced in average modes (signal) are described by the following TABLE object.

OBJECT = DIM\_AV\_SIG\_TABLE NAME = "DIM\_AV\_SIG" INTERCHANGE\_FORMAT = ASCII ROWS = COLUMNS = ROW\_BYTES = ^STRUCTURE = "DIM\_AV\_SIG.FMT" END\_OBJECT = DIM\_AV\_SIG\_TABLE

The structure of the "average mode" TABLE object is defined in the file DIM\_AV\_SIG.FMT-

OBJECT = COLUMN NAME = "SESAME\_SEQ\_ID" DATA\_TYPE = ASCII\_INTEGER

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```
START BYTE = 1
   BYTES = 6
   FORMAT
             = "I6"
   UNIT = "N/A"
   DESCRIPTION = "Sequence ID in the current data file"
END OBJECT
                 = COLUMN
OBJECT
        = COLUMN
   NAME = "DIM AM TIME"
   DATA TYPE = ASCII INTEGER
   START BYTE = 8
   BYTES = 4
   UNIT
            = "SECOND"
   FORMAT = "I4"
   DESCRIPTION = "Time relative to start time
                     in DIM AV PAR.FMT file"
END OBJECT = COLUMN
OBJECT = COLUMN
   NAME = "U_AV"
   DATA TYPE = ASCII INTEGER
   START BYTE = 13
   BYTES
             = 3
             = "DECIBEL"
   UNIT
   FORMAT = "I3"
   DESCRIPTION = "Average sample"
END OBJECT = COLUMN
```

#### 4.3.2.4.2.1.4 DIM Burst Continuous mode

Single events on one sensor face are registered. Measured values (peak amplitude U and impact time T) are stored on-board in a compressed way. First they are logarithmically scaled to  $1 \le U[dB] \le 90 dB$  and  $10 \le T[dB] \le 70 (10 \le T[dB] \le 90$  for version 1 of Flight Software). The counts for events with a particular (U[db], T[db]) combination are stored in memory cells of different sizes (one word, one byte, one nibble = 4 bit), depending on the expected frequency of such events. The resulting matrix of packed counts has a fixed size of 3585 Byte (independent of the actual number of events). Additionally average samples can be measured.

The DIM BC data are organized as (U,T) tables with dimensions (90,80), 1 to 90 for U and 10 to 90 for T. This corresponds to data produced with flight software version 1. For data obtained with versions 2 and 3 of flight software, the (U,T) table is filled with MISSING\_CONSTANT (defined in DIM\_BC\_BM.FMT). The parameter data (general parameters, average mode parameters and burst mode parameters) associated with the BC measurement are kept in a separate file (combined detached labels).

Example: Burst continuous measurement (1 label file pointing to 3 data files)

SES_FS3_DBC_070929214512.LBL	(label)
SES_FS3_DBC_070929214512_PAR.TAB	(general parameters)
SES_FS3_DBC_070929214512_AM.TAB	(average mode, Uav time series)
SES_FS3_DBC_070929214512_BM.TAB	((U,T) table)

The label contains the Start and Stop times of the measurement as LOBT and UTC.

#### DIM BC, Parameters table definition

The parameters table is the same for Burst Continuous Average mode and Burst mode.

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#### The parameters are described in the following TABLE object.

OBJECT	= BC_PAR_TABLE
NAME	= "BC_PAR"
INTERCHANGE	FORMAT = ASCII
ROWS	= 3
COLUMNS	= 11
ROW_BYTES	= 71
^STRUCTURE	= "DIM_BC_PAR.FMT"
END_OBJECT	= BC_PAR_TABLE

The structure of the TABLE object is defined in the file DIM\_BC\_PAR.FMT.

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/* FILE CONTENTS	= DIM Burst Continuous PAR data */
/*	Flight software FM1, FM2, FM3, CODMAC level 2 */
/* FILE_NAME	= DIM_BC_PAR.FMT */
/* REVISION_NOTE	= H. Krueger, version 1, 2015-08-18 */
/*	A. Hirn, version 2, 2015-11-20 */
OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
MISSING_CONSTANT	= 999999
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 8
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	= "Time at end of measuring period.
	SESAME local time
	(SLT) runs with a resolution of $1/32$ seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "DIRECTION"
DATA_TYPE	= CHARACTER
START BYTE	= 25
BYTES	= 1
FORMAT	= "A1"
UNIT	$= N/A^{"}$
MISSING CONSTANT	= "9"
DESCRIPTION	= "Direction in DIM coordinate system, X, Y or Z.

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	Echoed command parameter."	
END OBJECT	COLUMN	
_		
OBJECT	COLUMN	
NAME	"MARGIN"	
DATA_TYPE	ASCII_INTEGER	
START_BYTE	28	
BYTES	2	
FORMAT	"12"	
UNIT	"DECIBEL"	
MISSING_CONSTANT	99	
DESCRIPTION	"The margin determines the detect	cion
	threshold of the measuring ampli	lfier.
	Echoed command parameter. "	
END_OBJECT	COLUMN	
OBJECT	COLUMN	
NAME	"DECAY_TIME"	
DATA_TYPE	ASCII_INTEGER	
START_BYTE	31	
BYTES	3	
FORMAT	"I3"	
UNIT	"MILLISECOND"	
MISSING_CONSTANT	999	
DESCRIPTION	"Signal decay time.	
	Range from 0 to 255.	
	Echoed command parameter."	
END_OBJECT	COLUMN	
OBJECT	COLUMN	
	"SAMPLING_INTERVAL"	
—	ASCII_INTEGER	
START_BYTE	35	
-	5	
FORMAT	"15"	
UNIT	"SECOND"	
MISSING_CONSTANT	99999	
DESCRIPTION	"Sampling time interval.	
	Echoed command parameter."	
END_OBJECT	COLUMN	
OBJECT	COLUMN	
NAME	"MEAS_TIME"	
DATA_TYPE	ASCII_INTEGER	
START_BYTE	41	
BYTES	5 "I5"	
FORMAT		
UNIT	"SECOND"	
MISSING_CONSTANT	99999	
DESCRIPTION	"Measuring time.	
END OD TECT	Echoed command parameter."	
END_OBJECT	COLUMN	

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OBJECT	= COLUMN
NAME	= "NEVENT"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 47
BYTES	= 5
FORMAT	= "15"
UNIT	= "N/A"
MISSING_CONSTANT	= 99999
DESCRIPTION	= "Number of events detected."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "N_FALSE_EVENTS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 53
BYTES	= 5
FORMAT	= "15"
UNIT	= "N/A"
MISSING_CONSTANT	= 99999
DESCRIPTION	= "Number of false events."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "N_LONG_EVENTS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 59
BYTES	= 5
FORMAT	= "15"
UNIT	= "N/A"
MISSING_CONSTANT	= 99999
DESCRIPTION	= "Number of long events."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "N_AV_SAMPLES"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 65
BYTES	= 5
FORMAT	= "15"
UNIT	= "N/A"
MISSING_CONSTANT	= 99999
DESCRIPTION	= "Number of average samples."
END_OBJECT	= COLUMN

#### DIM BC Average mode data definition

The average mode data are described in the following TABLE object.

OBJECT	= BC_AM_TABLE
NAME	= "BC_AM"
INTERCHANGE	FORMAT = ASCII
ROWS	= 22
COLUMNS	= 3



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ROW\_BYTES ^STRUCTURE END\_OBJECT

= "DIM\_BC\_AM.FMT"

= BC\_AM\_TABLE

= 16

#### The structure of the TABLE object is defined in the file DIM\_BC\_AM.FMT.

OBJECT	= COLUMN
NAME	= "SESAME SEQ ID"
DATA TYPE	= ASCII INTEGER
	= 1
_ BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
MISSING_CONSTANT	= 999999
DESCRIPTION	= "Sequence ID in the current data file"
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 8
BYTES	= 4
FORMAT	= "I4"
UNIT	= "SECOND"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Time relative to start time
	in DIM_BM_PAR.FMT file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "U_AV"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 13
BYTES	= 2
FORMAT	= "I2"
UNIT	= "DECIBEL"
MISSING_CONSTANT	= 99
DESCRIPTION	= "Average sample."
END_OBJECT	= COLUMN

#### DIM BC Burst mode data definition (FM 1)

The burst continuous data are described in the following TABLE object.

OBJECT	= BURST_MODE_TABLE
NAME	= BURST_MODE
INTERCHANGE_FORMAT	= ASCII
ROWS	= 3
COLUMNS	= 66
ROW_BYTES	= 247
^STRUCTURE	= "DIM_BC_BM_FM1.FMT"
END_OBJECT	= BURST_MODE_TABLE

The structure of the TABLE object is defined in the file DIM\_BC\_BM\_FM1.FMT.

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	· · · · · · · · · · · · · · · · · · ·
OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	
START BYTE	—
—	= 6
UNIT	= "N/A"
FORMAT	= "16"
	= "Sequence ID in the current data file"
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "CNT_1"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 8
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 1 dB
	(time in compressed format)"
END OBJECT = COLUMN	
-	
OBJECT	= COLUMN
NAME	= "CNT_2"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 11
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 2 dB
	(time in compressed format)"
END_OBJECT = COLUMN	
OBJECT	= COLUMN
NAME	= "CNT_3"
—	= ASCII_INTEGER
START_BYTE	= 14
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 3 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
	~~~~~
OBJECT	= COLUMN
NAME	= "CNT_4"
DATA_TYPE	= ASCII_INTEGER
—	= 17
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	= "Counts for impact time 4 dB
	(time in compressed format)"
END_OBJECT	= COLUMN

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OBJECT	= COLUMN
NAME	= "CNT_5"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 20
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	<pre>= "Counts for impact time 5 dB   (time in compressed format)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 6"
	= ASCII_INTEGER
—	= 23
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 6 dB
DESCRIPTION	(time in compressed format)"
END OB TECH	= COLUMN
END_OBJECT	
OBJECT	= COLUMN
NAME	= "CNT 7"
	—
DATA_TYPE	= 26
START_BYTE BYTES	= 20
-	_
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	-
END OBJECT = COLUMN	(time in compressed format)"
END_OBJECI - COLOMN	
OBJECT	= COLUMN
NAME	= "CNT 8"
DATA TYPE	-
—	= 29
BYTES	= 2
UNIT	- Z = "DECIBEL"
FORMAT	= "I2"
	= 12 = "Counts for impact time 8 dB
DESCRIPTION	(time in compressed format)"
END OBJECT = COLUMN	(time in compressed format)
END_OBJECI - COLOMN	
OBJECT	= COLUMN
NAME	= "CNT 9"
DATA TYPE	—
—	= ASCII_INTEGER = 32
START_BYTE	= 32
BYTES	_
UNIT	= "DECIBEL"
	= "I2"
DESCRIPTION	= "Counts for impact time 9 dB

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END_OBJECT	(time in compressed format)" = COLUMN
OBJECT	= COLUMN
NAME	= "CNT 10"
DATA_TYPE	= ASCII_INTEGER
START BYTE	= 35
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	= "Counts for impact time 10 dB
DEDORATION	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_11"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 38
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 11 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 12"
DATA TYPE	= ASCII INTEGER
	= 41
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	<pre>= "Counts for impact time 12 dB  (time in compressed format)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 13"
DATA TYPE	= ASCII INTEGER
START BYTE	= 44
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	<pre>= "Counts for impact time 13 dB  (time in compressed format)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_14"
DATA_TYPE	= ASCII_INTEGER
	= 47
BYTES	= 2
	= "DECIBEL"

#### **SESAME** Issue: **SESAME EAICD** Date: CASSE • DIM • PP FORMAT = "12" DESCRIPTION = "Counts for impact time 14 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 15" NAME DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 50 BYTES = 2 UNIT = "DECIBEL" FORMAT = "I2" DESCRIPTION = "Counts for impact time 15 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 16" NAME DATA TYPE = ASCII INTEGER START\_BYTE = 53 BYTES = 2 = "DECIBEL" UNIT FORMAT = "I2" DESCRIPTION = "Counts for impact time 16 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 17" NAME DATA TYPE = ASCII INTEGER START BYTE = 56 BYTES = 2 UNIT = "DECIBEL" FORMAT = "I2" DESCRIPTION = "Counts for impact time 17 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 18" NAME DATA TYPE = ASCII INTEGER START\_BYTE = 59 BYTES = 2 = "DECIBEL" UNIT = "12" FORMAT DESCRIPTION = "Counts for impact time 18 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT\_19" NAME DATA TYPE = ASCII\_INTEGER START BYTE = 62

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BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 19 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 20"
DATA TYPE	= ASCII INTEGER
START BYTE	= 65
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	= "Counts for impact time 20 dB
22001111101	(time in compressed format)"
END OBJECT	= COLUMN
	002011
OBJECT	= COLUMN
NAME	= "CNT 21"
DATA TYPE	_ = ASCII INTEGER
	= 68
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 21 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 22"
DATA TYPE	= ASCII_INTEGER
START BYTE	= 71
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 22 dB
220011111011	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 23"
DATA TYPE	= ASCII INTEGER
START BYTE	= 74
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 23 dB
PROCINITION	(time in compressed format)"
END OBJECT	= COLUMN
	COLORN
OBJECT	= COLUMN
NAME	= "CNT 24"

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= ASCII INTEGER DATA TYPE START\_BYTE = 77 BYTES = 2 UNIT = "DECIBEL" = "I2" FORMAT DESCRIPTION = "Counts for impact time 24 dB (time in compressed format)" END\_OBJECT = COLUMN OBJECT = COLUMN NAME = "CNT 25" = ASCII INTEGER DATA TYPE START BYTE = 80 = 2 BYTES UNIT = "DECIBEL" = "I2" FORMAT = "Counts for impact time 25 dB DESCRIPTION (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT\_26" NAME DATA TYPE = ASCII\_INTEGER START BYTE = 83 = 2 BYTES = "DECIBEL" UNIT FORMAT = "I2" = "Counts for impact time 26 dB DESCRIPTION (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 27" NAME = ASCII INTEGER DATA TYPE START BYTE = 86 BYTES = 2 = "DECIBEL" UNIT FORMAT = "12" DESCRIPTION = "Counts for impact time 27 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 28" NAME DATA\_TYPE = ASCII INTEGER START BYTE = 89 BYTES = 2 = "DECIBEL" UNIT = "I2" FORMAT DESCRIPTION = "Counts for impact time 28 dB (time in compressed format)" END OBJECT = COLUMN

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OBJECT = COLUMN = "CNT 29" NAME DATA TYPE = ASCII INTEGER START BYTE = 92 = 2 BYTES = "DECIBEL" UNIT = "I2" FORMAT = "Counts for impact time 29 dB DESCRIPTION (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 30" NAME DATA TYPE = ASCII\_INTEGER START BYTE = 95 BYTES = 2 = "DECIBEL" UNIT FORMAT = "I2" = "Counts for impact time 30 dB DESCRIPTION (time in compressed format)" = COLUMN END OBJECT OBJECT = COLUMN = "CNT 31" NAME DATA TYPE = ASCII INTEGER START BYTE = 98 BYTES = 2 = "DECIBEL" UNIT = "I2" FORMAT DESCRIPTION = "Counts for impact time 31 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 32" NAME DATA TYPE = ASCII INTEGER START BYTE = 101 BYTES = 2 UNIT = "DECIBEL" = "I2" FORMAT DESCRIPTION = "Counts for impact time 32 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CNT 33" = ASCII\_INTEGER DATA\_TYPE START BYTE = 104 BYTES = 2 UNIT = "DECIBEL" = "I2" FORMAT DESCRIPTION = "Counts for impact time 33 dB

(time in compressed format)"

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END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 34"
DATA TYPE	= ASCII INTEGER
START BYTE	= 107
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 34 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_35"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 110
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 35 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_36"
DATA_TYPE	= ASCII_INTEGER
_ START BYTE	= 113
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 36 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_37"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 116
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	= "Counts for impact time 37 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_38"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 119
BYTES	= 2

= "DECIBEL"

= "I2"

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DESCRIPTION	= "Counts for impact time 38 dB
END_OBJECT	(time in compressed format)" = COLUMN
OBJECT	= COLUMN
NAME	= "CNT_39"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 122
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 39 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_40"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 125
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 40 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 41"
DATA TYPE	= ASCII INTEGER
	= 128
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	= "Counts for impact time 41 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_42"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 131
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 42 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_43"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 134
BYTES	= 2

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= "DECIBEL" UNTT = "I2" FORMAT DESCRIPTION = "Counts for impact time 43 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT\_44" NAME DATA TYPE = ASCII INTEGER START BYTE = 137 BYTES = 2 = "DECIBEL" UNIT = "I2" FORMAT DESCRIPTION = "Counts for impact time 44 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 45" NAME = ASCII INTEGER DATA TYPE START BYTE = 140 BYTES = 2 UNIT = "DECIBEL" = "I2" FORMAT DESCRIPTION = "Counts for impact time 45 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 46" NAME DATA TYPE = ASCII INTEGER START BYTE = 143 BYTES = 2 = "DECIBEL" UNIT = "12" FORMAT DESCRIPTION = "Counts for impact time 46 dB (time in compressed format)" END\_OBJECT = COLUMN OBJECT = COLUMN = "CNT 47" NAME DATA\_TYPE = ASCII\_INTEGER START BYTE = 146 BYTES = 2 = "DECIBEL" UNIT FORMAT = "I2" DESCRIPTION = "Counts for impact time 47 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CNT 48" DATA TYPE = ASCII INTEGER

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START_BYTE	= 149
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	= "Counts for impact time 48 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_49"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 152
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 49 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_50"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 155
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	= "Counts for impact time 50 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_51"
DATA_TYPE	= ASCII_INTEGER
	= 158
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	= "Counts for impact time 51 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_52"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 161
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 52 dB
	(time in compressed format)"
END_OBJECT	= COLUMN

OBJECT

= COLUMN

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			0111_00
	DATA_TYPE	=	ASCII_INTEGER
	START_BYTE	=	164
	BYTES	=	2
	UNIT	=	"DECIBEL"
	FORMAT	=	"12"
	DESCRIPTION	=	"Counts for impact time 53 dB (time in compressed format)"
END_	OBJECT	=	COLUMN
OBJI	ECT	=	COLUMN
	NAME	=	"CNT_54"
	DATA_TYPE	=	ASCII_INTEGER
	START_BYTE	=	167
	BYTES	=	2
	UNIT	=	"DECIBEL"
	FORMAT	=	"12"
	DESCRIPTION	=	"Counts for impact time 54 dB (time in compressed format)"
END	OBJECT	=	COLUMN
OBJI			COLUMN
	NAME		"CNT_55"
	DATA_TYPE		ASCII_INTEGER
	START_BYTE		170
	BYTES		2
	UNIT		"DECIBEL"
	FORMAT	=	"12"
	DESCRIPTION	=	"Counts for impact time 55 dB (time in compressed format)"
END_	OBJECT	=	COLUMN
OBJI	ECT	=	COLUMN
	NAME	=	"CNT 56"
	DATA_TYPE		_ ASCII_INTEGER
			173
	BYTES	=	2
	UNIT	=	"DECIBEL"
	FORMAT	=	"12"
	DESCRIPTION	=	"Counts for impact time 56 dB
			(time in compressed format)"
END	OBJECT	=	COLUMN
OBJI	ECT	=	COLUMN
	NAME		"CNT 57"
	DATA TYPE		ASCII INTEGER
			176
	BYTES	=	2
	UNIT	=	"DECIBEL"
	FORMAT		"12"
	DESCRIPTION		"Counts for impact time 57 dB
			(time in compressed format)"
			- /

= COLUMN

= "CNT\_53"

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OBJECT = COLUMN NAME = "CNT 58" DATA TYPE = ASCII INTEGER START BYTE = 179 BYTES = 2 = "DECIBEL" UNIT = "I2" FORMAT DESCRIPTION = "Counts for impact time 58 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 59" NAME DATA TYPE = ASCII INTEGER START BYTE = 182 = 2 BYTES UNIT = "DECIBEL" FORMAT = "I2" DESCRIPTION = "Counts for impact time 59 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 60" NAME DATA TYPE = ASCII INTEGER = 185 START BYTE BYTES = 2 UNIT = "DECIBEL" FORMAT = "I2" DESCRIPTION = "Counts for impact time 60 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CNT 61" DATA TYPE = ASCII INTEGER START\_BYTE = 188 BYTES = 2 UNIT = "DECIBEL" = "I2" FORMAT DESCRIPTION = "Counts for impact time 61 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 62" NAME DATA TYPE = ASCII INTEGER START BYTE = 191 BYTES = 2 = "DECIBEL" UNIT FORMAT = "I2" DESCRIPTION = "Counts for impact time 62 dB

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		(time in compressed format)"
END OBJECT	_	COLUMN
		Coloring
OBJECT		COLUMN
NAME		"CNT 63"
DATA TYPE		ASCII_INTEGER
		194
BYTES		2
UNIT		"DECIBEL"
FORMAT		"12"
DESCRIPTION		"Counts for impact time 63 dB
DESCRIPTION		(time in compressed format)"
END OB TECT	_	COLUMN
END_OBJECT	_	COLOMN
OBJECT	=	COLUMN
NAME		"CNT 64"
DATA TYPE		ASCII INTEGER
START BYTE		197
BYTES		2
UNIT		"DECIBEL"
FORMAT		"I2"
DESCRIPTION		"Counts for impact time 64 dB
DESCRIPTION	_	-
	_	(time in compressed format)"
END_OBJECT	=	COLUMN
OBJECT	=	COLUMN
NAME		"CNT 65"
DATA TYPE		ASCII INTEGER
START BYTE		200
BYTES		2
UNIT		"DECIBEL"
FORMAT		"12"
DESCRIPTION		"Counts for impact time 65 dB
DESCRIPTION	_	(time in compressed format)"
END OBJECT	_	COLUMN
		COHOTIN
OBJECT	=	COLUMN
NAME		"CNT_66"
DATA TYPE		ASCII INTEGER
START BYTE		203
BYTES		2
UNIT		"DECIBEL"
FORMAT		"12"
DESCRIPTION		"Counts for impact time 66 dB
DESCRIPTION		(time in compressed format)"
END OBJECT	=	COLUMN
OBJECT	=	COLUMN
NAME		"CNT 67"
DATA TYPE		ASCII_INTEGER
_ START_BYTE		206
BYTES		2
UNIT		"DECIBEL"

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FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 67 dB
END_OBJECT	<pre>(time in compressed format)" = COLUMN</pre>
OBJECT NAME	= COLUMN = "CNT 68"
DATA TYPE	= CN1_00 = ASCII INTEGER
START BYTE	= 209
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	<pre>- 12 = "Counts for impact time 68 dB</pre>
DESCRIPTION	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_69"
DATA_TYPE	= ASCII_INTEGER
START BYTE	= 212
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 69 dB
END_OBJECT = COLUM	Ν
_	N = COLUMN
OBJECT = COLOM NAME	
- Object	= COLUMN
- OBJECT NAME	= COLUMN = "CNT_70"
- OBJECT NAME DATA_TYPE	= COLUMN = "CNT_70" = ASCII_INTEGER
- OBJECT NAME DATA_TYPE START_BYTE	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2</pre>
- OBJECT DATA_TYPE START_BYTE BYTES UNIT	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB</pre>
- OBJECT DATA_TYPE START_BYTE BYTES UNIT FORMAT	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2"</pre>
- OBJECT DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)"</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)" = COLUMN</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)" = COLUMN = COLUMN</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT NAME	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)" = COLUMN = COLUMN = "CNT_71"</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)" = COLUMN = COLUMN = "CNT_71" = ASCII_INTEGER</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)" = COLUMN = COLUMN = "CNT_71" = ASCII_INTEGER = 218</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)" = COLUMN = COLUMN = "CNT_71" = ASCII_INTEGER = 218 = 2</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)" = COLUMN = COLUMN = "CNT_71" = ASCII_INTEGER = 218 = 2 = "DECIBEL"</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)" = COLUMN = COLUMN = "CNT_71" = ASCII_INTEGER = 218 = 2 = "DECIBEL" = "I2" = "Counts for impact time 71 dB</pre>
OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)" = COLUMN = COLUMN = "CNT_71" = ASCII_INTEGER = 218 = 2 = "DECIBEL" = "I2" = "Counts for impact time 71 dB (time in compressed format)"</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)" = COLUMN = COLUMN = "CNT_71" = ASCII_INTEGER = 218 = 2 = "DECIBEL" = "I2" = "Counts for impact time 71 dB (time in compressed format)" = COLUMN</pre>
- OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT	<pre>= COLUMN = "CNT_70" = ASCII_INTEGER = 215 = 2 = "DECIBEL" = "I2" = "Counts for impact time 70 dB (time in compressed format)" = COLUMN = COLUMN = "CNT_71" = ASCII_INTEGER = 218 = 2 = "DECIBEL" = "I2" = "Counts for impact time 71 dB (time in compressed format)" = COLUMN = COLUMN</pre>

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BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 72 dB
	(time in compressed format)"
END OBJECT	= COLUMN
-	
OBJECT	= COLUMN
NAME	= "CNT 73"
DATA TYPE	= ASCII INTEGER
START BYTE	= 224
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 73 dB
	(time in compressed format)"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 74"
DATA TYPE	= ASCII INTEGER
START BYTE	= 227
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	= "Counts for impact time 74 dB
DEGORITITION	(time in compressed format)"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_75"
DATA TYPE	= ASCII_INTEGER
START BYTE	= 230
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 75 dB
DEDORTITION	(time in compressed format)"
END OBJECT	= COLUMN
	COLOTIN
OBJECT	= COLUMN
NAME	= "CNT 76"
	-
DATA_TYPE START BYTE	= ASCII_INTEGER = 233
_	= 2.
BYTES	= Z = "DECIBEL"
UNIT	= "DECIBEL" = "I2"
FORMAT	
DESCRIPTION	= "Counts for impact time 76 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
	2011/00/
OBJECT	= COLUMN
NAME	= "CNT_77"

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DATA TYPE = ASCII INTEGER START\_BYTE = 236 BYTES = 2 UNIT = "DECIBEL" = "I2" FORMAT DESCRIPTION = "Counts for impact time 77 dB (time in compressed format)" END\_OBJECT = COLUMN OBJECT = COLUMN NAME = "CNT 78" DATA TYPE = ASCII\_INTEGER START BYTE = 239 = 2 BYTES UNIT = "DECIBEL" FORMAT = "I2" DESCRIPTION = "Counts for impact time 78 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT\_79" NAME DATA TYPE = ASCII\_INTEGER START BYTE = 242 BYTES = 2 = "DECIBEL" UNIT FORMAT = "I2" DESCRIPTION = "Counts for impact time 79 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CNT 80" DATA TYPE = ASCII INTEGER START BYTE = 245 BYTES = 2 = "DECIBEL" UNIT FORMAT = "I2" DESCRIPTION = "Counts for impact time 80 dB (time in compressed format)" END OBJECT = COLUMN OBJECT = COLUMN = "CNT 81" NAME DATA\_TYPE = ASCII INTEGER START BYTE = 248 BYTES = 2 = "DECIBEL" UNIT = "I2" FORMAT DESCRIPTION = "Counts for impact time 81 dB (time in compressed format)" END OBJECT = COLUMN

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OBJECT	= COLUMN
NAME	= "CNT 82"
	= ASCII INTEGER
START BYTE	= 251
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	
220011111011	(time in compressed format)"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 83"
DATA TYPE	= ASCII INTEGER
	= 254
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 83 dB
	(time in compressed format)"
END OBJECT	= COLUMN
-	
OBJECT	= COLUMN
NAME	= "CNT 84"
DATA TYPE	= ASCII INTEGER
_ START BYTE	= 257
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 84 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_85"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 260
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 85 dB
	(time in compressed format)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_86"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 263
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
DESCRIPTION	= "Counts for impact time 86 dB
	(time in compressed format)"

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END_OBJECT	= COLUMN
OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION	<pre>= COLUMN = "CNT_87" = ASCII_INTEGER = 266 = 2 = "DECIBEL" = "I2" = "Counts for impact time 87 dB</pre>
END_OBJECT	<pre>(time in compressed format)" = COLUMN</pre>
OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION	<pre>= COLUMN = "CNT_88" = ASCII_INTEGER = 269 = 2 = "DECIBEL" = "I2" = "Counts for impact time 88 dB   (time in compressed format)"</pre>
END_OBJECT	= COLUMN
OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION	<pre>= COLUMN = "CNT_89" = ASCII_INTEGER = 272 = 2 = "DECIBEL" = "I2" = "Counts for impact time 89 dB   (time in compressed format)"</pre>
END_OBJECT	= COLUMN
BYTES UNIT FORMAT	<pre>= COLUMN = "CNT_90" = ASCII_INTEGER = 275 = 2 = "DECIBEL" = "I2" = "Counts for impact time 90 dB       (time in compressed format)"</pre>
END_OBJECT	= COLUMN

#### DIM BC Burst mode data definition (FM 2)

The burst continuous data are described in the following TABLE object.

OBJECT = BC\_BM\_TABLE NAME = "BC BM" INTERCHANGE\_FORMAT = ASCII

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ROWS	= 270
COLUMNS	= 62
ROW_BYTES	= 318
^STRUCTURE	= "DIM_BC_BM.FMT"
END_OBJECT	= BC_BM_TABLE

#### The structure of the TABLE object is defined in the file DIM\_BC\_BM.FMT.

OBJECT	= COLUMN
NAME	= "SESAME SEQ ID"
DATA TYPE	= ASCII INTEGER
	= 1
—	= 6
FORMAT	= "I6"
UNIT	= "N/A"
MISSING CONSTANT	= 999999
DESCRIPTION	= "Sequence ID in the current data file"
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "ERROR_CODE"
DATA_TYPE	= CHARACTER
START_BYTE	= 9
BYTES	= 2
FORMAT	= "A2"
UNIT	= "N/A"
MISSING_CONSTANT	= "99"
DESCRIPTION	= "DIM BC error code, 2 hexadecimal characters"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_10"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 13
BYTES	= 4
FORMAT	= "I4"
	= "N/A"
MISSING_CONSTANT	
DESCRIPTION	= "Event counts for impact time 10 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_11"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 18
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 11 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN

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· · · · · · · · · · · · · · · · · · ·	
NAME	= "CNT_12"
DATA_TYPE	= ASCII INTEGER
—	= 23
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
—	= "Event counts for impact time 12 dB."
END OBJECT	= COLUMN
—	
OBJECT	= COLUMN
NAME	= "CNT 13"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 28
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 13 dB."
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 14"
DATA_TYPE	= ASCII INTEGER
	= 33
_ BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	
	= "Event counts for impact time 14 dB."
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "CNT_15"
DATA TYPE	= ASCII_INTEGER
	= 38
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
—	= "Event counts for impact time 15 dB."
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "CNT_16"
DATA_TYPE	= ASCII_INTEGER
	= 43
_ BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
_ DESCRIPTION	= "Event counts for impact time 16 dB."
END OBJECT	= COLUMN
_	

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OBJECT NAME	= COLUMN
	= "CNT_17"
DATA_TYPE	= ASCII_INTEGER = 48
START_BYTE	= 40
BYTES	- 4 = "I4"
FORMAT	
UNIT	= "N/A"
MISSING_CONSTANT	
	= "Event counts for impact time 17 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 18"
DATA_TYPE	= ASCII_INTEGER
START BYTE	= 53
BYTES	= 4
FORMAT	= "I4"
	= "N/A"
MISSING CONSTANT	
—	= "Event counts for impact time 18 dB."
END OBJECT	= COLUMN
END_OBDEC1	
OBJECT	= COLUMN
NAME	= "CNT 19"
DATA_TYPE	= ASCII_INTEGER
START BYTE	= 58
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
	= 9999
	= "Event counts for impact time 19 dB."
END OBJECT	= COLUMN
	COLORIN
OBJECT	= COLUMN
NAME	= "CNT 20"
DATA TYPE	= ASCII INTEGER
	= 63
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
_ DESCRIPTION	= "Event counts for impact time 20 dB."
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "CNT_21"
DATA_TYPE	= ASCII_INTEGER
	= 68
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999

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UNIT	= "N/A"
MISSING CONSTANT	= 9999
—	= "Event counts for impact time 26 dB."
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "CNT 27"
DATA_TYPE	= ASCII_INTEGER
	= 98
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
	= "Event counts for impact time 27 dB."
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "CNT_28"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 103
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 28 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_29"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 108
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 29 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_30"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 113
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 30 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_31"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 118

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	5
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 31 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_32"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 123
BYTES	= 4
FORMAT	= "I4"
	= "N/A"
MISSING_CONSTANT	
	= "Event counts for impact time 32 dB."
END_OBJECT	= COLUMN
	~~~~~~
OBJECT	= COLUMN
NAME	= "CNT_33"
DATA_TYPE	= ASCII_INTEGER = 128
START_BYTE BYTES	-120 = 4
FORMAT	- 4 = "I4"
UNIT	$= \frac{14}{N/A''}$
MISSING_CONSTANT	= 9999
	= "Event counts for impact time 33 dB."
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_34"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 133
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 34 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_35"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 138
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	
	= "Event counts for impact time 35 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_36"

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DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 143
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 36 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 37"
	= ASCII_INTEGER
START BYTE	= 148
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	
	= "Event counts for impact time 37 dB."
END OBJECT	= COLUMN
END_OBJECT	
OBJECT	= COLUMN
NAME	= "CNT 38"
DATA TYPE	= ASCII INTEGER
START_BYTE	= 153
BYTES	= 4
	= "I4"
	= "N/A"
MISSING_CONSTANT	
	= "Event counts for impact time 38 dB."
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_39"
DATA TYPE	= ASCII_INTEGER
	= 158
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 39 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "CNT_40"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 163
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	
DESCRIPTION	= "Event counts for impact time 40 dB."
END_OBJECT	= COLUMN

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OBJECT	= COLUMN
NAME	= "CNT_42"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 173
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 42 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_43"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 178
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 43 dB."

= COLUMN

= COLUMN

= COLUMN

#### OBJECT

END\_OBJECT

END OBJECT

NAME	= "CNT_44"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 183
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 44 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN

. "

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END OBJECT = COLUMN OBJECT = COLUMN = "CNT 46" NAME DATA TYPE = ASCII INTEGER START BYTE = 193 BYTES = 4 = "I4" FORMAT UNIT = "N/A" MISSING\_CONSTANT = 9999 DESCRIPTION = "Event counts for impact time 46 dB." END\_OBJECT = COLUMN OBJECT = COLUMN = "CNT\_47" = ASCII\_INTEGER NAME DATA TYPE \_ START\_BYTE = 198 BYTES = 4 = "I4" FORMAT = "N/A" UNIT MISSING\_CONSTANT = 9999 DESCRIPTION = "Event counts for impact time 47 dB." END OBJECT = COLUMN OBJECT = COLUMN = "CNT 48" NAME DATA\_TYPE = ASCII INTEGER \_ START\_BYTE = 203 BYTES = 4 = "I4" FORMAT = "N/A" UNIT MISSING\_CONSTANT = 99999 DESCRIPTION = "Event counts for impact time 48 dB." END OBJECT = COLUMN OBJECT = COLUMN = "CNT\_49" = ASCII\_INTEGER NAME DATA\_TYPE START\_BYTE = 208 BYTES = 4 = "I4" FORMAT = "N/A" UNIT MISSING\_CONSTANT = 99999 DESCRIPTION = "Event counts for impact time 49 dB." END OBJECT OBJECT = COLUMN NAME = "CNT 50" DATA TYPE = ASCII INTEGER START\_BYTE = 213 = 4 BYTES = "I4" FORMAT

= "N/A"

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	MISSING_CONSTANT	=	9999
	DESCRIPTION	=	"Event counts for impact time 50 dB."
END	OBJECT	=	COLUMN
OBJ	ECT	=	COLUMN
	NAME	=	"CNT_51"
	DATA_TYPE	=	ASCII_INTEGER
	START_BYTE	=	218
	BYTES	=	4
	FORMAT	=	"I4"
	UNIT	=	"N/A"
	MISSING_CONSTANT	=	9999
	DESCRIPTION	=	"Event counts for impact time 51 dB."
END	OBJECT	=	COLUMN
OBJ	ECT		COLUMN
	NAME		"CNT_52"
	_	=	ASCII_INTEGER
	START_BYTE	=	223
	BYTES		4
	FORMAT	=	"I4"
	UNIT		"N/A"
	MISSING_CONSTANT		
	DESCRIPTION	=	"Event counts for impact time 52 dB."
END	OBJECT	=	COLUMN
OBJ			COLUMN
			"CNT_53"
	—		ASCII_INTEGER
	START_BYTE		
	BYTES		4
	FORMAT		"I4"
	UNIT		"N/A"
	MISSING_CONSTANT		9999
	DESCRIPTION		"Event counts for impact time 53 dB."
END	_OBJECT	=	COLUMN
05 -			
OBJ:			COLUMN
	NAME		"CNT_54"
	DATA_TYPE		ASCII_INTEGER
	START_BYTE		233
	BYTES		4
	FORMAT		
	UNIT		"N/A"
	MISSING_CONSTANT		9999
	DESCRIPTION		"Event counts for impact time 54 dB."
END.	_OBJECT	=	COLUMN
	г.С.П.	_	COLIMN
OBJ:			COLUMN
	NAME Data type		"CNT_55"
	DATA_TYPE		ASCII_INTEGER 238
	START_BYTE		
	BYTES	-	4

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FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
	= "Event counts for impact time 55 dB."
	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_56"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 243
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	
	= "Event counts for impact time 56 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 57"
DATA_TYPE	= ASCII_INTEGER
 START_BYTE	= 248
_ BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
	= "Event counts for impact time 57 dB."
END_OBJECT	= COLUMN
	= COLUMN
OBJECT NAME	= "CNT 58"
DATA TYPE	= ASCII INTEGER
START BYTE	= 253
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING CONSTANT	
DESCRIPTION	= "Event counts for impact time 58 dB."
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_59"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 258
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 59 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 60"
DATA TYPE	= ASCII INTEGER

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	6
START_BYTE	= 263
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	
END OBJECT	= COLUMN
—	
OBJECT	= COLUMN
NAME	= "CNT_61"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 268
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 61 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT 62"
	= CN1_02 = ASCII_INTEGER
DATA_TYPE	= 273
START_BYTE BYTES	= 273
FORMAT	= 4 = "I4"
UNIT	= "N/A"
MISSING_CONSTANT	
—	= "Event counts for impact time 62 dB."
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CNT_63"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 278
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 63 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "CNT_64"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 283
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 64 dB."
END_OBJECT	= COLUMN
OBJECT	= COLUMN

OBJECT

= COLUMN

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= "CNT 65" NAME DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 288 BYTES = 4 = "I4" FORMAT = "N/A" UNIT MISSING\_CONSTANT = 9999 DESCRIPTION = "Event counts for impact time 65 dB." END OBJECT = COLUMN OBJECT = COLUMN = "CNT 66" NAME DATA TYPE = ASCII INTEGER = 293 START\_BYTE BYTES = 4 = "I4" FORMAT = "N/A" UNIT MISSING\_CONSTANT = 9999 DESCRIPTION = "Event counts for impact time 66 dB." END OBJECT = COLUMN OBJECT = COLUMN NAME = "CNT 67" = ASCII\_INTEGER DATA TYPE = 298 START BYTE BYTES = 4 = "I4" FORMAT = "N/A" UNIT MISSING\_CONSTANT = 9999 DESCRIPTION = "Event counts for impact time 67 dB." = COLUMN END OBJECT OBJECT = COLUMN = "CNT 68" NAME = ASCII INTEGER DATA TYPE START BYTE = 303 BYTES = 4 FORMAT = "I4" = "N/A" UNIT MISSING\_CONSTANT = 9999 DESCRIPTION = "Event counts for impact time 68 dB." END\_OBJECT = COLUMN OBJECT = COLUMN = "CNT\_69" NAME DATA TYPE = ASCII INTEGER START\_BYTE = 308 = 4 BYTES FORMAT = "I4" = "N/A" UNIT MISSING\_CONSTANT = 9999 DESCRIPTION = "Event counts for impact time 69 dB." END OBJECT = COLUMN

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OBJECT	= COLUMN
NAME	= "CNT_70"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 313
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Event counts for impact time 70 dB."
END_OBJECT	= COLUMN

#### 4.3.2.4.2.1.5 DIM Burst Continuous test mode

Single events on one sensor face are registered. In DIM\_BCTEST mode measured values are not stored in a compressed way (as in DIM\_BC mode), but for each event the peak voltage (in mV and dB) and the impact time (timer count and time [dB]) are included in telemetry. No average samples are measured. The parameter data (general parameters, average mode parameters and burst mode parameters) associated with the BC Test measurement are kept in a separate file (combined detached labels).

#### **DIM BC Test Parameters table**

The parameters table is the same for Burst Continuous Average mode and Burst mode. The parameters are described in the following TABLE object.

OBJECT	= BCTEST_PARAM_TABLE
NAME	= BCTEST_PARAM
INTERCHANGE_FORMAT	= ASCII
ROWS	=
COLUMNS	=
ROW_BYTES	=
^STRUCTURE	= "DIM_BCT_PAR.FMT"
END_OBJECT	= BCTEST_PARAM_TABLE

The structure of the TABLE object is defined in the file DIM\_BCT\_PAR.FMT.

00.700	0011301
OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23
DESCRIPTION	= "This column represents the UTC Time"
END_OBJECT	= COLUMN

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OBJECT	= COLUMN	
NAME	= "SESAME_LOCAL_TIME"	
DATA TYPE	= CHARACTER	
START_BYTE	= 33	
BYTES	= 15	
FORMAT	= "A15"	
UNIT	= "N/A"	
DESCRIPTION	= "Start time of measurement represented as :	
	Reset number (integer starting at 1) / seconds	
	The time resolution is 0.03125 s"	
END OBJECT	= COLUMN	
	0010m	
OBJECT	= COLUMN	
NAME	= "DIRECTION"	
DATA TYPE	= CHARACTER	
- START BYTE		
BYTES	= 1	
UNIT	= "N/A"	
FORMAT	= "A1"	
DESCRIPTION	= "Direction in DIM coordinate system,	
	X, Y or Z.	
	Echoed command parameter."	
END OBJECT	= COLUMN	
OBJECT	= COLUMN	
NAME	= "MARGIN"	
DATA TYPE	= ASCII INTEGER	
	= 54	
BYTES	= 2	
UNIT	= "DECIBEL"	
FORMAT	= "I2"	
DESCRIPTION	= "The margin determines the detection	
	threshold of the measuring amplifier.	
	Echoed command parameter. "	
END OBJECT	= COLUMN	
_		
OBJECT	= COLUMN	
NAME	= "DECAY_TIME"	
DATA_TYPE	= ASCII_INTEGER	
START_BYTE	= 57	
BYTES	= 3	
UNIT	= "MILLISECOND"	
FORMAT	= "I3"	
DESCRIPTION	= "Decay time.	
	Range from 0 to 255.	
	Echoed command parameter."	
END_OBJECT	= COLUMN	
OBJECT	= COLUMN	
NAME	= "MEAS_TIME"	
DATA_TYPE	= ASCII_INTEGER	
START_BYTE	= 61	
BYTES	= 5	

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UNIT	= "SECOND"
FORMAT	= "I5"
DESCRIPTION	= "Measuring time.
	Echoed command parameter."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "NEVENT"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 67
BYTES	= 5
UNIT	= "N/A"
FORMAT	= "15"
DESCRIPTION	= "Number of events detected."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "N_FALSE_EVENTS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 73
BYTES	= 5
UNIT	= "N/A"
FORMAT	= "15"
DESCRIPTION	= "Number of false events."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "N_LONG_EVENTS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 79
BYTES	= 5
UNIT	= "N/A"
FORMAT	= "15"
DESCRIPTION	= "Number of long events."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "N_AV_SAMPLES"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 85
BYTES	= 5
UNIT	= "N/A"
FORMAT	= "15"
DESCRIPTION	= "Number of average samples."
END_OBJECT	= COLUMN

#### DIM BC Test data

The average mode data are described in the following TABLE object.

OBJECT	= BCTEST_SIG_TABLE
NAME	= AVERAGE_MODE
INTERCHANGE_FORMAT	= ASCII
ROWS	= 7

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COLUMNS	= 8
ROW_BYTES	= 87
^STRUCTURE	= "DIM_BCT_SIG.FMT"
END_OBJECT	= BCTEST_SIG_TABLE

#### The structure of the TABLE object is defined in the file DIM\_BCT\_SIG.FMT.

NAME = "SESAME_SEQ_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 1 BYTES = 6 UNIT = "N/A" FORMAT = "IG" DESCRIPTION = "Sequence ID in the current data file" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 8 BYTES = 23 DESCRIPTION = "Measurement time (UTC in PDS standard format YYYY-MM-DDTh:mm:ss.sss) " END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_START" DATA_TYPE = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = 51 SYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN	OBJECT	= COLUMN
DATA_TYPE = ASCII_INTEGER START_BYTE = 1 BTTS = 6 UNIT = "N/A" FORMAT = "I6" DESCRIPTION = "Sequence ID in the current data file" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 8 BYTES = 23 DESCRIPTION = "Measurement time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss) " END_OBJECT = COLUMN NAME = "S_LOCAL_TIME_START" DATA_TYPE = CHARACTER START_BYTE = 33 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Sclocal_TIME_END" DATA_TYPE = CHARACTER START_BYTE = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SSEAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SSEAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN	NAME	= "SESAME SEQ ID"
<pre>START_BYTE = 1 BTTES = 6 UNIT = "N/A" FORMAT = "16" DESCRIPTION = "Sequence ID in the current data file" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 8 BYTES = 23 DESCRIPTION = "Measurement time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss) " END_OBJECT = COLUMN OBJECT = Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN</pre>		
BYTES       = 6         UNIT       = "N/A"         PORMAT       = "16"         DESCRIPTION       = "sequence ID in the current data file"         END_OBJECT       = COLUMN         OBART       = "UTC"         DATA_TYPE       = TIME         START_BYTE       = 8         BYTES       = 23         DESCRIPTION       = "Measurement time (UTC in PDS standard format YYYY-MM-DDThh:nm:ss.sss) "         END_OBJECT       = COLUMN         OBJECT       = COLUMN         NAME       = "S_LOCAL_TIME_END"         DATA_TYPE       = COLUMN         NAME       = "S_LOCAL_TIME_END"         DATA_TYPE		
FORMAT= "16" "Sequence ID in the current data file"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "UTC" DATA_TYPEDATA_TYPE= TIME START_BYTEBYTES= 23DESCRIPTION= "Measurement time (UTC in PDS standard format YYY-MM-DDThh:mm:ss.sss) "END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNDESCRIPTION= "S_LOCAL_TIME_START" DATA_TYPEDATA_TYPE= CHARACTER START_BYTESTART_BYTE= 33 B YTESPUTES= 15 FORMATINIT= "N/A"DESCRIPTION= "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNDESCRIPTION= "S_LOCAL_TIME_END" DATA_TYPEDATA_TYPE= 51 FORMATPUTES= 15 FORMATPORMAT= "A15" UNITUNIT= "N/A" DESCRIPTIONDESCRIPTION= "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNNAME= "TIMER_CNT"	—	
DESCRIPTION = "Sequence ID in the current data file" END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 8 BYTES = 23 DESCRIPTION = "Measurement time (UTC in PDS standard format YYYY-MM-DDThh:mm;ss.sss) " END_OBJECT = COLUMN NAME = "S_LOCAL_TIME_START" DATA_TYPE = CHARACTER START_BYTE = 33 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "S_LOCAL_TIME_END" DATA_TYPE = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = SEAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = COLUMN OBJECT = COLUMN OBJECT = COLUMN	UNIT	= "N/A"
END_OBJECT= COLUMNOBJECT= COLUMNNAME= "UTC"DATA_TYPE= TIMESTART_BYTE= 8BYTES= 23DESCRIFTION= "Measurement time (UTC in PDS standard format YYY-MM-DDThh:mm:ss.sss) "END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNDATA_TYPE= CHARACTER START_BYTESTART_BYTE= 33 BYTESBYTES= 15 FORMATPORMAT= "N/A"DESCRIPTION= "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNDESCRIPTION= "S_IOCAL_TIME_END" DATA_TYPEDATA_TYPE= 51 BYTESBYTES= 15 FORMATPORMAT= "N/A" DESCRIPTIONDESCRIPTION= "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNNAME= "TIMER_CNT"	FORMAT	= "I6"
<pre>OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 8 BYTES = 23 DESCRIPTION = "Measurement time (UTC in PDS standard format YYY+MM-DDThh:mm:ss.sss) " END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_START" DATA_TYPE = CARACTER START_BYTE = 33 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN</pre>	DESCRIPTION	= "Sequence ID in the current data file"
NAME = "UTC" DATA_TYPE = TIME START_BYTE = 8 BYTES = 23 DESCRIPTION = "Measurement time (UTC in PDS standard format YYYY-M-DDThh:mm:ss.sss) " END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_START" DATA_TYPE = CHARACTER START_BYTE = 33 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_SAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN		
NAME = "UTC" DATA_TYPE = TIME START_BYTE = 8 BYTES = 23 DESCRIPTION = "Measurement time (UTC in PDS standard format YYYY-M-DDThh:mm:ss.sss) " END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_START" DATA_TYPE = CHARACTER START_BYTE = 33 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_SAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN		
DATA_TYPE = TIME START_BYTE = 8 BYTES = 23 DESCRIPTION = "Measurement time (UTC in PDS standard format YYY-MM-DDThh:mm:ss.ss) " END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_START" DATA_TYPE = 33 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN	OBJECT	= COLUMN
STAR_BYTE= 8BYTES= 23DESCRIPTION= "Measurement time (UTC in PDS standard format YYY-MM-DDThh:mm:ss.ss) "END_OBJECT= COLUMNOBJECT= COLUMNNAME= "S_LOCAL_TIME_START" DATA_TYPEDATA_TYPE= CHARACTER START_BYTESTART_BYTE= 33 BYTESBYTES= 15 FORMATUNIT= "N/A"DESCRIPTION= "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "S_LOCAL_TIME_END" DATA_TYPEDATA_TYPE= CHARACTER START_BYTESTART_BYTE= 51 BYTESBYTES= 15 FORMATUNIT= "N/A" DESCRIPTIONDESCRIPTION= "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNNAME= "TIMER_CNT"	NAME	= "UTC"
BYTES = 23 DESCRIPTION = "Measurement time (UTC in PDS standard format YYY-MM-DDThh:mm:ss.sss) " END_OBJECT = COLUMN NAME = "S_LOCAL_TIME_START" DATA_TYPE = CHARACTER START_BYTE = 33 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN	DATA_TYPE	= TIME
DESCRIPTION = "Measurement time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss) " END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_START" DATA_TYPE = CHARACTER START_BYTE = 33 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN	START_BYTE	= 8
YYYY-MM-DDThh:mm:ss.ss)END_OBJECT= COLUMNOBJECT= COLUMNNAME= "S_LOCAL_TIME_START"DATA_TYPE= CHARACTERSTART_BYTE= 33BYTES= 15FORMAT= "A15"UNIT= "N/A"DESCRIPTION= "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "S_LOCAL_TIME_END" DATA_TYPEDATA_TYPE= CHARACTER START_BYTESTART_BYTE= 51 BYTESBYTES= 15 FORMATPORMAT= "A15" UNITUNIT= "N/A" DESCRIPTIONDESCRIPTION= "SEAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNNAME= "TIMER_CNT"	BYTES	= 23
END_OBJECT= COLUMNOBJECT= COLUMNNAME= "S_LOCAL_TIME_START"DATA_TYPE= CHARACTERSTART_BYTE= 33BYTES= 15FORMAT= "A15"UNIT= "N/A"DESCRIPTION= "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNDATA_TYPE= COLUMNDATA_TYPE= COLUMNDATA_TYPE= S1BYTES= 15FORMAT= "A15" UNITUNIT= "N/A"DESCRIPTION= "SEAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNDATA_TYPE= 15FORMAT= "A15" UNITUNIT= "N/A"DESCRIPTION= "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "TIMER_CNT"	DESCRIPTION	= "Measurement time (UTC in PDS standard format
OBJECT       = COLUMN         NAME       = "S_LOCAL_TIME_START"         DATA_TYPE       = CHARACTER         START_BYTE       = 33         BYTES       = 15         FORMAT       = "A15"         UNIT       = "N/A"         DESCRIPTION       = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"         END_OBJECT       = COLUMN         OBJECT       = COLUMN         OBJECT       = COLUMN         DATA_TYPE       = S_LOCAL_TIME_END"         DATA_TYPE       = CHARACTER         START_BYTE       = 51         BYTES       = 15         FORMAT       = "A15"         UNIT       = "N/A"         DESCRIPTION       = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"         END_OBJECT       = COLUMN         OBJECT       = COLUMN         OBJECT       = COLUMN         NAME       = "TIMER_CNT"		YYYY-MM-DDThh:mm:ss.sss) "
NAME = "S_LOCAL_TIME_START" DATA_TYPE = CHARACTER START_BYTE = 33 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN	END_OBJECT	= COLUMN
NAME = "S_LOCAL_TIME_START" DATA_TYPE = CHARACTER START_BYTE = 33 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN		
DATA_TYPE = CHARACTER START_BYTE = 33 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN	OBJECT	= COLUMN
START_BYTE= 33BYTES= 15FORMAT= "A15"UNIT= "N/A"DESCRIPTION= "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "S_LOCAL_TIME_END" DATA_TYPEDATA_TYPE= CHARACTER START_BYTESTART_BYTE= 51BYTES= 15FORMAT= "A15" UNITUNIT= "N/A" DESCRIPTIONDESCRIPTION= "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMN	NAME	= "S_LOCAL_TIME_START"
BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN	DATA_TYPE	= CHARACTER
FORMAT= "A15" "N/A"DESCRIPTION= "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "S_LOCAL_TIME_END" DATA_TYPEDATA_TYPE= CHARACTER START_BYTESTART_BYTE= 51 BYTESBYTES= 15 FORMATUNIT= "N/A" DESCRIPTIONDESCRIPTION= "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNMAE= "TIMER_CNT"	START_BYTE	= 33
UNIT = "N/A" DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN	BYTES	= 15
DESCRIPTION = "Start time of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN	FORMAT	= "A15"
Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "S_LOCAL_TIME_END"DATA_TYPE= CHARACTERSTART_BYTE= 51BYTES= 15FORMAT= "A15"UNIT= "N/A"DESCRIPTION= "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "TIMER_CNT"	UNIT	= "N/A"
The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "S_LOCAL_TIME_END"DATA_TYPE= CHARACTERSTART_BYTE= 51BYTES= 15FORMAT= "A15"UNIT= "N/A"DESCRIPTION= "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "TIMER_CNT"	DESCRIPTION	= "Start time of measurement represented as :
END_OBJECT = COLUMN OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN NAME = "TIMER_CNT"		Reset number (integer starting at 1) / seconds
OBJECT = COLUMN NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN NAME = "TIMER_CNT"		The time resolution is 0.03125 s"
<pre>NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN NAME = "TIMER_CNT"</pre>	END_OBJECT	= COLUMN
<pre>NAME = "S_LOCAL_TIME_END" DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN NAME = "TIMER_CNT"</pre>		
DATA_TYPE = CHARACTER START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN NAME = "TIMER_CNT"		
START_BYTE = 51 BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN NAME = "TIMER_CNT"		
BYTES = 15 FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "TIMER_CNT"	DATA_TYPE	= CHARACTER
<pre>FORMAT = "A15" UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "TIMER_CNT"</pre>	START_BYTE	
UNIT = "N/A" DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "TIMER_CNT"	BYTES	
DESCRIPTION = "SESAME local time (1/32 s) for end of measurement Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "TIMER_CNT"	FORMAT	
Reset number (integer starting at 1) / seconds         The time resolution is 0.03125 s"         END_OBJECT       = COLUMN         OBJECT       = COLUMN         NAME       = "TIMER_CNT"	UNIT	
The time resolution is 0.03125 s" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "TIMER_CNT"	DESCRIPTION	
END_OBJECT = COLUMN OBJECT = COLUMN NAME = "TIMER_CNT"		
OBJECT = COLUMN NAME = "TIMER_CNT"		The time resolution is 0.03125 s"
NAME = "TIMER_CNT"	END_OBJECT	= COLUMN
NAME = "TIMER_CNT"		
—		
DATA_TYPE = ASCII_INTEGER		_
	DA'I'A_'I'YPE	= ASCII_INTEGER

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START_BYTE	= 68
BYTES	= 5
UNIT	= "N/A"
FORMAT	= "I5"
DESCRIPTION	= "Timer count at impact time.
	The time resolution is 0.03125 s"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "PEAK_AMPLITUDE"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 74
BYTES	= 5
UNIT	= "MILLIVOLT"
FORMAT	= "I5"
DESCRIPTION	= "Event peak amplitude"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "TIMER_CNT_CMPRS"
—	= ASCII_INTEGER
START_BYTE	
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
DESCRIPTION	= "Event timer count at impact time,
	in compressed format"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "PEAK_AMPLITUDE_CMPRS"
_	= ASCII_INTEGER
START_BYTE	= 83 = 2
BYTES	
UNIT	= "DECIBEL" = "12"
FORMAT	
	<pre>= "Event peak amplitude in compressed format" - COLUMN</pre>
END_OBJECT	= COLUMN

#### 4.3.2.4.2.1.6 DIM Burst Continuous test mode 2

Additionally to the regular Burst Continuous Mode (which delivers the DIM (U,  $T_c$ )-matrix), a Burst Continuous Test Mode (DIM\_BCTEST2) is implemented. DIM\_BCTEST2 delivers for each single impact U[mV], U[dB], TC,  $T_c$ [dB] and – deviating from DIM\_BCTEST in earlier flight software versions – additionally the Lander On-board Time (LOBT), when the impact was registered (event time). The LOBT is determined directly after the event was accepted as a real impact.

As for the Burst Continuous Test mode the parameter data (general parameters, average mode parameters and burst mode parameters) are kept in a separate file (combined detached labels).

#### **DIM BC Test 2 parameters table**

The parameters table for BC Test 2 mode is the same as for the BC Test mode (see § 4.3.2.4.2.1.5)

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#### DIM BC Test 2 data

The BC Test 2 mode data are described in the following TABLE object.

OBJECT	= BCTEST2_SIG_TABLE
NAME	= AVERAGE_MODE
INTERCHANGE_FORMAT	= ASCII
ROWS	=
COLUMNS	=
ROW_BYTES	=
^STRUCTURE	= "DIM_BCTEST2_SIG_FM3.FMT"
END_OBJECT	= BCTEST2_SIG_TABLE

The structure of the TABLE object is defined in the file DIM\_BCTEST2\_SIG\_FM3.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
MISSING_CONSTANT	= 999999
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "EVENT_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 8
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	<pre>= "Event time. SESAME local time   (SLT) runs with a resolution of 1/32 seconds.   SLT represents the least significant 32 bits   of LOBT. The most significant 5 bits are in   CDMS RSST (see SESAME Ready Message)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "COUNTS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 24
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
MISSING_CONSTANT	= 999999
DESCRIPTION	= "DIM calibration timer counts"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "PEAK_MV"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 31

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BYTES	= 4
UNIT	= "MILLIVOLT"
FORMAT	= "I4"
MISSING_CONSTANT	= 9999
DESCRIPTION	= "Peak voltage in mV"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TIME_DB"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 36
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "12"
MISSING_CONSTANT	= 99
DESCRIPTION	= "Timer counts in compressed format"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "PEAK_DB"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 39
BYTES	= 2
UNIT	= "DECIBEL"
FORMAT	= "I2"
MISSING_CONSTANT	= 99
DESCRIPTION	= "Peak voltage in dB"
END_OBJECT	= COLUMN

#### 4.3.2.4.3 PP object definitions

The structures of PP measurements differ according to flight software versions. The details concerning the telemetry formats can be found in [AD1] for flight software version 1 (FM1), in [AD2] for flight software version 2 (FM2) and in [AD3] for flight software version 3 (FM-3). The FM2 software was uploaded on 2007-09-24 at 19h40 UTC (during Payload Checkout #6). The FM3 software was uploaded on 2009-09-24 at 02h00 UTC (during PC#10).

#### 4.3.2.4.3.1 Flight software version FM1

#### 4.3.2.4.3.1.1 PP Active Mode Test

During an active mode test, one active PP measurement is performed. Adjusted and measured values (DAC table read back from PP memory, time series of transmitter current and receiver voltage samples) are sent to ground. Telemetry concludes with the results of the on-board data evaluation. Adjustable parameters of command active mode test are the configuration of electrodes, the transmitting frequency and the number of sine waves.

The PP AMTEST data are organized as tables containing parameters, the DAC table read back from PP memory, transmitter and receiver time series. The tables are kept in separate data files (combined detached labels). Consequently there will be one PDS label pointing to four data files.

Following is an example of PDS files corresponding to an AMTEST measurement.

#### SES\_FS2\_PAM\_070929214512\_TEST.LBL (label)

SES\_FS2\_PAM\_070929214512\_TPAR.TAB (parameters)

SES\_FS2\_PAM\_070929214512\_TDAC.TAB (DAC table)

SES\_FS2\_PAM\_070929214512\_TTX.TAB (transmitter time series)

SES\_FS2\_PAM\_070929214512\_TRX.TAB (receiver time series)

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#### The parameters are described by the following TABLE object.

OBJECT	= AMT_PAR_TABLE
NAME	= "AMT_PAR"
INTERCHANGE_FOR	RMAT = ASCII
ROWS	= 2
COLUMNS	= 8
ROW_BYTES	= 82
^STRUCTURE	= "PP_AMT_PAR.FMT"
END_OBJECT	= AMT_PAR_TABLE

The structure of the parameters table is described in the file PP\_AMT\_PAR.FMT.

/\* PP AMTEST sensor settings, version 2, 2015-11-11 \*/

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	
OBJECT	= COLUMN
NAME	= "UTC"
—	= TIME
—	= 8
	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	
	= "SESAME_LOCAL_TIME"
	= ASCII_INTEGER
START_BYTE BYTES	= 15
FORMAT	= "I15"
	= IIS = "Measurement start time. SESAME local time
DESCRIPTION	(SLT) runs with a resolution of 1/32 seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	-
END OD TECH	CDMS RSST (see SESAME Ready Message)" = COLUMN
END_OBJECT	- COLUMN
OBJECT	= COLUMN
NAME	= "SENSOR_SETTINGS"
	= ASCII_INTEGER
START_BYTE	= 48
BYTES	= 7
UNIT	= "N/A"

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DESCRIPTION = "Commanded (echoed) electrode combination as 3-digit hexadecimal code 16#abi# with the following meaning: a: electrode connected to the TX A output. Possible values: 0 [none], 1 [+X leg], 2 [MUPUS PEN] b: electrode connected to the TX B output. Possible values: 0 [none], 2 [MUPUS PEN], 3 [APXS] i: input channel Possible values: 0 [potential difference] 1 [current at +X leg] 2 [current at MUPUS PEN] 3 [current at APXS] 4 [direct measurement at +Y foot] 5 [direct measurement at -Y foot] 6 [reference voltage -2.5 V] 7 [reference voltage +2.5 V] " END OBJECT = COLUMN OBJECT = COLUMN = "TX FREQ" NAME DATA\_TYPE = ASCII\_INTEGER START BYTE = 56 BYTES = 5 = "HERTZ" UNIT FORMAT = "I5" DESCRIPTION = "Tx frequency " END OBJECT = COLUMN OBJECT = COLUMN NAME = "TX/RX WAVES" DATA\_TYPE = ASCII\_INTEGER START BYTE = 62 = 3 BYTES = "N/A" UNIT = I3 FORMAT DESCRIPTION = "Number of Tx/Rx waves " = COLUMN END OBJECT = COLUMN OBJECT = "NUMBER\_OF\_SAMPLES" NAME DATA TYPE = ASCII INTEGER START BYTE = 66 BYTES = 5 = "N/A" UNIT FORMAT = "I5" DESCRIPTION = "Number of transmitter current and receiver voltage

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samples " END OBJECT = COLUMN

= COLUMN OBJECT NAME = "ERROR CODE" DATA\_TYPE = ASCII\_INTEGER START BYTE = 72 = 8 BYTES MISSING CONSTANT = 16#0000# DESCRIPTION = "Active mode results as Hex value 16#xxxx# The possible values are: 8001 Invalid register address. 8002 Error verifying register write. 8004 Error accessing power register. 8008 MUX setting not allowed. 8010 Error accessing PP RAM. 8020 Tried to start measurement but a measurement is already running. 0040 Error during writing to instrument. 0080 Error during reading from instrument. 0100 Error using ADC of C-DPU. 0200 Error during DAC table generation. 0400 Calculated number of samples > N SAMP MAX. 8800 C-DPU memory exhausted. 9000 Measurement time out. 2000 Invalid command parameter. 8000 Flag indicates fatal error. " END\_OBJECT = COLUMN

#### The DAC table is described by the following TABLE object.

OBJECT	= AMTESTDAC_TABLE
NAME	= AMTESTDAC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 256
COLUMNS	= 5
ROW_BYTES	= 57
^STRUCTURE	= "PP_AMT_DAC.FMT"
END_OBJECT	= AMTESTDAC_TABLE

#### The structure of the DAC table is described in the file PP AMT DAC.FMT.

OBJECT	= COLUMN		
NAME	= "SESAME_SEQ_ID"		
DATA_TYPE	= ASCII_INTEGER		
START_BYTE	= 1		
BYTES	= 6		
UNIT	= "N/A"		
FORMAT	= "I6"		
DESCRIPTION	= "Sequence ID in the current data file"		
END_OBJECT	= COLUMN		

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OBJECT	= COLUMN	
NAME	= "UTC"	
DATA_TYPE	= TIME	
START_BYTE	= 8	
BYTES	= 23	
DESCRIPTION	= "Measurement start time (UTC in PDS standard	
	format YYYY-MM-DDThh:mm:ss.sss)"	
END_OBJECT	= COLUMN	
OBJECT	= COLUMN	
NAME	= "SESAME LOCAL TIME"	
DATA TYPE	= ASCII INTEGER	
	= 32	
BYTES	= 15	
FORMAT	= "I15"	
DESCRIPTION	= "Measurement start time. SESAME local time	
	(SLT) runs with a resolution of 1/32 seconds.	
	SLT represents the least significant 32 bits	
	of LOBT. The most significant 5 bits are in	
	CDMS RSST (see SESAME Ready Message)"	
END OBJECT	= COLUMN	
OBJECT	= COLUMN	
NAME	= "DAC SAMPLE "	
DATA_TYPE	= ASCII INTEGER	
	= 48	
BYTES	= 3	
UNIT	= "N/A"	
FORMAT	= "I3"	
DESCRIPTION	= "DAC sample number"	
END OBJECT	= COLUMN	
_		
OBJECT	= COLUMN	
NAME	= "DAC_ADC_VALUE"	
DATA TYPE	= ASCII_INTEGER	
	= 52	
_ BYTES	= 3	
UNIT	= "N/A"	
FORMAT	= "13"	
DESCRIPTION	= "DAC ADC value "	
END OBJECT	= COLUMN	
—		

#### The receiver time series is described by the following TABLE object.

OBJECT	= AMTESTRX_TABLE
NAME	= AMTESTRX
INTERCHANGE_FORMAT	= ASCII
ROWS	= 8192
COLUMNS	= 5
ROW_BYTES	= 59
^STRUCTURE	= "PP_AMT_RX.FMT"

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END\_OBJECT

#### = AMT\_RX\_TABLE

#### The structure of the receiver time series table is described in the file PP\_AMT\_RX.FMT.

/* PP AMTEST / AMTEST	2 Rx table entry version 2, 2015-11-11*/
OBJECT	= COLUMN
NAME	= "SESAME SEQ ID"
DATA TYPE	
—	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 32
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	<pre>= "Measurement start time. SESAME local time   (SLT) runs with a resolution of 1/32 seconds.   SLT represents the least significant 32 bits   of LOBT. The most significant 5 bits are in   CDMS RSST (see SESAME Ready Message)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RX SAMPLE "
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 48
BYTES	= 5
UNIT	= "N/A"
FORMAT	= "I5"
DESCRIPTION	= "Rx sample number"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RX_ADC_VALUE"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 54
BYTES	= 3

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UNIT	= "N/A"
FORMAT	= "I3"
DESCRIPTION	= "RX ADC value "
END_OBJECT	= COLUMN

#### The transmitter time series is described by the following TABLE object.

OBJECT	= AMTESTTX_TABLE
NAME	= AMTESTTX
INTERCHANGE_FORMAT	= ASCII
ROWS	= 8192
COLUMNS	= 5
ROW_BYTES	= 59
^STRUCTURE	= "PP_AMT_TX.FMT"
END_OBJECT	= AMTESTTX_TABLE

#### The structure of the transmitter TABLE object is defined in the file PP\_AMT\_TX.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	—
START_BYTE	
BYTES	= 6
	= "N/A"
	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END OBJECT	= COLUMN
—	
OBJECT	= COLUMN
NAME	= "SESAME LOCAL TIME"
DATA TYPE	= ASCII INTEGER
	= 32
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	= "Measurement start time. SESAME local time
	(SLT) runs with a resolution of 1/32 seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END OD JECH	
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TX_SAMPLE "
DATA_TYPE	= ASCII_INTEGER

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-			
	START_BYTE	=	48
	BYTES	=	5
	UNIT	=	"N/A"
	FORMAT	=	"I5"
	DESCRIPTION	=	"Tx sample number"
END	OBJECT	=	COLUMN
OBJI	ECT	=	COLUMN
	NAME	=	"TX_ADC_VALUE"
	DATA_TYPE	=	ASCII_INTEGER
	START_BYTE	=	54
	BYTES	=	3
	UNIT	=	"N/A"
	FORMAT	=	"I3"
	DESCRIPTION	=	"Tx ADC value "
END	OBJECT	=	COLUMN

#### 4.3.2.4.3.1.2 PP Health Check (HC) data

Following is an example of PDS files corresponding to an HC measurement.

#### SES\_FS2\_PHC\_070929214512\_HC.LBL (label)

SES\_FS2\_PAM\_070929214512\_HC.TAB (parameters)

The HC data are described in the following TABLE object (simple detached label).

OBJECT	= SES_PHC_TABLE
NAME	= "SES_PHC"
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 14
ROW_BYTES	= 100
^STRUCTURE	= "PP_HC.FMT"
END_OBJECT	= SES_PHC_TABLE

#### The structure of the TABLE object is defined in the file PP\_HC.FMT.

/\* PP Health Check, version 2, 2015-11-11 \*/

OBJECT	= COLUMN	
NAME	= "SESAME_SEQ_ID"	
DATA_TYPE	= ASCII_INTEGER	
START_BYTE	= 1	
BYTES	= 6	
UNIT	= "N/A"	
FORMAT	= "I6"	
DESCRIPTION	= "Sequence ID in the current data file"	
END_OBJECT	= COLUMN	
OBJECT	= COLUMN	
NAME	= "UTC"	
DATA_TYPE	= TIME	
START_BYTE	= 8	

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BYTES	= 23	
DESCRIPTION	= "Meas	urement start time (UTC in PDS standard
		at YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUM	N
OBJECT	= COLUM	N
NAME	= "SESA	ME_LOCAL_TIME"
DATA_TYPE	= ASCII	INTEGER
START_BYTE	= 32	
BYTES	= 15	
FORMAT	= "I15"	
DESCRIPTION	(SLT SLT of L	urement start time. SESAME local time ) runs with a resolution of 1/32 seconds. represents the least significant 32 bits OBT. The most significant 5 bits are in RSST (see SESAME Ready Message)"
END_OBJECT	= COLUM	Ν
OBJECT	= COLUM	N
NAME	= "LP_V.	ALUE"
DATA_TYPE	= ASCII	INTEGER
START_BYTE	= 48	
BYTES	= 5	
UNIT	= "N/A"	
FORMAT	= "I5"	
DESCRIPTION	= "Resu	lt count of Langmuir probe measurement "
END_OBJECT	= COLUM	N
OBJECT	= COLUM	N
NAME	= "ADC	
DATA_TYPE		INTEGER
START BYTE		
BYTES	= 3	
	= "N/A"	
FORMAT	= "I3"	
DESCRIPTION		ld be close to 128
		represents zero with bipolar ADC)"
END OBJECT	- COLUM	
_		
OBJECT	= COLUM	Ν
NAME	= "-2.5	V REF"
DATA_TYPE	= ASCII	INTEGER
START_BYTE	= 58	
BYTES	= 3	
UNIT	= "N/A"	
FORMAT	= "I3"	
DESCRIPTION		V REF and +2.5V REF should be nearly
	_	etrical to ADC offset"
END_OBJECT	= COLUM	N
		λ.Υ.
OBJECT	- COLUM	
NAME	= "+2.5"	_
DATA_TYPE	= ASCII	_INTEGER

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START_BYTE	= 62
	= 3
UNIT	= "N/A"
FORMAT	= "I3"
DESCRIPTION	<pre>= "-2.5V REF and +2.5V REF should be nearly   symmetrical to ADC offset"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "DELTA"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 66
BYTES	= 3
UNIT	= "N/A"
FORMAT	= "I3"
DESCRIPTION	= "Differential value RX2 - RX1"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "LEG+Y RX1"
	= ASCII INTEGER
_ START_BYTE	= 70
—	= 3
UNIT	= "N/A"
FORMAT	= "I3"
DESCRIPTION	= "Direct voltage from receiver 1 at +Y leg"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "LEG-Y RX2"
	= ASCII INTEGER
—	= 74
BYTES	= 3
UNIT	= "N/A"
FORMAT	= "I3"
DESCRIPTION	= "Direct voltage from receiver 2 at -Y leg"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LEG+X TX1"
DATA TYPE	= ASCII INTEGER
- START BYTE	= 78
BYTES	= 3
UNIT	= "N/A"
FORMAT	= "I3"
DESCRIPTION	= "Transmitter current at electrode 1.
	No voltage applied.
END_OBJECT	Should be close to ADC offset." = COLUMN
OBJECT	= COLUMN
NAME	= "MUPUS_PEN_TX2"
DATA_TYPE	= ASCII_INTEGER

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START_BYTE	= 82	
BYTES	= 3	
UNIT	= "N/A"	
FORMAT	= "I3"	
DESCRIPTION	= "Transmitter current at electrode 2.	
	No voltage applied.	
	Should be close to ADC offset."	
END OBJECT	= COLUMN	
_		
OBJECT	= COLUMN	
NAME	= "APXS_TX3"	
DATA_TYPE	= ASCII_INTEGER	
START_BYTE	= 86	
BYTES	= 3	
UNIT	= "N/A"	
FORMAT	= "I3"	
DESCRIPTION	= "Transmitter current at electrode 3.	
	No volatge applied.	
	Should be close to ADC offset."	
END_OBJECT	= COLUMN	
OBJECT	= COLUMN	
NAME	= "ERROR_CODE"	
DATA_TYPE	ASCII_INTEGER	
START_BYTE	= 90	
BYTES	= 8	
UNIT	= "N/A"	
MISSING_CONSTANT	= 16#0000#	
DESCRIPTION	= "Hex value as 16#xxxx#. The possible values are:	
	8001 Invalid register address.	
	8002 Error verifying register write.	
	8004 Error accessing power register.	
	8008 MUX setting not allowed.	
	8010 Error accessing PP RAM.	
	8020 Tried to start measurement but a measurement	
	is already running.	
	0040 Error during writing to instrument.	
	0080 Error during reading from instrument.	
	0100 Error using ADC of C-DPU.	
	0200 Error during DAC table generation.	
	0400 Calculated number of samples $> N_SAMP_MAX$ .	
	8800 C-DPU memory exhausted.	
	9000 Measurement time out.	
	2000 Invalid command parameter.	
	8000 Flag indicates fatal error. "	
END_OBJECT	= COLUMN	

4.3.2.4.3.1.3 PP Langmuir Probe Test (LM) data

This measurement sequence is mainly used for ground tests and is not a regular flight measurement. Following is an example of PDS files corresponding to an LM measurement.

SES\_FS2\_PLM\_070929214512\_LM.LBL (label) SES\_FS2\_PLM\_070929214512\_LM.TAB (parameters)

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#### The LM data are described in the following TABLE object (simple detached label).

OBJECT	= SES_PLM_TABLE
NAME	= "SES_LM"
INTERCHANGE_FORMAT	= ASCII
ROWS	= 17
COLUMNS	= 6
ROW_BYTES	= 61
^STRUCTURE	= "PP_LM.FMT"
END_OBJECT	= SES_PLM_TABLE

#### The structure of the TABLE object is defined in the file PP\_LM.FMT.

/\* PP Langmuir Probe measurement, version 2, 2015-11-11 \*/

	<pre>= COLUMN = "SESAME_SEQ_ID" = ASCII_INTEGER = 1 = 6 = "N/A" = "I6" = "Sequence ID in the current data file"</pre>
END_OBJECT	= COLUMN
OBJECT NAME DATA_TYPE START_BYTE BYTES DESCRIPTION END OBJECT	<pre>= COLUMN = "UTC" = TIME = 8 = 23 = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" = COLUMN</pre>
END_OBJECT	= COLOMN
OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT DESCRIPTION	= 32 = 15 = "I15"
OBJECT NAME DATA_TYPE START_BYTE BYTES	—

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UNIT	= "N/A"
FORMAT	= "I2"
DESCRIPTION	= "Nominal clock divider"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "ACT_CLK_DIV"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 51
BYTES	= 2
UNIT	= "N/A"
FORMAT	= "I2"
DESCRIPTION	= "Actual clock divider"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LP_VALUE"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 54
BYTES	= 5
UNIT	= "N/A"
FORMAT	= "15"
DESCRIPTION	= "Result count of Langmuir probe measurement "
END_OBJECT	= COLUMN

#### 4.3.2.4.3.1.4 PP Passive Mode Test (PMTEST)

The PMTEST was not used during flight.

#### 4.3.2.4.3.2 Flight software version FM2

#### 4.3.2.4.3.2.1 PP Active Mode Test

During an active mode test, one active PP measurement is performed. Adjusted and measured values (DAC table read back from PP memory, time series of transmitter current and receiver voltage samples) are sent to ground. Telemetry concludes with the results of the on-board data evaluation. Adjustable parameters of command active mode test are the configuration of electrodes, the transmitting frequency and amplitude and the number of sine waves. Because telemetry contains the raw time series data and the results of the on-board evaluation it is possible to check both, details of the time series and the correct working of the data evaluation.

The PP AMTEST2 data are organized as tables containing parameters including the on-board evaluation results, the DAC table read back from PP memory, transmitter and receiver time series. The tables are kept in separate data files (combined detached labels). Consequently there will be one PDS label pointing to four data files.

Following is an example of PDS files corresponding to an AMTEST2 measurement.

#### SES\_FS2\_PAM\_070929214512\_TEST.LBL (label)

SES\_FS2\_PAM\_070929214512\_TPAR.TAB (parameters) SES FS2 PAM 070929214512 TDAC.TAB (DAC table) SES\_FS2\_PAM\_070929214512\_TTX.TAB (transmitter time series) SES FS2 PAM 070929214512 TRX.TAB (receiver time series)

The parameters are described by the following TABLE object.

OBJECT	= AMT_PAR_TABLE
NAME	= "AMT_PAR"

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INTERCHANGE\_FORMAT = ASCII ROWS = 2 COLUMNS = 14 ROW\_BYTES = 137 ^STRUCTURE = "PP\_AMT2\_PAR.FMT" = AMT PAR TABLE END OBJECT

The structure of the parameters table is described in the file PP\_AMT2\_PAR.FMT.

OBJECT	= COLUMN	
	= "SESAME SEQ ID"	
	= ASCII INTEGER	
START BYTE	—	
—	= 6	
	= "N/A"	
FORMAT		
	= "Sequence ID in the current data file"	
END OBJECT		
END_OBJECI		
OBJECT	= COLUMN	
	= "UTC"	
DATA TYPE	= TIME	
_ START BYTE	= 8	
—	= 23	
DESCRIPTION	= "Measurement start time (UTC in PDS standard	
	format YYYY-MM-DDThh:mm:ss.sss)"	
END OBJECT		
_		
OBJECT	= COLUMN	
NAME	= "SESAME_LOCAL_TIME"	
DATA_TYPE	= ASCII_INTEGER	
START_BYTE	= 32	
BYTES	= 15	
FORMAT	= "I15"	
DESCRIPTION	= "Measurement start time. SESAME local time (SLT) runs with a resolution of 1/32 seconds.	
	SLT represents the least significant 32 bits	
	of LOBT. The most significant 5 bits are in	
	CDMS RSST (see SESAME Ready Message)"	
END OBJECT	= COLUMN	
OBJECT	= COLUMN	
NAME	= "SENSOR_SETTINGS_CMD"	
DATA_TYPE	= ASCII_INTEGER	
START_BYTE	= 48	
BYTES	= 7	
UNIT	= "N/A"	
DESCRIPTION	= "Commanded (echoed) electrode combination	
as 3-digit	hexadecimal value 16#abi#	
with the f	ollowing meaning:	
a: electrod	e connected to the TX A output.	
Possible values:		
0 [none]	,	

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1 [+X leg], 2 [MUPUS PEN] b: electrode connected to the TX B output. Possible values: 0 [none], 2 [MUPUS PEN], 3 [APXS] i: input channel Possible values: 0 [potential difference] 1 [current at +X leg] 2 [current at MUPUS PEN] 3 [current at APXS] 4 [direct measurement at +Y foot] 5 [direct measurement at -Y foot] 6 [reference voltage -2.5 V] 7 [reference voltage +2.5 V] " END OBJECT = COLUMN OBJECT = COLUMN NAME = "TX\_FREQ" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 56 BYTES = 5 = "HERTZ" UNIT FORMAT = "I5" DESCRIPTION = "Tx frequency " END\_OBJECT = COLUMN = COLUMN OBJECT NAME = "TX/RX WAVES" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 62 = 3 BYTES = "N/A" UNIT FORMAT = "I3" DESCRIPTION = "Number of Tx/Rx waves " END OBJECT = COLUMN NAME - " NAME = "PTS\_PER\_WAVE" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 66 BYTES - ^ OBJECT = "N/A" UNIT FORMAT = "I3" DESCRIPTION = "Points per wave " END OBJECT = COLUMN = COLUMN OBJECT NAME = "TX OUT DAMPING" NAME - -----DATA\_TYPE = ASCII\_INTEGER START BYTE = 70

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= 1 BYTES = "N/A" UNIT FORMAT = "I1" DESCRIPTION = "TX Voltage Amplitude Reduction. The possible values are: 0 maximum amplitude. 1 half amplitude. 2 quarter amplitude. 3 1/8 amplitude. 4 1/16 amplitude." END OBJECT = COLUMN = COLUMN OBJECT NAME = "ADC\_DIV" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 72 BYTES BYTES = 4 = "N/A" UNIT FORMAT = "I4" DESCRIPTION = "Sampling frequency is generated as 5 MHz / this parameter" = COLUMN END\_OBJECT NAME OBJECT = COLUMN = "ADC ADDR" NAME \_\_\_\_\_ DATA\_TYPE = ASCII\_INTEGER START BYTE = 77 BYTES = 5 = "N/A" UNIT FORMAT = "I5" MISSING CONSTANT = 99999 DESCRIPTION = "Adjusted last address in PP memory " END OBJECT = COLUMN OBJECT = COLUMN NAME NAME = "DAC\_DIV" DATA\_TYPE = ASCII\_INTEGER START BYTE = 83 = 4 BYTES UNIT = "N/A" FORMAT = "I4" DESCRIPTION = "Tx voltage update frequency is 5 MHz / this parameter" END\_OBJECT = COLUMN OBJECT = COLUMN NAME = "DAC\_ADDR" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 88 BYTES = 3 = "N/A" UNIT FORMAT = "I3" DESCRIPTION = "Last used address in DAC table" END OBJECT = COLUMN OBJECT = COLUMN

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= "ERROR CODE" NAME DATA TYPE = ASCII INTEGER START BYTE = 92 BYTES = 8 MISSING CONSTANT = 16#0000# DESCRIPTION = "Active mode results as hexa 16#xxxx# The possible values are: 8001 Invalid register address. 8002 Error verifying register write. 8004 Error accessing power register. 8008 MUX setting not allowed. 8010 Error accessing PP RAM. 8020 Tried to start measurement but a measurement is already running. 0040 Error during writing to instrument. 0080 Error during reading from instrument. 0100 Error using ADC of C-DPU. 0200 Error during DAC table generation. 0400 Calculated number of samples > N SAMP MAX. 8800 C-DPU memory exhausted. 9000 Measurement time out. 2000 Invalid command parameter. 8000 Flag indicates fatal error. " = COLUMN END OBJECT NAME = "QUAL\_FLAG\_CL" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 101 OBJECT = COLUMN = "QUAL FLAG CL" BYTES = 1 FORMAT = "I1" UNIT = "N/A" DESCRIPTION = "PP quality flags. The possible values are: 0 OK 1 at least one sample equals 0 in current (transmitter) time series" END OBJECT = COLUMN OBJECT = COLUMN = "QUAL FLAG VH" NAME DATA TYPE = ASCII INTEGER START BYTE = 103 BYTES = 1 = "I1" FORMAT = "N/A" UNIT DESCRIPTION = "PP quality flags. The possible values are: 0 OK 1 at least one sample equals 255 in voltage (receiver) time series" END OBJECT = COLUMN OBJECT = COLUMN NAME = "QUAL FLAG VL"

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DATA TYPE = ASCII INTEGER START\_BYTE = 105 = 1 BYTES = "I1" FORMAT UNIT = "N/A" DESCRIPTION = "PP quality flags. The possible values are: 0 OK 1 at least one sample equals 0 in voltage (receiver) time series" END OBJECT = COLUMN OBJECT = COLUMN NAME = "POINTS\_PER\_WAVE" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 107 BYTES = 3 UNIT = "N/A" FORMAT = "I3" MISSING CONSTANT = 999 DESCRIPTION = "Number of points per wave used by receiver" END OBJECT = COLUMN - COLUMN NAME OBJECT NAME = "PHASE" DATA\_TYPE = ASCII\_REAL START\_BYTE = 111 BYTES BYTES = "DEGREE" UNIT UNIT = "DEGRE. FORMAT = "F8.4" DESCRIPTION = "Phase difference potential-current" END OBJECT = COLUMN JECT = COLUMN NAME = "CURRENT\_AMPLITUDE" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 120 OBJECT BYTES = 3 UNIT = "N/A" FORMAT = "I3" DESCRIPTION = "Scaling as raw data without offset 128 = max. ADC value for current" END\_OBJECT = COLUMN OBJECT = COLUMN = "VOLTAGE\_AMPLITUDE" NAME NAME = "VOLTAGE\_AMPL DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 124 BYTES = 3 UNIT = "N/A" FORMAT = "I3" DESCRIPTION = "Scaling as raw data without offset 128 = max. ADC value for Rx voltage diff." END OBJECT = COLUMN

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OBJECT = COLUMN NAME = "MATH ERR" DATA\_TYPE = CHARACTER START BYTE = 128 BYTES = 8 MISSING CONSTANT = 16#0000# DESCRIPTION = "Hex value as 16#xxxx# 0001 Reduce: number of vector elements odd or less than 2; fatal. 0002 Expand: less than four elements in input vector; fatal. 0004 Too much data for analysis; truncating. 0008 Too few data for analysis; padding with 128 0010 Used number of waves is not a power of 2; truncated. 0020 Not the expected number of elements in filtered arrays; fatal. 0040 Argument for sine table() not in valid range  $0 \le deg2 \le 720$ . 0080 Overflow in divsin() or result inexact. 0100 Too few data for trimmed mean calculation; regular mean used. 0200 No data for warr.mean; particular: analysis yields no data. 0400 Passive mode: not enough data in bin. 0800 Not enough memory for data reduction." = COLUMN END\_OBJECT

The DAC table is identical to the FM1 version and is described by the following TABLE object.

OBJECT	= AMTESTDAC_TABLE
NAME	= AMTESTDAC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 256
COLUMNS	= 5
ROW_BYTES	= 57
^STRUCTURE	= "PP_AMT_DAC.FMT"
END_OBJECT	= AMTESTDAC_TABLE

The structure of the DAC table is described in the file PP\_AMT\_DAC.FMT.

/\* PP AMTEST / AMTEST2 DAC table entry version 2, 2015-11-11 \*/ OBJECT = COLUMN NAME = "SESAME SEQ ID" DATA TYPE = ASCII INTEGER START\_BYTE = 1 BYTES = 6 = "N/A" UNIT = "I6" FORMAT = "Sequence ID in the current data file" DESCRIPTION END OBJECT = COLUMN

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OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA TYPE	= ASCII INTEGER
START BYTE	= 32
_ BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	
	(SLT) runs with a resolution of 1/32 seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END OBJECT	= COLUMN
END_OBJECT	- COLOMN
OBJECT	= COLUMN
NAME	
	= "DAC_SAMPLE "
	= ASCII_INTEGER
START_BYTE	
BYTES	= 3
UNIT	= "N/A"
FORMAT	= "I3"
	= "DAC sample number"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "DAC_ADC_VALUE"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 52
BYTES	= 3
UNIT	= "N/A"
FORMAT	= "I3"
DESCRIPTION	= "DAC ADC value "
END_OBJECT	= COLUMN

The receiver time series is identical to the FM1 version and is described by the following TABLE object.

OBJECT	= AMTESTRX_TABLE
NAME	= AMTESTRX
INTERCHANGE_FORMAT	= ASCII
ROWS	= 8192
COLUMNS	= 5



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ROW\_BYTES ^STRUCTURE END\_OBJECT = 59 = "PP\_AMT\_RX.FMT" = AMT\_RX\_TABLE

#### The structure of the receiver time series table is described in the file PP\_AMT\_RX.FMT.

/* PP AMTEST / AMTEST2	Rx table entry version 2, 2015-11-11*/
OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	—
START_BYTE	= 32
BYTES	= 15
	= "I15"
DESCRIPTION	<pre>= "Measurement start time. SESAME local time   (SLT) runs with a resolution of 1/32 seconds.   SLT represents the least significant 32 bits   of LOBT. The most significant 5 bits are in   CDMS RSST (see SESAME Ready Message)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RX_SAMPLE "
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 48
BYTES	= 5
UNIT	= "N/A"
FORMAT	= "I5"
DESCRIPTION	= "Rx sample number"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RX ADC VALUE"
DATA TYPE	= ASCII INTEGER
	WOLT THIRDRY

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START_BYTE	= 54
BYTES	= 3
UNIT	= "N/A"
FORMAT	= "I3"
DESCRIPTION	= "RX ADC value "
END_OBJECT	= COLUMN

The transmitter time series is identical to the FM1 version and is described by the following TABLE object.

OBJECT	= AMTESTTX_TABLE
NAME	= AMTESTTX
INTERCHANGE_FORMAT	= ASCII
ROWS	= 8192
COLUMNS	= 5
ROW_BYTES	= 59
^STRUCTURE	= "PP_AMT_TX.FMT"
END_OBJECT	= AMTESTTX_TABLE

#### The structure of the transmitter TABLE object is defined in the file PP\_AMT\_TX.FMT.

/\* PP AMTEST / AMTEST2 Tx table entry ,version 2, 2015-11-11 \*/

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 32
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	= "Measurement start time. SESAME local time
	(SLT) runs with a resolution of 1/32 seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN

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OBJ	ECT	=	COLUMN
	NAME	=	"TX_SAMPLE "
	DATA_TYPE	=	ASCII_INTEGER
	START_BYTE	=	48
	BYTES	=	5
	UNIT	=	"N/A"
	FORMAT	=	"I5"
	DESCRIPTION	=	"Tx sample number"
END	OBJECT	=	COLUMN
OBJ	ECT	=	COLUMN
	NAME	=	"TX_ADC_VALUE"
	DATA_TYPE	=	ASCII_INTEGER
	START_BYTE	=	54
	BYTES	=	3
	UNIT	=	"N/A"
	FORMAT	=	"I3"
	DESCRIPTION	=	"Tx ADC value "
END	_OBJECT	=	COLUMN

4.3.2.4.3.2.2 PP Health Check (HC) data

Same as FM1

4.3.2.4.3.2.3 PP Langmuir Probe Test (LM) data

Same as FM1

4.3.2.4.3.2.4 PP Passive Mode (PM) data

The PP PM data are organized as tables containing parameters and power spectra. The tables are kept in separate data files (combined detached labels). Consequently there will be one PDS label pointing to two data files.

Following is an example of PDS files corresponding to a PM measurement.

SES\_FS2\_PPM\_070929214512\_PM.LBL (label) SES FS2 PPM 070929214512 PAR.TAB (parameters) SES\_FS2\_PPM\_070929214512\_POW.TAB (power spectrum)

The parameters are described by the following TABLE object.

OBJECT	= PM2PAR_TABLE
NAME	= PM2PAR
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 11
ROW_BYTES	= 100
^STRUCTURE	= "PP_PM2_PAR.FMT"
END_OBJECT	= PM2PAR_TABLE

The structure of the parameters TABLE object is described in the file PP PM2 PAR.FMT.

/\* PP PM2 parameter settings, version 2, 2015-11-11 \*/ OBJECT = COLUMN NAME = "SESAME SEQ ID"

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DATA_TYPE = ASCII_INTEGER START_BYTE = 1 BYTES = 6 UNIT = "N/A"	
$\begin{array}{rcl} \text{START}\_\text{BYTE} &= 1 \\ \text{BYTES} &= 6 \\ \text{UNIT} &= "N/A" \end{array}$	
UNIT = $"N/A"$	
FORMAT = "I6"	
DESCRIPTION = "Sequence ID in the current data file"	
END OBJECT = COLUMN	
_	
OBJECT = COLUMN	
NAME = "UTC"	
DATA_TYPE = TIME	
START_BYTE = 8	
BYTES = 23	
DESCRIPTION = "Measurement start time (UTC in PDS standar format YYYY-MM-DDThh:mm:ss.sss)"	d
END_OBJECT = COLUMN	
OBJECT = COLUMN	
NAME = "SESAME_LOCAL_TIME"	
DATA_TYPE = ASCII_INTEGER	
START_BYTE = 32	
BYTES = 15	
FORMAT = "I15"	
DESCRIPTION = "Measurement start time. SESAME local time (SLT) runs with a resolution of 1/32 secon SLT represents the least significant 32 bi of LOBT. The most significant 5 bits are in CDMC_DOCT (are SECOME Deady Macrometer)"	ts
CDMS RSST (see SESAME Ready Message)" END_OBJECT = COLUMN	
OBJECT = COLUMN	
NAME = "LP INT CLK DIV"	
DATA TYPE = ASCII INTEGER	
START BYTE = 48	
BYTES = 2	
UNIT = "N/A"	
FORMAT = "I2"	
DESCRIPTION = "The LP integrator clock divider determines	
integrating time of Langmuir Probe (LP)	
measurement "	
END_OBJECT = COLUMN	
OBJECT = COLUMN	
NAME = "LP_VALUE"	
DATA_TYPE = ASCII_INTEGER	
START_BYTE = 51	
BYTES = 5	
UNIT = $"N/A"$	
FORMAT = "I5"	
DESCRIPTION = "Result count of Langmuir probe measurement	"
END_OBJECT = COLUMN	
OBJECT = COLUMN	

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NAME	= "LP MEAS ERR"		
DATA TYPE			
- START BYTE	—		
_ BYTES			
MISSING_CONSTANT	= 16#0000#		
DESCRIPTION	= "Error code for LP measurement.		
	Hex value as 16#xxxx#. The possible values are:		
	8001 Invalid register address.		
	8002 Error verifying register write.		
	8004 Error accessing power register.		
	8008 MUX setting not allowed.		
	8010 Error accessing PP RAM.		
	8020 Tried to start measurement but a measurement		
	is already running.		
	0040 Error during writing to instrument.		
	0080 Error during reading from instrument.		
	0100 Error using ADC of C-DPU.		
	0200 Error during DAC table generation.		
	0400 Calculated number of samples $> N_SAMP_MAX$ .		
	8800 C-DPU memory exhausted.		
	9000 Measurement time out.		
	2000 Invalid command parameter.		
	8000 Flag indicates fatal error. "		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "ADC_CLK_DIV"		
DATA_TYPE	—		
START_BYTE	= 66		
BYTES			
UNIT	= "N/A"		
FORMAT	= "I5"		
DESCRIPTION	= "ADC clock divider used when generating the		
	receiver sampling frequency: 5 MHz / this		
END OBJECT	parameter " = COLUMN		
END_OBOECI	- COLOMN		
OBJECT	= COLUMN		
NAME	= "NB SAMPLES"		
DATA TYPE	_		
	= 72		
BYTES	= 5		
UNIT	= "N/A"		
FORMAT	= "I5"		
	= "Number of used samples (excluding skipped samples) "		
END_OBJECT	= COLUMN		
—			
OBJECT	= COLUMN		
NAME	= "ERROR_CODE"		
DATA_TYPE	= ASCII_INTEGER		
START_BYTE	= 78		
BYTES	= 8		
UNIT	= "N/A"		

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MISSING_CONSTANT	= 16#0000#					
DESCRIPTION	<pre>= "Hex value as 16#xxxx#. The possible values are: 8001 Invalid register address. 8002 Error verifying register write. 8004 Error accessing power register. 8008 MUX setting not allowed. 8010 Error accessing PP RAM. 8020 Tried to start measurement but a measurement is already running. 0040 Error during writing to instrument. 0080 Error during reading from instrument. 0100 Error using ADC of C-DPU. 0200 Error during DAC table generation</pre>					
	0200 Error during DAC table generation. 0400 Calculated number of samples > N_SAMP_MAX.					
	<pre>8800 C-DPU memory exhausted. 9000 Measurement time out. 2000 Invalid command parameter. 8000 Flag indicates fatal error. "</pre>					
END_OBJECT	= COLUMN					
OBJECT NAME DATA_TYPE	<pre>= COLUMN = "NB_FREQ_BINS" = ASCII_INTEGER</pre>					
START_BYTE BYTES UNIT FORMAT	= 87 = 2 = "N/A" = "I2"					
DESCRIPTION END_OBJECT	<pre>= "Number of frequency bins " = COLUMN</pre>					
OBJECT NAME DATA_TYPE START_BYTE BYTES UNIT	<pre>= COLUMN = "MATH_ERR_CODE" = ASCII_INTEGER = 90 = 8 = "N/A"</pre>					
MISSING_CONSTANT	= 16#0000#					
DESCRIPTION	<pre>= "Indicates errors, which can only occur during    on-board data reduction (hex value as 16#xxxx#).    0001 Reduce: number of vector elements odd or less       than 2; fatal.    0002 Expand: less than four elements in input       vector; fatal.</pre>					
	0004 Too much data for analysis; truncating. 0008 Too few data for analysis; padding with 128 0010 Used number of waves is not a power of 2; truncated.					
	0020 Not the expected number of elements in filtered arrays; fatal.					
	0040 Argument for sine_table() not in valid range 0<= deg2 <=720.					
	0080 Overflow in divsin() or result inexact. 0100 Too few data for trimmed mean calculation;					

#### SESAME CASSE • DIM • PP SESAMEEAICD Reference: Issue: Date: Page: RO-LSE-DS-3102 1.0, LSE v2.5 17 December 2015 176 of 315 regular mean used. 0200 No data for warr.mean; particular: analysis yields no data. 176 of 315 0400 Passive mode: not enough data in bin. 0800 Not enough memory for data reduction."

END\_OBJECT

#### The power spectrum is described by the following TABLE object.

= COLUMN

OBJECT	= PM2POW_TABLE
NAME	= PM2POW
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 5
ROW_BYTES	= 63
^STRUCTURE	= "PP_PM2_POW.FMT"
END_OBJECT	= PM2POW_TABLE

#### The structure of the power spectrum TABLE object is described in the file PP\_PM2\_POW.FMT-

OBJECT	= COLUMN
NAME	= "SESAME SEQ ID"
DATA TYPE	= ASCII INTEGER
	= 1
_ BYTES	= 6
UNIT	= "N/A"
FORMAT	= "16"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 32
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	= "Measurement start time. SESAME local time
	(SLT) runs with a resolution of $1/32$ seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN

# SESAME

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OBJECT		COLUMN
NAME	=	"FREQ_BIN"
DATA_TYPE	=	ASCII_INTEGER
START_BYTE	=	48
BYTES	=	2
FORMAT	=	"12"
UNIT	=	"N/A"
DESCRIPTION	=	"Frequency bins meaning:
		1 20000-10000 Hz
		2 10000-5000 Hz
		3 5000-2500 Hz
		4 2500-1250 Hz
		5 1250-625 Hz
		6 625-312 Hz
		7 312-156 Hz
		8 156-78 Hz
		9 78-39 Hz
		10 39-20 Hz "
END OBJECT	=	COLUMN
_		
OBJECT	=	COLUMN
NAME	=	"POWER"
DATA_TYPE	=	ASCII_INTEGER
START_BYTE	=	51
BYTES	=	10
FORMAT	=	"110"
UNIT	=	"N/A"
DESCRIPTION	=	"Raw power"
END_OBJECT	=	COLUMN

#### 4.3.2.4.3.2.5 PP Passive Mode Test (PMTEST) data

The PP PMTEST2 data are organized as tables containing parameters, power spectra and receiver (Rx) time series. The tables are kept in separate data files (combined detached labels). Consequently there will be one PDS label pointing to three data files.

Following is an example of PDS files corresponding to a PMTEST measurement.

SES\_FS2\_PPM\_070929214512\_TEST.LBL (label)

SES\_FS2\_PPM\_070929214512\_TPAR.TAB (parameters)

SES\_FS2\_PPM\_070929214512\_TPOW.TAB (power spectrum)

SES\_FS2\_PPM\_070929214512\_TRX.TAB (receiver time series)

The parameters are described by the following TABLE object.

OBJECT	= PM2TPAR_TABLE
NAME	= PM2TPAR
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 11
ROW_BYTES	= 100
^STRUCTURE	= "PP_PMT2_PAR.FMT"
END_OBJECT	= PM2TPAR_TABLE

The structure of the parameters TABLE object is described in the file PP\_PMT2\_PAR.FMT.

# SESAME

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/\* PP PMTEST2 parameter settings, version 2, 2015-11-11 \*/

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	—
START_BYTE	
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA TYPE	= TIME
START BYTE	
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
Disciti i i on	format YYYY-MM-DDThh:mm:ss.sss)"
END OBJECT	= COLUMN
	COLDINA
OBJECT	= COLUMN
NAME	= "SESAME LOCAL TIME"
	= ASCII INTEGER
—	= 32
BYTES	= 15
FORMAT	= "115"
DESCRIPTION	<pre>= "Measurement start time. SESAME local time   (SLT) runs with a resolution of 1/32 seconds.   SLT represents the least significant 32 bits   of LOBT. The most significant 5 bits are in   CDMS RSST (see SESAME Ready Message)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LP INT CLK DIV"
DATA TYPE	= ASCII INTEGER
START BYTE	= 48
BYTES	= 2
UNIT	= "N/A"
FORMAT	= "12"
DESCRIPTION	= "The LP integrator clock divider determines
	integrating time of Langmuir Probe (LP) measurement "
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LP VALUE"
DATA TYPE	= ASCII INTEGER
START BYTE	= 51
BYTES	= 5
UNIT	= "N/A"
FORMAT	= "15"

#### Reference: RO-LSE-DS-3102 **SESAME** Issue: 1.0, LSE v2.5 **SESAME EAICD** 17 December 2015 Date: **CASSE • DIM • PP** Page: 179 of 315 DESCRIPTION = "Result count of Langmuir probe measurement " END OBJECT = COLUMN = COLUMN OBJECT = "LP\_MEAS\_ERR" NAME = ASCII INTEGER DATA TYPE START BYTE = 57 = 8 BYTES MISSING CONSTANT = 16#0000#DESCRIPTION = "Error code for LP measurement. Hex value as 16#xxxx#. The possible values are: 8001 Invalid register address. 8002 Error verifying register write. 8004 Error accessing power register. 8008 MUX setting not allowed. 8010 Error accessing PP RAM. 8020 Tried to start measurement but a measurement is already running. 0040 Error during writing to instrument. 0080 Error during reading from instrument. 0100 Error using ADC of C-DPU. 0200 Error during DAC table generation. 0400 Calculated number of samples > N SAMP MAX. 8800 C-DPU memory exhausted. 9000 Measurement time out. 2000 Invalid command parameter. 8000 Flag indicates fatal error. " = COLUMN END\_OBJECT OBJECT = COLUMN = "ADC CLK DIV" NAME DATA TYPE = ASCII INTEGER START BYTE = 66 = 5 BYTES = "N/A" UNIT FORMAT = "I5" = "ADC clock divider used when generating the DESCRIPTION receiver sampling frequency: 5 MHz / this parameter " END OBJECT = COLUMN OBJECT = COLUMN = "NB SAMPLES" NAME = ASCII INTEGER DATA TYPE START BYTE = 72 BYTES = 5 = "N/A" UNIT = "15" FORMAT = "Number of used samples (excluding skipped samples) " DESCRIPTION END OBJECT = COLUMN OBJECT = COLUMN

NAME

= "ERROR CODE"

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DATA_TYPE	—
START_BYTE	= 78
BYTES	= 8
UNIT	= "N/A"
MISSING_CONSTANT	= 16#0000#
DESCRIPTION	= "Hex value as 16#xxxx#. The possible values are:
	8001 Invalid register address.
	8002 Error verifying register write.
	8004 Error accessing power register.
	8008 MUX setting not allowed.
	8010 Error accessing PP RAM.
	8020 Tried to start measurement but a measurement
	is already running.
	0040 Error during writing to instrument.
	0080 Error during reading from instrument.
	0100 Error using ADC of C-DPU.
	0200 Error during DAC table generation.
	0400 Calculated number of samples > N_SAMP_MAX.
	8800 C-DPU memory exhausted.
	9000 Measurement time out.
	2000 Invalid command parameter.
	8000 Flag indicates fatal error. "
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "NB_FREQ_BINS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 87
BYTES	= 2
UNIT	= "N/A"
FORMAT	= "I2"
DESCRIPTION	= "Number of frequency bins "
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "MATH_ERR_CODE"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 90
BYTES	= 8
MISSING_CONSTANT	= 16#0000#
DESCRIPTION	= "Indicates errors, which can only occur during
	on-board data reduction (hex value as 16#xxxx#).
	0001 Reduce: number of vector elements odd or less
	than 2; fatal.
	0002 Expand: less than four elements in input
	vector; fatal.
	0004 Too much data for analysis; truncating.
	0008 Too few data for analysis; padding with 128
	0010 Used number of waves is not a power of 2;
	truncated.
	0020 Not the expected number of elements in
	filtered arrays; fatal.
	0040 Argument for sine_table() not in valid range

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		0<= deg2 <=720.		
	0080	Overflow in divsin() or res	sult inexact	t.
	0100	Too few data for trimmed me	ean calculat	tion;
		regular mean used.		
	0200	No data for warr.mean; part	cicular: and	alysis
		yields no data.		
	0400	Passive mode: not enough da	ata in bin.	
	0800	Not enough memory for data	reduction.	T
END_OBJECT	= COLUMN			

#### The un-calibrated power spectrum is described by the following TABLE object.

OBJECT	= PM2TPOW_TABLE
NAME	= PM2TPOW
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 5
ROW_BYTES	= 63
^STRUCTURE	= "PP_PM2_POW.FMT"
END_OBJECT	= PM2TPOW_TABLE

## The structure of the parameters TABLE object is identical to PM (FM2, FM3) and is described in the file PP\_PM2\_POW.FMT.

/\* PP raw power values, version 2, 2015-11-11 \*/

OBJ	ECT	=	COLUMN
	NAME	=	"SESAME_SEQ_ID"
	DATA_TYPE	=	ASCII_INTEGER
	START_BYTE	=	1
	BYTES	=	6
	UNIT	=	"N/A"
	FORMAT	=	"16"
	DESCRIPTION	=	"Sequence ID in the current data file"
END	OBJECT	=	COLUMN
OBJ	ECT	=	COLUMN
	NAME	=	"UTC"
	DATA TYPE	=	TIME
	_ START BYTE		
	BYTES	=	23
	DESCRIPTION	=	"Measurement start time (UTC in PDS standard
			format YYYY-MM-DDThh:mm:ss.sss)"
END	OBJECT	=	COLUMN
	_		
OBJ	ECT	=	COLUMN
	NAME	=	"SESAME_LOCAL_TIME"
	DATA_TYPE	=	ASCII_INTEGER
	START_BYTE	=	32
	BYTES		
	FORMAT	=	"I15"
	DESCRIPTION	=	"Measurement start time. SESAME local time

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	(SLT) runs with a resolution of SLT represents the least signifi of LOBT. The most significant 5	.cant 32 bit	ts
	CDMS RSST (see SESAME Ready Mess	sage)"	
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "FREQ_BIN"		
DATA_TYPE	= ASCII_INTEGER		
START_BYTE	= 48		
BYTES	= 2		
FORMAT	= "I2"		
UNIT	= "N/A"		
DESCRIPTION	= "Frequency bins meaning:		
	1 20000-10000 Hz		
	2 10000-5000 Hz		
	3 5000-2500 Hz		
	4 2500-1250 Hz		
	5 1250-625 Hz		
	6 625-312 Hz		
	7 312-156 Hz		
	8 156-78 Hz		
	9 78-39 Hz		
	10 39-20 Hz "		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "POWER"		
DATA TYPE	= ASCII INTEGER		
	= 51		
BYTES	= 10		
FORMAT	= "I10"		
UNIT	= "N/A"		
DESCRIPTION	= "Raw power"		
	-		

END\_OBJECT

= COLUMN The receiver data are described by the following TABLE object.

OBJECT	= PM2TRX_TABLE
NAME	= PM2TRX
INTERCHANGE_FORMAT	= ASCII
ROWS	= 8192
COLUMNS	= 5
ROW_BYTES	= 59
^STRUCTURE	= "PP_PMT_RX.FMT"
END_OBJECT	= PM2TRX_TABLE

The structure of the receiver data TABLE object is identical to PMTEST (FM1) and is described in the file PP\_PMT\_RX.FMT.

/\* PP PMTEST / PMTEST2 Rx table entry ,version 2, 2015-11-11 \*/

OBJECT	=	COLUMN		
NAME	=	"SESAME	_SEQ_	_ID"

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DATA TYPE	= ASCII INTEGER
START BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "16"
	= "Sequence ID in the current data file"
END OBJECT	= COLUMN
	COLONIA
OBJECT	= COLUMN
NAME	= "UTC"
DATA TYPE	= TIME
_ START BYTE	= 8
BYTES	= 23
	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME LOCAL TIME"
	= ASCII INTEGER
- START BYTE	—
—	= 15
FORMAT	= "115"
	= "Measurement start time. SESAME local time
DEDORATION	(SLT) runs with a resolution of 1/32 seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RX SAMPLE "
DATA TYPE	= ASCII_INTEGER
	= 48
BYTES	= 5
UNIT	= "N/A"
FORMAT	= "15"
DESCRIPTION	= "Rx sample number"
END OBJECT	= COLUMN
	COLORIN
OBJECT	= COLUMN
NAME	= "RX_ADC_VALUE"
DATA TYPE	= ASCII INTEGER
	= 54
BYTES	= 3
UNIT	= "N/A"
FORMAT	= "I3"
DESCRIPTION	= "RX ADC value "
END OBJECT	= COLUMN

#### 4.3.2.4.3.2.6 PP Control Table (RCTL) data

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The Control Table is sent only on request, usually as verification after changes to the frequency definitions for mode FM\_AM2. The data files will be stored in the PP AM sub-directory as they define the details of the PP\_AM2 measurement sequence. The request command was planned for the LTS phase and was never be used.

#### 4.3.2.4.3.3 Flight software version FM3

4.3.2.4.3.3.1 PP Active Mode Test

Same as FM2

4.3.2.4.3.3.2 PP Health Check (HC) data

Same as FM1

4.3.2.4.3.3.3 PP Langmuir Probe Test (LM) data

Same as FM1

4.3.2.4.3.3.4 PP Passive Mode (PM) data

Same as FM2

4.3.2.4.3.3.5 PP Passive Mode Test (PMTEST) data

Same as FM2

#### 4.3.2.5 Description of Instrument

The description of the instrument can be found in chapter 2.2 and as a brief overview in the INST.CAT catalog file.

#### 4.3.2.6 Mission Specific Keywords

ROSETTA: CASSE\_CHANNEL

- Type : ordered sequence
- **Description**: The CASSE\_CHANNEL ROSETTA mission specific keyword gives the type of measurement of each multiplexer channel.

The CASSE instrument is made of 3 piezoelectric transmitters and 3 triaxial accelerometers, and the respective electronics.

The transmitters and the 3 axes of each accelerometer are connected to an analogue 12-channel multiplexer.

It is possible to select any combination of 12 sensor channels, which can be the x, y, and z axes of each accelerometer and the 3 transmitters.

The sequence contains 12 elements representing the channel correspondence for CASSE measurements. These elements are flags that indicate if a channel is used or not. To increase readability, designations of used channels are given explicitly.

The sequence takes the following form: (channel 1, channel 2, ..., channel 12).

- **Standard values**: -YACCX, -YACCY, -YACCZ, +XACCX, +XACCY, +XACCZ, +YACCX, +YACCY, +YACCZ, -YTRM, +XTRM, +YTRM.

The unused channels take the value "-1".

- Unit: none

Explanation of acronym composition:

Characters 1,2: Philae foot (-Y, +X, +Y)

Characters 3,4,5: Sensor type (ACC: accelerometer; TRM: transmitter)

Character 6: ACC axis (X, Y, Z), if a triaxial accelerometer is used.

Examples

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This means that all three channels of the accelerometer in the -Y foot are used.

Example 2:

CASSE\_CHANNEL = (-1, -1, -1, -1, -1, -1, -1, -1, -1, -YTRM, +XTRM, +YTRM) This means that no accelerometer channel is used, but the transmitters of all three feet.

4.3.2.7 Data quality definition (level 2)

#### 4.3.2.7.1 CASSE

The DATA\_QUALITY\_ID for CASSE is defined according to the fraction of time series with lost data (see level 1) and with ADC values of  $\pm$ 127 compared to expected data volume.

The DATA\_QUALITY\_ID scheme is described by the associated DATA\_QUALITY\_DESC element as follows.

DATA\_QUALITY\_DESC = -1: NOT QUALIFIED

0: Data complete, 0% data loss

1: data loss < 5%

2: 5% ≤ data loss < 10%

- 3: 10% ≤ data loss < 20%
- 4: data loss ≥ 20%

#### 4.3.2.7.2 DIM

The DATA\_QUALITY\_ID for DIM is defined according to the operating mode, the number of warnings or errors and the fraction of data loss.

The following DATA\_QUALITY\_ID scheme is defined for the modes DIM\_HC, DIM\_AV and DIM\_BSTEST2.

DATA\_QUALITY\_DESC = -1: NOT QUALIFIED

- 0: Data complete
- 1: One or more Warnings
- 2: One or more Fatal Errors
- 3: N/A
- 4: N/A

The DATA\_QUALITY\_ID scheme for the DIM\_BC mode is calculated as follows.

If the number of "Detected Events" > 0 then "Data loss" = (No. "Long Events" and no. "False Events") / (No. "Detected Events")

The following DATA\_QUALITY\_ID scheme is defined for the DIM\_BC mode.

DATA\_QUALITY\_DESC = -1: NOT QUALIFIED

0: Data complete

1: data loss or Warnings < 10%

- 2: 10% ≤ data loss < 30%
- 3: 30% ≤ data loss < 60%
- 4: data loss or Fatal Errors ≥ 60 %

The data from DIM\_MES will be handled like DIM\_BC or DIM\_AV, whatever is appropriate.

4.3.2.7.3 PP

The DATA\_QUALITY\_ID for PP is defined according to the operating mode as follows.

4.3.2.7.3.1 PP Health Check

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DATA\_QUALITY\_DESC = -1: NOT QUALIFIED

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- 0: Data complete; no errors
  - 1: Disturbed signal: any raw parameter = 255 or 0
  - 2: One or more Fatal Errors

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- 3: N/A
- 4: N/A

4.3.2.7.3.2 PP Active Mode and Active Mode Test (PP\_AM2, PP\_AMTEST2)

DATA\_QUALITY\_DESC = -1: NOT QUALIFIED

- 0: Data complete; no errors
- 1: All QUAL-flags = 0x0F, limited use
- 2: One or more Fatal Errors
- 3: N/A
- 4: N/A

4.3.2.7.3.3 PP Passive Mode and Passive Mode Test (PP\_PM2, PP\_PMTEST2)

DATA\_QUALITY\_DESC = -1: NOT QUALIFIED

- 0: Data complete; no errors
- 1: Math Error code not equal 0, limited use
- 2: One or more Fatal Errors
- 3: N/A
- 4: N/A

#### 4.3.2.7.4 SESAME Health-Check

The criterion for the DATA\_QUALITY\_ID definition is the data loss versus expected data volume.

DATA\_QUALITY\_DESC = -1: NOT QUALIFIED 0: Data complete; no errors 1: data loss < 5%

- 2: 5% ≤ data loss < 10%
- 3: 10% ≤ data loss < 20%
- 4: data loss ≥ 20%

#### 4.3.2.7.5 SESAME common data object definition

The SESAME error messages are described by the following TABLE object.

OBJECT	= EMES_TABLE
NAME	= EMES
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 6
ROW_BYTES	= 73
^STRUCTURE	= "SESAME_EMES.FMT"
END_OBJECT	= EMES_TABLE

The structure of the receiver data TABLE object is described in the file SESAME\_EMES.FMT.

OBJECT	=	COLUMN
NAME	=	"UTC"
DATA_TYPE	=	TIME
START_BYTE	=	1

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= 23 BYTES DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" END OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME LOCAL TIME" DATA TYPE = ASCII INTEGER START BYTE = 25 BYTES = 15 = "I15" FORMAT = "Start time of measurement. SESAME local time DESCRIPTION (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)" END OBJECT = COLUMN OBJECT = COLUMN NAME = "ERR MSG ID" DATA TYPE = CHARACTER START BYTE = 42 BYTES = 14 FORMAT = "A14" DESCRIPTION = "Identifying character string: Error Message" = COLUMN END OBJECT OBJECT = COLUMN NAME = "ERR CODE" = CHARACTER DATA TYPE START BYTE = 59 BYTES = 4 = "A4" FORMAT = "Error code word (hex value): DESCRIPTION 1101 Tried to start A/D conversion, but ADC of C-DPU is in use 1102 Unknown HK parameter ID, HK value set to HK MISVAL 1103 Tried to read A/D converted value, but conversion is not ready 1406 Received CDMS message, which is not addressed to SESAME and is not a broadcast message; message ignored 140A Received unknown CDMS data message (msgDATA) 140C Unknown Action Code (newCDMSmsg!) 140E Unknown Action Code (NewCDMSmsg?) 1412 Wrong Word Count (rcvTRG) 1414 Wrong parameters (check\_actc) 1601 Unknown command category, TC ignored 1617 Unknown common TC 1A01 Wrong temperature channel, set to default 1A11 Unknown CASSE TC 1B01 Invalid margin, set margin to 0 1B02 Invalid direction, set direction to X 1D01 Could not allocate memory (COM\_MEM) 1D03 Could not allocate memory (COM\_HK) 1D08 Error reading Backup RAM Buffer 1D09 Error reading Stored TC Buffer E106 Could not allocate memory (COM RBUF) E402 SESAME request buffer full E4D0 Received CDMS Error Code Word with contents 0 E4D1 Received CDMS Error Code Word with contents 1 E4D2 Received CDMS Error Code Word with contents 2 E4D3 Received CDMS Error Code Word with contents 3 E4D4 Received CDMS Error Code Word with contents 4 E4D5 Received CDMS Error Code Word with contents 5

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E4D6 Received CDMS Error Code Word with contents 6 E4D7 Received CDMS Error Code Word with contents E4D8 Received CDMS Error Code Word with contents 8 E4D9 Received CDMS Error Code Word with contents 9 E4DA Received CDMS Error Code Word with contents A E4DB Received CDMS Error Code Word with contents B E4DC Received CDMS Error Code Word with contents C E4DD Received CDMS Error Code Word with contents D E4DE Received CDMS Error Code Word with contents E E4DF Received CDMS Error Code Word with contents F E501 Invalid case in module SDOUT EA20 Could not allocate memory (CAS\_HC) EA22 Could not submit measurement (CAS HC) EA24 Could not allocate memory (CAS MES) EA26 Could not submit SD (CAS MES) EAFF Allocated memory space exhausted EB20 Could not allocate memory (DIM CA) EB21 Could not submit SD (DIM CA) EB22 Could not allocate memory (DIM NT) EB23 Could not submit SD (DIM\_NT) EB24 Could not allocate memory (DIM ST) EB25 Could not submit SD (DIM\_ST) EB26 Could not allocate memory (DIM\_PC) EB27 Could not submit SD (DIM PC) EB28 Survey: Bad instrument health EB2A Could not allocate memory (DIM AV, DIM AVTEST) EB2B Could not submit SD (DIM AV, DIM AVTEST) EB2C Could not allocate memory (DIM BC, DIM BCTEST) EB2D Could not submit SD (DIM BC, DIM BCTEST) EB2E Autonomous Mode: Computed measurement duration for one AV- or BC-measurement derived from total measurement duration (TC parameter) is too small EB2F Autonomous Mode: Bad instrument health EB31 Survey: Allocated SRAM memory exhausted EB32 Survey: Excessive overcurrent interrupts EBF1 Unknown DIM TC EC30 Could not allocate memory (PP HC) EC31 Could not submit SD (PP HC) EC32 Could not allocate memory (PP\_DA) EC33 Could not submit SD (PP DA) EC52 Could not allocate memory (PP LM) EC53 Could not submit SD (PP LM) EC54 Could not allocate memory (PP AM) EC55 Could not submit SD (PP AM2) EC57 Could not allocate memory (PP AMTEST2) EC58 Could not submit SD (PP AMTEST2) EC5C Could not allocate memory (PP PM2) EC5D Could not submit SD (PP PM2) EC5E Could not allocate memory (PP PMTEST2) EC5F Could not submit SD (PP PMTEST2) ECE1 Unknown PP TC ED02 Could not submit SD (COM MEM) ED04 Could not submit SD (COM HK) ED05 Could not submit SD (COM RBUF) ED07 Timeout during Backup Buffer RAM reading EDOA Timeout during Stored TC Buffer reading EDOB Could not allocate memory (COM RDJC) EDOC Could not submit SD (COM RDJC) EDOD Could not allocate memory (COM WPENZ) EDOE Could not submit SD (COM WPENZ)" = COLUMN

END OBJECT

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OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT DESCRIPTION	
END_OBJECT	= COLUMN
DATA_TYPE START_BYTE BYTES FORMAT	
END_OBJECT	= COLUMN

#### The SESAME health check parameters are described by the following TABLE object.

OBJECT	= HC_TABLE
NAME	= HC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 69
ROW_BYTES	= 621
^STRUCTURE	= "SESAME_HC.FMT"
END_OBJECT	= HC_TABLE

# The structure of the receiver data TABLE object for FM1 and FM2 is described in the file SESAME\_HC.FMT.

OBJECT	= COLUMN					
NAME	= "UTC"					
DATA_TYPE = TIM	1E					
START_BYTE = 1						
BYTES	= 23					
DESCRIPTION = "Me	easurement start time (UTC in PDS standard					
format YY	format YYYY-MM-DDThh:mm:ss.sss)"					
END_OBJECT = COLUMN						
OBJECT =	COLUMN					
NAME =	"SESAME_LOCAL_TIME"					
DATA_TYPE =	ASCII_INTEGER					
START_BYTE =	25					
BYTES = 15						

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= "I15" FORMAT DESCRIPTION = "Measurement start time. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)" END OBJECT = COLUMN OBJECT = COLUMN = "CE U+5" NAME DATA TYPE = ASCII REAL START\_BYTE = 41 BYTES = 5 = "F5.3" FORMAT UNIT = "VOLT" DESCRIPTION = "Common electronics +5V voltage " OBJECT = COLJIMN END OBJECT OBJECT = COLUMN = "CE U-5" NAME DATA TYPE = ASCII REAL START BYTE = 47 BYTES = 6 = "F6.3" FORMAT = "VOLT" UNIT DESCRIPTION = "Common electronics -5V voltage" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CE U+12" DATA TYPE = ASCII REAL START\_BYTE = 54 BYTES = 6 = "F6.3" FORMAT = "VOLT" UNIT DESCRIPTION = "Common electronics +12V voltage " END OBJECT = COLUMN OBJECT = COLUMN = "CE U-12" NAME DATA TYPE = ASCII REAL START\_BYTE = 61 = 7 BYTES FORMAT = "F7.3" = "VOLT" UNIT DESCRIPTION = "Common electronics -12V voltage " END OBJECT = COLUMN OBJECT = COLUMN = "CE U+28" NAME DATA TYPE = ASCII REAL START\_BYTE = 69 BYTES = 6

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```
FORMAT = "F6.3"
                    = "VOLT"
   UNIT
   DESCRIPTION = "Common electronics +28V voltage"
END OBJECT = COLUMN
OBJECT
                    = COLUMN
  NAME
                   = "CE UCDP"
   DATA_TYPE
                  = ASCII_REAL
   START_BYTE = 76
   BYTES
                   = 5
                   = "F5.3"
   FORMAT
                     = "VOLT"
   UNIT
   DESCRIPTION = "Common electronics
      Common DPU +5V voltage"
END_OBJECT = COLUMN
OBJECT
                    = COLUMN
                   = "CE I+5"
   NAME
   DATA TYPE = ASCII REAL
   START BYTE = 82
   BYTES = 6
   FORMAT
                   = "F6.2"
                     = "MILLIAMPERE"
   UNIT
   DESCRIPTION = "Common electronics +5V current "
END OBJECT = COLUMN
                    = COLUMN
OBJECT
  NAME
                   = "CE I-5"
   DATA_TYPE
                   = ASCII REAL
   START BYTE = 89
                    = 6
   BYTES
   FORMAT
                    = "F6.2"
   UNIT
                     = "MILLIAMPERE"
   DESCRIPTION = "Common electronics -5V current "
END_OBJECT = COLUMN
OBJECT
                     = COLUMN
   NAME
                    = "CE I+12"
   DATA TYPE = ASCII REAL
   START_BYTE = 96
   BYTES
                    = 6
                   = "F6.2"
   FORMAT
                     = "MILLIAMPERE"
   UNIT
   DESCRIPTION = "Common electronics +12V current "
END OBJECT = COLUMN
OBJECT
                     = COLUMN
                    = "CE I-12"
   NAME
   DATA_TYPE = ASCII_REAL
   START BYTE = 103
   BYTES
                   = 6
   FORMAT
                   = "F6.2"
   UNIT
                     = "MILLIAMPERE"
```

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DESCRIPTION = "Common electronics -12V current " END OBJECT = COLUMN

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OBJECT = COLUMN NAME = "CE I+28" DATA TYPE = ASCII REAL START BYTE = 110 = 6 BYTES FORMAT = "F6.2" = "MILLIAMPERE" UNIT DESCRIPTION = "Common electronics +28V current " END OBJECT = COLUMN OBJECT = COLUMN NAME = "CE SUPS" DATA TYPE = CHARACTER START\_BYTE = 118 BYTES = 4 FORMAT = "A4" = "N/A" UNIT DESCRIPTION = "Common electronics SRAM usage/power status (hex value) " END OBJECT = COLUMN OBJECT = COLUMN = "CE TBO" NAME = ASCII INTEGER DATA TYPE START\_BYTE = 124 BYTES = 6 = "I6" FORMAT UNIT = "SECOND" DESCRIPTION = "Common electronics Time since boot " END OBJECT = COLUMN OBJECT = COLUMN NAME = "CE ERRF" DATA\_TYPE = CHARACTER START BYTE = 132 BYTES = 4 = "A4" FORMAT = "N/A" UNIT DESCRIPTION = "Common electronics Error flags (hex value) " END OBJECT = COLUMN OBJECT = COLUMN NAME = "CE CEID" DATA TYPE = CHARACTER START BYTE = 139 BYTES = 4 FORMAT = "A4" UNIT = "N/A"

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DESCRIPTION = "Common electronics SESAME ID (hex value:B5E5) " END OBJECT = COLUMN OBJECT = COLUMN = "CE CLTC" NAME DATA TYPE = CHARACTER START\_BYTE = 146 BYTES = 4 = "A4" FORMAT UNIT = "N/A" DESCRIPTION = "Common electronics Last received TC (hex value) " END OBJECT = COLUMN OBJECT = COLUMN NAME = "CE CBTC" DATA\_TYPE = CHARACTER START BYTE = 153 BYTES = 4 FORMAT = "A4" = "N/A" UNIT DESCRIPTION = "Common electronics Last but one TC (hex value) " END OBJECT = COLUMN OBJECT = COLUMN NAME = "CASSE TT-Y" DATA TYPE = ASCII REAL START BYTE = 159 = 7 BYTES FORMAT = "F7.2" UNIT = "KELVIN" DESCRIPTION = "CASSE Foot -Y/TRM temperature The temperature range is limited by the range of the ADC of the C-DPU to (-104.52, 173.55) deg Celsius " END OBJECT = COLUMN OBJECT = COLUMN = "CASSE\_TA-Y" NAME DATA\_TYPE = ASCII\_REAL START BYTE = 167 BYTES = 7 FORMAT = "F7.2" = "KELVIN" UNIT DESCRIPTION = "CASSE Foot -Y/ACC temperature The temperature range is limited by the range of the ADC of the C-DPU to (-104.52, 173.55) deg Celsius " END OBJECT = COLUMN

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OBJECT = COLUMN NAME = "CASSE TT+X" DATA TYPE = ASCII REAL START BYTE = 175 BYTES = 7 FORMAT = "F7.2" = "KELVIN" UNTT DESCRIPTION = "CASSE Foot +X/TRM temperature The temperature range is limited by the range of the ADC of the C-DPU to (-104.52, 173.55) deg Celsius " END OBJECT = COLUMN OBJECT = COLUMN NAME = "CASSE TA+X" DATA\_TYPE = ASCII\_REAL START BYTE = 183 = 7 BYTES FORMAT = "F7.2" = "KELVIN" UNIT DESCRIPTION = "CASSE Foot +X/ACC temperature The temperature range is limited by the range of the ADC of the C-DPU to (-104.52, 173.55) deg Celsius " END OBJECT = COLUMN OBJECT = COLUMN = "CASSE TT+Y" NAME DATA TYPE = ASCII REAL START BYTE = 191 = 7 BYTES = "F7.2" FORMAT UNIT = "KELVIN" DESCRIPTION = "CASSE Foot +Y/TRM temperature The temperature range is limited by the range of the ADC of the C-DPU to (-104.52, 173.55) deg Celsius " END OBJECT = COLUMN OBJECT = COLUMN = "CASSE TA+Y" NAME DATA TYPE = ASCII REAL START BYTE = 199 = 7 BYTES FORMAT = "F7.2" = "KELVIN" UNIT DESCRIPTION = "CASSE Foot +Y/ACC temperature The temperature range is limited by the range

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```
of the ADC of the C-DPU to (-104.52, 173.55)
                deg Celsius "
END OBJECT = COLUMN
OBJECT
                     = COLUMN
                     = "CASSE TPCB"
   NAME
   DATA TYPE = ASCII REAL
   START_BYTE = 207
   BYTES
                     = 7
                     = "F7.2"
   FORMAT
   UNIT
                     = "KELVIN"
   DESCRIPTION = "CASSE board temperature "
END OBJECT = COLUMN
OBJECT
                     = COLUMN
   NAME
                    = "CASSE UFPG"
   DATA_TYPE = ASCII_REAL
   START_BYTE = 215
   BYTES
                   = 6
                    = "F6.3"
   FORMAT
   UNIT
                     = "VOLT"
   DESCRIPTION = "CASSE FPGA 3.3V "
END_OBJECT = COLUMN
OBJECT
                     = COLUMN
   NAME
                     = "CASSE URAD 1S"
   DATA TYPE = ASCII REAL
   START_BYTE = 222
   BYTES
                    = 6
                   = "F6.3"
   FORMAT
                     = "VOLT"
   UNIT
   DESCRIPTION = "CASSE total dose (RADFET) "
END OBJECT = COLUMN
OBJECT
                    = COLUMN
  NAME
                   = "DIM UD +5"
   DATA TYPE
                   = ASCII REAL
   DATA_TYPE
START_BYTE
                  = 229
   BYTES
                   = 5
                   = "F5.3"
   FORMAT
                     = "VOLT"
   UNIT
   DESCRIPTION = "DIM +5V voltage "
END_OBJECT = COLUMN
OBJECT
                   = COLUMN
   NAME
                    = "DIM UD -5"
   DATA_TYPE = ASCII_REAL
   START BYTE = 235
   BYTES
                    = 6
                    = "F6.3"
   FORMAT
   UNIT
                     = "VOLT"
   DESCRIPTION = "DIM -5V voltage "
END OBJECT = COLUMN
```

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OBJECT = COLUMN NAME = "PP\_UP\_+5" DATA TYPE = ASCII REAL START BYTE = 242 BYTES = 5 FORMAT = "F5.3" UNIT = "VOLT" DESCRIPTION = "PP +5V voltage " END OBJECT = COLUMN OBJECT = COLUMN NAME = "PP D" DATA\_TYPE = ASCII INTEGER \_ START\_BYTE = 248 BYTES = 5 = "15" FORMAT UNIT = "N/A" DESCRIPTION = "PP electron density " END OBJECT = COLUMN OBJECT = COLUMN NAME = "PP IP -5" DATA TYPE = ASCII REAL START BYTE = 254 BYTES = 6 = "F6.3" FORMAT UNIT = "MILLIAMPERE" DESCRIPTION = "PP the current consumption of the PP digital electronics. The difference between UP+5 and the incoming +5 V supply voltage (U+05) is the voltage drop caused by the current (IP-5) through a 11.1 Ohm resistor. " END OBJECT = COLUMN OBJECT = COLUMN = "SESAME LOCAL TIME MEAS" NAME DATA\_TYPE = CHARACTER START BYTE = 262 BYTES = 8 FORMAT = "A8" MISSING CONSTANT = "99999999" DESCRIPTION = "Start time of each measurement. SESAME local time runs with a resolution of 31.25 ms represented in hexa value. Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN = "T-HK CHANNEL1" NAME DATA TYPE = ASCII REAL START\_BYTE = 272 BYTES = 7

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FORMAT = "F7.2" UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "Voltage of temperature channel using regular HK measurement, for Foot -Y/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN = "T-I1 CHANNEL1" NAME DATA TYPE = ASCII REAL START\_BYTE = 280 BYTES = 7 = "F7.2" FORMAT UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 1, for Foot -Y/TRM Does not exist for Software Version FM1" = COLUMN END OBJECT OBJECT = COLUMN = "T-R1 CHANNEL1" NAME DATA TYPE = ASCII REAL START BYTE = 288 BYTES = 7 FORMAT = "F7.2" UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 1 = UCDP, for Foot -Y/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN = "T-I2 CHANNEL1" NAME DATA\_TYPE = ASCII\_REAL START BYTE = 296 = 7 BYTES = "F7.2" FORMAT = "KELVIN" UNIT MISSING CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 2, for Foot -Y/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN = "T-R1\_CHANNEL1" NAME DATA TYPE = ASCII REAL START BYTE = 304

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BYTES = 7 = "F7.2" FORMAT UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 2 = U + 28, for Foot -Y/TRM Does not exist for Software Version FM1" = COLUMN END OBJECT OBJECT = COLUMN = "T-HK CHANNEL2" NAME DATA\_TYPE = ASCII\_REAL START BYTE = 312 = 7 BYTES FORMAT = "F7.2" UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "Voltage of temperature channel using regular HK measurement, for Foot -Y/ACC Does not exist for Software Version FM1" = COLUMN END OBJECT OBJECT = COLUMN = "T-I1 CHANNEL2" NAME DATA TYPE = ASCII REAL START BYTE = 320 BYTES = 7 FORMAT = "F7.2" UNIT = "KELVIN" MISSING\_CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 1, for Foot -Y/ACC Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-R1 CHANNEL2" DATA TYPE = ASCII REAL START\_BYTE = 328 = 7 BYTES = "F7.2" FORMAT UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 1 = UCDP, for Foot -Y/ACC Does not exist for Software Version FM1" = COLUMN END OBJECT OBJECT = COLUMN = "T-I2 CHANNEL2" NAME DATA\_TYPE = ASCII\_REAL START BYTE = 336

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BYTES = 7 = "F7.2" FORMAT UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 2, for Foot -Y/ACC Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-R1 CHANNEL2" DATA TYPE = ASCII REAL START BYTE = 344 BYTES = 7 = "F7.2" FORMAT = "KELVIN" UNIT MISSING\_CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 2 = U + 28, for Foot -Y/ACC Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN = "T-HK CHANNEL3" NAME DATA TYPE = ASCII REAL START BYTE = 352 BYTES = 7 FORMAT = "F7.2" UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "Voltage of temperature channel using regular HK measurement, for Foot +X/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-I1 CHANNEL3" DATA TYPE = ASCII REAL START\_BYTE = 360 BYTES = 7 = "F7.2" FORMAT = "KELVIN" UNIT MISSING CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 1, for Foot +X/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-R1 CHANNEL3" DATA TYPE = ASCII REAL

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START BYTE = 368 BYTES = 7 FORMAT = "F7.2" = "KELVIN" UNIT MISSING\_CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 1 = UCDP, for Foot +X/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-I2 CHANNEL3" DATA TYPE = ASCII REAL START BYTE = 376 BYTES = 7 = "F7.2" FORMAT = "KELVIN" UNTT MISSING\_CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 2, for Foot +X/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-R1 CHANNEL3" DATA TYPE = ASCII REAL START\_BYTE = 384 BYTES = 7 = "F7.2" FORMAT = "KELVIN" UNIT MISSING CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 2 = U + 28, for Foot +X/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN = "T-HK CHANNEL4" NAME DATA TYPE = ASCII REAL START BYTE = 392 = 7 BYTES = "F7.2" FORMAT = "KELVIN" UNIT MISSING CONSTANT = 9999.99 DESCRIPTION = "Voltage of temperature channel using regular HK measurement, for Foot +X/ACC Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-I1 CHANNEL4" DATA TYPE = ASCII REAL

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START BYTE = 400 BYTES = 7 FORMAT = "F7.2" = "KELVIN" UNIT MISSING\_CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 1, for Foot +X/ACC Does not exist for Software Version FM1" = COLUMN END OBJECT OBJECT = COLUMN NAME = "T-R1 CHANNEL4" DATA TYPE = ASCII\_REAL START BYTE = 408 = 7 BYTES = "F7.2" FORMAT UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 1 = UCDP, for Foot +X/ACC Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-I2 CHANNEL4" DATA TYPE = ASCII REAL START\_BYTE = 416 BYTES = 7 = "F7.2" FORMAT = "KELVIN" UNIT MISSING CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 2, for Foot +X/ACC Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN = "T-R1 CHANNEL4" NAME DATA TYPE = ASCII REAL START BYTE = 424 = 7 BYTES FORMAT = "F7.2" UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 2 = U + 28, for Foot +X/ACC Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-HK CHANNEL5"

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DATA TYPE = ASCII REAL START BYTE = 432 BYTES = 7 = "F7.2" FORMAT = "KELVIN" UNIT MISSING CONSTANT = 9999.99 DESCRIPTION = "Voltage of temperature channel using regular HK measurement, for Foot +Y/TRM Does not exist for Software Version FM1" = COLUMN END OBJECT OBJECT = COLUMN NAME = "T-I1 CHANNEL5" DATA TYPE = ASCII\_REAL START BYTE = 440 = 7 BYTES FORMAT = "F7.2" UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 1, for Foot +Y/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN = "T-R1 CHANNEL5" NAME DATA\_TYPE = ASCII\_REAL START BYTE = 448 BYTES = 7 = "F7.2" FORMAT UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 1 = UCDP, for Foot +Y/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN = "T-I2 CHANNEL5" NAME DATA TYPE = ASCII REAL START BYTE = 456 = 7 BYTES FORMAT = "F7.2" UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 2, for Foot +Y/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN = COLUMN

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OBJECT

## **SESAME**

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= "T-R1 CHANNEL5" NAME DATA\_TYPE = ASCII\_REAL START\_BYTE = 464 BYTES = 7 = "F7.2" FORMAT = "KELVIN" UNIT MISSING CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 2 = U + 28, for Foot +Y/TRM Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN = "T-HK CHANNEL6" NAME DATA TYPE = ASCII REAL START BYTE = 472 = 7 BYTES FORMAT = "F7.2" UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "Voltage of temperature channel using regular HK measurement, for Foot +Y/ACC Does not exist for Software Version FM1" = COLUMN END OBJECT OBJECT = COLUMN = "T-I1 CHANNEL6" NAME DATA\_TYPE = ASCII\_REAL START BYTE = 480 BYTES = 7 = "F7.2" FORMAT UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 1, for Foot +Y/ACC Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN = "T-R1 CHANNEL6" NAME DATA\_TYPE = ASCII\_REAL START BYTE = 488 BYTES = 7 = "F7.2" FORMAT = "KELVIN" UNIT MISSING\_CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 1 = UCDP, for Foot +Y/ACC Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN

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= "T-I2 CHANNEL6" NAME DATA\_TYPE = ASCII\_REAL START\_BYTE = 496 BYTES = 7 = "F7.2" FORMAT = "KELVIN" UNIT MISSING CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 2, for Foot +Y/ACC Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-R1 CHANNEL6" DATA TYPE = ASCII REAL START BYTE = 504 BYTES = 7 FORMAT = "F7.2" = "KELVIN" UNIT MISSING\_CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 2 = U + 28, for Foot +Y/ACC Does not exist for Software Version FM1" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-HK CHANNEL7" DATA TYPE = ASCII REAL START BYTE = 512 = 7 BYTES FORMAT = "F7.2" UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "Voltage of temperature channel using regular HK measurement, for CASSE PCB temperature Does not exist for Software Version FM1 " END OBJECT = COLUMN OBJECT = COLUMN = "T-I1 CHANNEL7" NAME DATA\_TYPE = ASCII\_REAL START BYTE = 520 BYTES = 7 = "F7.2" FORMAT UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 1, for CASSE PCB temperature Does not exist for Software Version FM1 " END OBJECT = COLUMN

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OBJECT = COLUMN NAME = "T-R1 CHANNEL7" DATA\_TYPE = ASCII\_REAL START BYTE = 528 = 7 BYTES = "F7.2" FORMAT UNIT = "KELVIN" MISSING\_CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 1 = UCDP, for CASSE PCB temperature Does not exist for Software Version FM1" END\_OBJECT = COLUMN OBJECT = COLUMN NAME = "T-I2 CHANNEL7" DATA TYPE = ASCII REAL START BYTE = 536 BYTES = 7 FORMAT = "F7.2" = "KELVIN" UNIT MISSING\_CONSTANT = 9999.99 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to to reference channel 2, for CASSE PCB temperature Does not exist for Software Version FM1" END\_OBJECT = COLUMN OBJECT = COLUMN = "T-R1 CHANNEL7" NAME DATA TYPE = ASCII REAL START BYTE = 544 BYTES = 7 FORMAT = "F7.2" UNIT = "KELVIN" MISSING CONSTANT = 9999.99 DESCRIPTION = "voltage of reference channel 2 = U + 28, for CASSE PCB temperature Does not exist for Software Version FM1" END OBJECT = COLUMN

The structure of the receiver data TABLE object for FM3 is described in the file SESAME\_HC\_FM3.FMT.

/* FILE_CONTENTS	= SESAME Health Check */
/*	Flight software FM3, CODMAC level 3 $^{\star/}$
/* FILE_NAME	= SESAME_HC_FM3.FMT */
/* REVISION_NOTE	= SESAME/DIM team, version 1, 2015-11-04 */
/*	K. Seidensticker, version 2, 2015-11-04 */
/*	W. Schmidt, version 4, 2015-11-11 */
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 1

<pre>OBJECT = COLUMN NAME "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 25 BYTES = 15 FORMAT = "115" DESCRIPTION "Measurement start time. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SIT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CCMS RSET (see SESAME Ready Message)" END_OBJECT = COLUMN NAME = "U+05" DATA_TYPE = ASCII_REAL START_BYTE = 41 BYTES = 8 FORMAT = "F6.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 DESCRIPTION = "Common electronics +5V voltage" END_OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F6.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = COLUMN OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F6.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F6.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN</pre>	SESAME casse • dim • pp	SESAME EAICD	Reference: Issue: Date: Page:	1.0. LSE v2.5
Format YYYY-MA-DDThhrmiss,sss)" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESSAME_LOCAL_TIME" DATA_TYPE = ASCIT_INTEGER STAAT_SYTE = 25 NOTAAT = TIS" DESCRIPTION = "IIS" DESCRIPTION = "IIS" DESCRIPTION = "IIS" DESCRIPTION = COLUMN RAME = "UHOS" DATA_TYPE = ASCIT_REAL STAAT_SYTE = 41 SYTES = 8 FORMAT = "78.3" UNIT = "78.3" UNIT = COLUMN RAME = "UHOS" DATA_TYPE = ASCIT_REAL STAAT_SYTE = 41 SYTES = 8 FORMAT = "78.3" UNIT = "78.3" UNIT = COLUMN CBJECT = COLUMN CALLENT = COLUMN CBJECT = COLUMN CALLENT = "COLUMN NAME = "UHOS" DATA_TYPE = ASCIT_REAL STAAT_SYTE = 41 SYTES = 8 FORMAT = "78.3" UNIT = "78.3" UNIT = "78.3" UNIT = COLUMN NAME = "U-OS" DATA_TYPE = ASCII_REAL STAAT_SYTE = 4 FORMAT = "999.999 DESCRIPTION = "COMUNEN NAME = "U-OS" DATA_TYPE = ASCII_REAL STAAT_SYTE = 50 SYTES = 8 FORMAT = "98.3" UNIT = "V0.1" MISSING_CONSTANT = 9999.999 DESCRIPTION = "COMUNEN CALLENT = COLUMN CALLENT	BYTES	= 23		
<ul> <li>OBJECT = COLUMN</li> <li>NAME = "SEAME_LOCAL_TIME"</li> <li>DATA_TYPE = ASCII_INTEGER</li> <li>START_FYTE = 23</li> <li>PYTES = 15</li> <li>FORMAT = "TIS"</li> <li>DESCRIPTION = "Measurement start time. SESAME local time (SUT) runs with a resolution of 1/32 seconds.</li> <li>SUT represents the least significant 32 bits of LORT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)"</li> <li>END_GRUECT = COLUMN</li> <li>OBJECT = COLUMN</li> <li>NUP = NUTICT</li> <li>NUPS = 8</li> <li>FORMAT = "YE.3"</li> <li>UNT = "YOL7"</li> <li>MISSING_CONSTANT = 9999.999</li> <li>DESCRIPTION = "Common electronics -5V voltage"</li> <li>END_GRUET = FS.3"</li> <li>UNT = NUTICT</li> <li>MISSING_CONSTANT = 9999.999</li> <li>DESCRIPTION = "Common electronics -5V voltage"</li> <li>INTE = 999.999</li> <li>DESCRIPTION = "VOL7"</li> <li>MISSING_CONSTANT = 9999.999</li> <li>DESCRIPTION = "Common electronics +12V voltage"</li> <li>INTE = NUTES = 8</li> <li>PORMAT = "YOL7"</li> <li>MISSING_CONSTANT = 9999.999</li> <li>DESCRIPTION =</li></ul>	DESCRIPTION			dard
NAME = "SEGAME_LOCAL_TIME" DATA_TYPE = ASCII_INTECER STAR_BYTS = 15 FORMAT = "115" DESCRIPTION = "Measurement start time. SEGAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOST. The most significant 5 bits are in COMS RSST (see SEGAME Ready Message)" END_ORJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "U+05" DATA_TYPE = ASCII_REAL START_BYTE = 41 BYTES = 8 FORMAT = "F8.3" UNIT = "VOL7" MISSING_CONSTANT = 999.999 DESCRIPTION = "COMMON electronics +5V voltage" END_OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 DYTES = 8 FORMAT = "F8.3" UNIT = "VOL7" MISSING_CONSTANT = 9999.999 DESCRIPTION = "COMMON electronics -5V voltage" END_OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 DYTES = 8 FORMAT = "F8.3" UNIT = "VOL7" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_GAJECT = COLUMN NAME = "U-12" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_GAJECT = COLUMN NAME = "U-12" MISSING_CONSTANT = 999.999 DESCRIPTION = "COMMON electronics -5V voltage" END_GAJECT = COLUMN NAME = "U-12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOL7" MISSING_CONSTANT = 999.999 DESCRIPTION = "Common electronics +12V voltage" END_GAJECT = COLUMN OBJECT = COLUMN	END_OBJECT	= COLUMN		
DATA TYPE = ASCII_INTEGER START_BYTE = 25 START_BYTE = 25 DESCRIPTION = "II5" DESCRIPTION = "Measurement start time. SESAME local time (SLI) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOST. The most significant 5 bits are in COMS RSST (see SESAME Ready Message)" END_OBJECT = COLUMN NAME = "U+05" DATA_TYPE = ASCII_REAL START_BYTE = 41 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +5V voltage" END_OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN MAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U-12" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN	OBJECT	= COLUMN		
START_EYTE= 25BYTES= 15FORWAT= "II5"DESCRIPTION= "Measurement start time. SESAME local time (SLZ) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDME RSST (see SESAME Ready Message)"END_OBJECT= COLUMNOBJECT= COLUMNDATA_TYPE= ASCII_REAL START_ENTESTART_ENTE= 41BYTES= 8 FORMATPORMAT= "F0.3" UNITUNIT= "V01C" MISSING_CONSTANTOBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNNAME= "U-05" DATA_TYPEDATA_TYPE= ASCII REAL START_ENTESTART_ENTE= 6 FORMAT= "F0.3" UNIT= "V01C" MISSING_CONSTANTDESCRIPTION= "Common electronics +5V voltage"END_OBJECT= COLUMNNAME= "U-05" DATA_TYPEDATA_TYPE= ASCII REAL START_ENTESTART_ENTE= 50 DESCRIPTIONEND_CONSTANT= 9999,999 DESCRIPTIONOBJECT= COLUMNNAME= "U+12" DATA_TYPEDATA_TYPE= ASCII_REAL START_BYTESTART_BYTE= 59 STTESSTART_STRE_CONSTANT= 999,999 DESCRIPTIONDESCRIPTION= "Conmon electronics +12V voltage"OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMN	NAME	= "SESAME_LOCAL_TIME"		
BYTES = 15 FORMAT = "115" DESCRIPTION = "Measurement start time. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most SESAME Ready Message)" END_OBJECT = COLUMN NAME = "U+05" DATA_TYPE = 41 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +5V voltage" END_OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = COLUMN NAME = "U-12" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 DYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN OBJECT = COLUMN	DATA_TYPE	= ASCII_INTEGER		
FORMAT= "115"DESCRIPTION"Measurement start time. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS SESST (see SESAME Ready Message)"END_OBJECT= COLUMNNAME= "U+05"DATA_TYPE= ASCII_EEAL START_BYTEBYTES= 8 FORMATFORMAT= "F8.3" UNITUNIT= "Outon"MAE= "U-05"DATA_TYPE= COLUMNMISSING_CONSTANT= 999.993 DESCRIPTIONOBJECT= COLUMNNAME= "U-05" DATA_TYPEDATA_TYPE= ASCII_EEAL START_BYTESTART_DATE= 78.3" UNITNAME= "U-05" DATA_TYPEDATA_TYPE= ASCII_EEAL START_BYTESTART_DATE= 999.993 DESCRIPTIONDESCRIPTION= "V-05" DATA_TYPEDATA_TYPE= ASCII_EEAL START_BYTESTART_DATE= 999.993 DESCRIPTIONDESCRIPTION= "VOLT" MISSING_CONSTANT MISSING_CONSTANT DATA_TYPEOBJECT= COLUMN NAMENAME= "U+12" DATA_TYPEDATA_TYPE= ASCII_EEAL START_BYTESTART_DATE= 59 BTTESPORMAT= "F8.3" UNITUNIT= "NOLT" MISSING_CONSTANTDATA_TYPE= ASCII_EEAL START_BYTESTART_DATE= 799.993 DESCRIPTIONDESCRIPTION= "Common electronics -5V voltage"END_OBJECT= COLUMNNAME= "VL12" DATA_TYPE <td>START_BYTE</td> <td>= 25</td> <td></td> <td></td>	START_BYTE	= 25		
DESCRIPTION = "Measurement start time. SESAME local time (SIT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 32 bits of LOBT. The most significant 32 bits of LOBT. The most significant 53 bits are in CDMS RSST (see SESAME Ready Message)" END_OBJECT = COLUMN NAME = "U+OS" DATA_TYPE = ASCII_REAL START_BYTE = 41 BYTES = 8 FORMAT = "F6.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +5V voltage" END_OBJECT = COLUMN NAME = "U-OS" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F6.3" UNIT = "V0.1" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN	BYTES	= 15		
(SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDNS RSST (see SESAME Ready Message)"END_OBJECT= COLUMNNAME= "U+OS" DATA_TYPEASCII_REAL START_BYTE= 41 BYTESBYTES= 8 FORMATFORMAT= "F8.3" UNITUNIT= "VOLT" MISSING_CONSTANTOBJECT= COLUMNNAME= "U-OS" DATA_TYPEDATA_TYPE= ASCII_REAL START_BYTESTART_BYTE= 50 BYTESDATA_TYPE= ASCII_REAL START_BYTESTART_BYTE= 50 BYTESDOBJECT= COLUMNOBJECT= COLUMNNAME= "U-OS" DATA_TYPEDATA_TYPE= ASCII_REAL START_BYTESTART_BYTE= 50 BYTESDESCRIPTION= "Common electronics -5V voltage"END_OBJECT= COLUMNOBJECT= COLUMNMISSING_CONSTANT= 9999.999 DESCRIPTIONDESCRIPTION= "Common electronics -5V voltage"END_OBJECT= COLUMNNAME= "U+12" DATA_TYPEDATA_TYPE= ASCII_REAL START_BYTESTART_BYTE= 59 BYTESBYTES= 8 FORMATFORMAT= "P8.3" UNITUNIT= "VoLT" MISSING_CONSTANTDATA_TYPE= ASCII_REAL START_BYTESTART_BYTE= 59 BYTESBYTES= 8 FORMATFORMAT= "P99.999 DESCRIPTIONBYTES= 8 FORMATFORM	FORMAT	= "I15"		
DBJECT = COLUMN NAME = "U+05" DATA_TYPE = ASCII_REAL START_BYTE = 41 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +5V voltage" END_OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN MAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U-12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "COLUMN NAME = "U-12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "COLUMN NAME = "U-12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "COMMON = "COMMON = "COMMON = "U-12" DATA_TYPE = COLUMN MISSING_CONSTANT = 9999.999 DESCRIPTION = "COMMON = "CO	DESCRIPTION	(SLT) runs with a resolution SLT represents the least sig of LOBT. The most significan	n of 1/32 se gnificant 32 nt 5 bits ar	conds. bits
NAME = "U+05" DATA_TYPE = ASCII_REAL START_BYTE = 41 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSINC_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +5V voltage" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSINC_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = SO BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSINC_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN MISSINC_CONSTANT = 9999.999 DESCRIPTION = "VOLT" MISSINC_CONSTANT = 9999.999 DESCRIPTION = "COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSINC_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN OBJECT = COLUMN	END_OBJECT	= COLUMN		
DATA_TYPE       = ASCII_REAL         START_BYTE       = 41         BYTES       = 8         FORMAT       = "F8.3"         UNIT       = "VOLT"         MISSING_CONSTANT       = 9999.999         DESCRIPTION       = "Common electronics +5V voltage"         END_OBJECT       = COLUMN         NAME       = "U-05"         DATA_TYPE       = ASCII_REAL         START_BYTE       = 50         BYTES       = 8         FORMAT       = "F8.3"         UNIT       = "VOLT"         MISSING_CONSTANT       = 9999.999         DESCRIPTION       = "Common electronics -5V voltage"         END_OBJECT       = COLUMN         MISSING_CONSTANT       = 9999.999         DESCRIPTION       = "Common electronics -5V voltage"         END_OBJECT       = COLUMN         NAME       = "U+12"         DATA_TYPE       = ASCII_REAL         START_BYTE       = 59         BYTES       = 8         FORMAT       = "F8.3"         UNIT       = VOLT"         MISSING_CONSTANT       = 9999.999         DESCRIPTION       = "Common electronics +12V voltage"         END_OBJECT	OBJECT	= COLUMN		
STAR_BYTE = 41 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +5V voltage" END_OBJECT = COLUMN NAME = "U-O5" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN OBJECT = COLUMN	NAME	= "U+05"		
BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +5V voltage" END_OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN	DATA_TYPE	= ASCII_REAL		
FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics +5V voltage"END_OBJECT= COLUMNOBJECT= COLUMNOBJECT= COLUMNNAME= "U-05"DATA_TYPE= ASCII_REALSTART_BYTE= 50BYTES= 8FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics -5V voltage"OBJECT= COLUMNNAME= "U+12"DATA_TYPE= ASCII_REALSTART_BYTE= 59BYTES= 8FORMAT= "U+12"DATA_TYPE= ASCII_REALSTART_BYTE= 59BYTES= 8FORMAT= "F8.3"UNIT= VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics +12V voltage"END_OBJECT= COLUMN	START_BYTE	= 41		
UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +5V voltage" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "V0LT" MISSING_CONSTANT = 9999.999 DESCRIPTION = COLUMN	BYTES	= 8		
MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +5V voltage" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "COMMN	FORMAT	= "F8.3"		
DESCRIPTION = "Common electronics +5V voltage" END_OBJECT = COLUMN NAME = "U-05" DATA_TYPE = ASCII_REAL START_BYTE = 50 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "COLUMN MISSING_CONSTANT = 9999.999 DESCRIPTION = COLUMN	UNIT	= "VOLT"		
END_OBJECT= COLUMNOBJECT= COLUMNNAME= "U-05"DATA_TYPE= ASCII_REALSTART_BYTE= 50BYTES= 8FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics -5V voltage"END_OBJECT= COLUMNNAME= "U+12"DATA_TYPE= ASCII_REALSTART_BYTE= 59BYTES= 8FORMAT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= COLUMNOBJECT= COLUMNNAME= "U+12"DATA_TYPE= ASCII_REALSTART_BYTE= 59BYTES= 8FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= COLUMNOBJECT= COLUMN	MISSING CONSTANT	= 9999.999		
END_OBJECT= COLUMNOBJECT= COLUMNNAME= "U-05"DATA_TYPE= ASCII_REALSTART_BYTE= 50BYTES= 8FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics -5V voltage"END_OBJECT= COLUMNNAME= "U+12"DATA_TYPE= ASCII_REALSTART_BYTE= 59BYTES= 8FORMAT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= COLUMNOBJECT= COLUMNNAME= "U+12"DATA_TYPE= ASCII_REALSTART_BYTE= 59BYTES= 8FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= COLUMNOBJECT= COLUMN	DESCRIPTION	= "Common electronics +5V volta	ige"	
NAME       = "U-05"         DATA_TYPE       = ASCII_REAL         START_BYTE       = 50         BYTES       = 8         FORMAT       = "F8.3"         UNIT       = "VOLT"         MISSING_CONSTANT       = 9999.999         DESCRIPTION       = "Common electronics -5V voltage"         END_OBJECT       = COLUMN         NAME       = "U+12"         DATA_TYPE       = S9         BYTES       = 8         FORMAT       = "F8.3"         UNIT       = VOLT"         MAME       = "U+12"         DATA_TYPE       = 59         BYTES       = 8         FORMAT       = "F8.3"         UNIT       = "VOLT"         MISSING_CONSTANT       = 9999.999         DESCRIPTION       = "COLUMN         MISSING_CONSTANT       = 9999.999         DESCRIPTION       = "COLUMN         MISSING_CONSTANT       = 9999.999         DESCRIPTION       = "COLUMN	END_OBJECT	= COLUMN		
DATA_TYPE       = ASCII_REAL         START_BYTE       = 50         BYTES       = 8         FORMAT       = "F8.3"         UNIT       = "VOLT"         MISSING_CONSTANT       = 9999.999         DESCRIPTION       = "COLUMN         OBJECT       = COLUMN         NAME       = "U+12"         DATA_TYPE       = ASCII_REAL         START_BYTE       = 59         BYTES       = 8         FORMAT       = "VOLT"         MISSING_CONSTANT       = 9999.999         DESCRIPTION       = "CULUMN         NAME       = "U+12"         DATA_TYPE       = ASCII_REAL         START_BYTE       = 59         BYTES       = 8         FORMAT       = "F8.3"         UNIT       = "VOLT"         MISSING_CONSTANT       = 9999.999         DESCRIPTION       = "COLUMN         END_OBJECT       = COLUMN         OBJECT       = COLUMN	OBJECT	= COLUMN		
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BYTES= 8FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics -5V voltage"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "U+12"DATA_TYPE= ASCII_REALSTART_BYTE= 59BYTES= 8FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics +12V voltage"END_OBJECT= COLUMN	DATA_TYPE	= ASCII_REAL		
FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics -5V voltage"END_OBJECT= COLUMNOBJECT= COLUMNNAME= "U+12"DATA_TYPE= ASCII_REALSTART_BYTE= 59BYTES= 8FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics +12V voltage"END_OBJECT= COLUMN	START_BYTE	= 50		
UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN	BYTES	= 8		
MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN	FORMAT	= "F8.3"		
DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN	UNIT	= "VOLT"		
DESCRIPTION = "Common electronics -5V voltage" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN	MISSING CONSTANT	= 9999.999		
END_OBJECT = COLUMN OBJECT = COLUMN NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN			ige"	
NAME = "U+12" DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN	END_OBJECT		-	
DATA_TYPE = ASCII_REAL START_BYTE = 59 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN	OBJECT	= COLUMN		
START_BYTE= 59BYTES= 8FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics +12V voltage"END_OBJECT= COLUMN	NAME	= "U+12"		
BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN OBJECT = COLUMN	DATA_TYPE	= ASCII_REAL		
FORMAT= "F8.3"UNIT= "VOLT"MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics +12V voltage"END_OBJECT= COLUMNOBJECT= COLUMN	START_BYTE	= 59		
UNIT = "VOLT" MISSING_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN OBJECT = COLUMN	BYTES	= 8		
MISSING_CONSTANT= 9999.999DESCRIPTION= "Common electronics +12V voltage"END_OBJECT= COLUMNOBJECT= COLUMN	FORMAT	= "F8.3"		
DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN OBJECT = COLUMN	UNIT	= "VOLT"		
DESCRIPTION = "Common electronics +12V voltage" END_OBJECT = COLUMN OBJECT = COLUMN	MISSING_CONSTANT	= 9999.999		
OBJECT = COLUMN			age"	
	END_OBJECT			
NAME = "U-12"	OBJECT	= COLUMN		
	NAME	= "U-12"		

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DATA TYPE = ASCII REAL START\_BYTE = 68 BYTES = 8 FORMAT = "F8.3" = "VOLT" UNIT MISSING\_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -12V voltage" END\_OBJECT = COLUMN OBJECT = COLUMN = "U+28" NAME DATA TYPE = ASCII REAL START BYTE = 77 = 8 BYTES FORMAT = "F8.3" = "VOLT" UNIT MISSING\_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +28V voltage" END OBJECT = COLUMN OBJECT = COLUMN = "UCDP" NAME DATA TYPE = ASCII REAL START BYTE = 86 = 8 BYTES = "F8.3" FORMAT = "VOLT" UNIT MISSING\_CONSTANT = 9999.999 DESCRIPTION = "Common electronics Common DPU +5V voltage" END OBJECT = COLUMN OBJECT = COLUMN = "I+05" NAME DATA TYPE = ASCII REAL START BYTE = 95 = 8 BYTES FORMAT = "F8.3" = "MILLIAMPERE" UNIT MISSING\_CONSTANT = 9999.999 DESCRIPTION = "Common electronics +5V current" END\_OBJECT = COLUMN OBJECT = COLUMN = "I-05" NAME DATA TYPE = ASCII REAL START BYTE = 104 = 8 BYTES FORMAT = "F8.3" UNIT = "MILLIAMPERE" MISSING\_CONSTANT = 9999.999 DESCRIPTION = "Common electronics -5V current" END OBJECT = COLUMN

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OBJECT	=	COLUMN
NAME		"I+12"
DATA TYPE	=	ASCII REAL
—	=	 113
 BYTES	=	8
FORMAT	=	"F8.3"
UNIT	=	"MILLIAMPERE"
MISSING_CONSTANT	=	9999.999
DESCRIPTION	=	"Common electronics +12V current"
END_OBJECT	=	COLUMN
OBJECT	=	COLUMN
NAME	=	"I-12"
DATA_TYPE		ASCII_REAL
START_BYTE	=	122
BYTES	=	•
FORMAT	=	"F8.3"
		"MILLIAMPERE"
MISSING_CONSTANT		
		"Common electronics -12V current"
END_OBJECT	=	COLUMN
OBJECT	_	COLUMN
NAME		"I+28"
		ASCII REAL
START BYTE		131
BYTES	=	
		"F8.3"
		"MILLIAMPERE"
MISSING_CONSTANT		
—		"Common electronics +28V current"
END OBJECT		COLUMN
_		
OBJECT	=	COLUMN
NAME	=	"SUPS"
DATA_TYPE	=	ASCII_INTEGER
START_BYTE	=	140
BYTES	=	8
UNIT		"N/A"
MISSING_CONSTANT		16#FFFF#
DESCRIPTION	=	"Common electronics; SRAM usage/
		power status (hex value as 16#xxxx#)"
END_OBJECT	=	COLUMN
OBJECT	=	COLUMN
NAME		"TIBO"
DATA TYPE		ASCII INTEGER
START_BYTE		149
BYTES		6
FORMAT		"16"
UNIT		"SECOND"
MISSING_CONSTANT		999999
—		

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DESCRIPTION	<pre>= "Common electronics    Time since boot"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "ERRF"
DATA TYPE	= ASCII INTEGER
	= 156
_ BYTES	= 8
UNIT	= "N/A"
MISSING_CONSTANT	
DESCRIPTION	= "Common electronics
	Error flags (hex value as 16#xxxx#)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CEID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 165
BYTES	= 8
UNIT	= "N/A"
MISSING CONSTANT	= 16#FFFF#
DESCRIPTION	= "Common electronics; SESAME flight
	software ID (hex value, FM3: 16#C5E5#)
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CLTC"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 174
BYTES	= 8
UNIT	= "N/A"
MISSING_CONSTANT	
DESCRIPTION	= "Common electronics; Last received TC
DESCRIPTION	(hex value as 16#xxxx#)"
END OBJECT	= COLUMN
END_ODOECI	
OBJECT	= COLUMN
NAME	= "CBTC"
DATA TYPE	= ASCII INTEGER
-	= 183
START_BYTE BYTES	- 103 = 8
	- ∘ = "N/A"
UNIT	
MISSING_CONSTANT	= 16#FFFF#
DESCRIPTION	= "Common electronics; Last but one TC
	(hex value as 16#xxxx#)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TT-Y"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 192
BYTES	= 8

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FORMAT	= "F8.3"
UNIT	= "KELVIN"
MISSING CONSTANT	= 9999.999
DESCRIPTION	= "CASSE
	Foot -Y/TRM temperature"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TA-Y"
DATA TYPE	= ASCII_REAL
	= 201
_ BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "KELVIN"
MISSING_CONSTANT	
DESCRIPTION	= "CASSE
Dibertifiion	Foot -Y/ACC temperature"
END OB TECT	= COLUMN
END_OBJECT	= COLOMN
OBJECT	= COLUMN
NAME	= "TT+X"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 210
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "KELVIN"
MISSING_CONSTANT	= 9999.999
DESCRIPTION	= "CASSE
	Foot +X/TRM temperature"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TA+X"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 219
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "KELVIN"
MISSING_CONSTANT	= 9999.999
DESCRIPTION	= "CASSE
	Foot +X/ACC temperature"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TT+Y"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 228
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "KELVIN"
MISSING_CONSTANT	= 9999.999
DESCRIPTION	= "CASSE
	Foot +Y/TRM temperature"
	-

## SESAME

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END OBJECT = COLUMN OBJECT = COLUMN = "TA+Y" NAME DATA TYPE = ASCII REAL START BYTE = 237 BYTES = 8 = "F8.3" FORMAT UNIT = "KELVIN" MISSING\_CONSTANT = 9999.999 DESCRIPTION = "CASSE Foot +Y/ACC temperature" END OBJECT = COLUMN OBJECT = COLUMN = "TPCB" NAME DATA\_TYPE = ASCII REAL START\_BYTE = 246 BYTES = 8 = "F8.3" FORMAT = "KELVIN" UNIT MISSING\_CONSTANT = 9999.999 DESCRIPTION = "CASSE board temperature" END OBJECT = COLUMN OBJECT = COLUMN = "UFPG" NAME DATA\_TYPE START\_BYTE = ASCII\_REAL = 255 BYTES = 8 = "F8.3" FORMAT = "VOLT" UNIT MISSING\_CONSTANT = 99999.999 = "CASSE FPGA 3.3V voltage" UNIT END OBJECT = COLUMN OBJECT = COLUMN NAME = "URAD" DATA TYPE = ASCII REAL START\_BYTE = 264 BYTES = 8 = "F8.3" FORMAT = "VOLT" UNIT MISSING\_CONSTANT = 99999.999 DESCRIPTION = "CASSE total dose (RadFET)" END OBJECT = COLUMN OBJECT = COLUMN = "UD+5" NAME = ASCII REAL DATA TYPE START\_BYTE = 273 BYTES = 8

= "F8.3"

FORMAT

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= "VOLT" UNTT MISSING\_CONSTANT = 9999.999 DESCRIPTION = "DIM +5V voltage" END OBJECT = COLUMN OBJECT = COLUMN = "UD-5" NAME DATA\_TYPE = ASCII\_REAL START\_BYTE = 282 BYTES = 8 = "F8.3" FORMAT = "VOLT" UNIT MISSING\_CONSTANT = 9999.999 DESCRIPTION = "DIM -5V voltage" END OBJECT = COLUMN OBJECT = COLUMN = "UP+5" NAME DATA TYPE = ASCII REAL START\_BYTE = 291 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING\_CONSTANT = 9999.999 DESCRIPTION = "PP +5V voltage" END OBJECT = COLUMN OBJECT = COLUMN = "PPD" NAME DATA TYPE = ASCII INTEGER START BYTE = 300 BYTES = 5 = "I5" FORMAT = "N/A" UNIT MISSING\_CONSTANT = 99999 DESCRIPTION = "PP electron density" = COLUMN END OBJECT OBJECT = COLUMN = "LMID" NAME DATA TYPE = ASCII INTEGER START BYTE = 306 BYTES = 5 FORMAT = "I5" MISSING\_CONSTANT = 99999 DESCRIPTION = "Common electronics SLT mid word" END OBJECT = COLUMN OBJECT = COLUMN = "LLOW" NAME DATA TYPE = ASCII\_INTEGER

START BYTE

= 312

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	BYTES	=	5
	FORMAT	=	"15"
	MISSING_CONSTANT	=	99999
			"Common electronics
			SLT low word"
END	OBJECT	=	COLUMN
_	-		
OBJE	CT	=	COLUMN
	NAME	=	"T-HK_CHANNEL1"
	DATA TYPE		ASCII REAL
		=	318
	BYTES	=	8
	FORMAT	=	"F8.3"
	UNIT	=	"VOLT"
	MISSING_CONSTANT	=	9999.999
	DESCRIPTION		"Voltage of temperature channel using
			regular HK measurement, for Foot -Y/TRM"
END	OBJECT	=	COLUMN
_	-		
OBJE	СТ	=	COLUMN
	NAME	=	"T-I1 CHANNEL1"
	DATA TYPE		ASCII_REAL
	START BYTE		327
	BYTES	=	8
	FORMAT	=	"F8.3"
	UNIT	=	"VOLT"
	MISSING_CONSTANT	=	9999.999
	DESCRIPTION		"Intermediate voltage measured shortly after
			switching from temperature channel to reference
			channel 1, for Foot -Y/TRM"
END	OBJECT	=	COLUMN
OBJE	CT	=	COLUMN
	NAME	=	"T-R1_CHANNEL1"
	DATA_TYPE	=	ASCII_REAL
	START_BYTE	=	336
	BYTES	=	8
	FORMAT	=	"F8.3"
	UNIT	=	"VOLT"
	MISSING_CONSTANT	=	9999.999
	DESCRIPTION	=	"Voltage of reference channel 1 = UCDP,
			for Foot -Y/TRM"
END_	OBJECT	=	COLUMN
OBJE	CT	=	COLUMN
	NAME	=	"T-I2_CHANNEL1"
	DATA_TYPE	=	ASCII_REAL
	START_BYTE	=	345
	BYTES	=	8
	FORMAT	=	"F8.3"
	UNIT	=	"VOLT"
	MISSING_CONSTANT	=	9999.999
	DESCRIPTION	=	"Intermediate voltage measured shortly after

#### **SESAME** Issue: **SESAME EAICD** Date: CASSE • DIM • PP 214 of 315 Page: switching from temperature channel to reference channel 2, for Foot -Y/TRM" END\_OBJECT = COLUMN

OBJECT	= COLUMN
NAME	= "T-R2 CHANNEL1"
DATA TYPE	= ASCII_REAL
START BYTE	= 354
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING CONSTANT	= 9999.999
DESCRIPTION	= "Voltage of reference channel 2 = U + 28,
	for Foot -Y/TRM"
END OBJECT	= COLUMN
—	
OBJECT	= COLUMN
NAME	= "T-HK_CHANNEL2"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 363
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING_CONSTANT	= 9999.999
DESCRIPTION	= "Voltage of temperature channel using
	regular HK measurement, for Foot -Y/ACC"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "T-I1_CHANNEL2"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 372
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING_CONSTANT	
DESCRIPTION	= "Intermediate voltage measured shortly after
	switching from temperature channel to reference
	channel 1, for Foot -Y/ACC"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "T-R1 CHANNEL2"
DATA TYPE	= ASCII REAL
START_BYTE	= 381
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING_CONSTANT	= 9999.99
DESCRIPTION	= "voltage of reference channel 1 = UCDP,
	for Foot -Y/ACC"
END_OBJECT	= COLUMN

#### Reference: RO-LSE-DS-3102 **SESAME** Issue: 1.0, LSE v2.5 **SESAME EAICD** 17 December 2015 Date: **CASSE • DIM • PP** Page: 215 of 315 OBJECT = COLUMN = "T-I2 CHANNEL2" NAME DATA TYPE = ASCII REAL START BYTE = 390 = 8 BYTES = "F8.3" FORMAT UNIT = "VOLT" = 9999.999 MISSING\_CONSTANT DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to reference channel 2, for Foot -Y/ACC" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-R2 CHANNEL2" DATA TYPE = ASCII REAL START BYTE = 399 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING CONSTANT = 9999.999 = "Voltage of reference channel 2 = U + 28, DESCRIPTION for Foot -Y/ACC" = COLUMN END OBJECT OBJECT = COLUMN = "T-HK\_CHANNEL3" NAME DATA\_TYPE = ASCII\_REAL START BYTE = 408 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING CONSTANT = 9999.999 DESCRIPTION = "Voltage of temperature channel using regular HK measurement, for Foot +X/TRM" END OBJECT = COLUMN OBJECT = COLUMN = "T-I1 CHANNEL3" NAME = ASCII REAL DATA TYPE = 417 START BYTE

= 8

= "F8.3"

= "VOLT"

= COLUMN

= COLUMN

= "T-R1 CHANNEL3"

= 9999.999

= "Intermediate voltage measured shortly after

from temperature channel to reference

channel 1, for Foot +X/TRM"

switching from temperature channel to reference

OBJECT NAME

END OBJECT

BYTES

UNIT

FORMAT

MISSING\_CONSTANT

DESCRIPTION

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	DATA_TYPE	=	ASCII_REAL
		=	426
	BYTES	=	8
	FORMAT	=	"F8.3"
	UNIT	=	"VOLT"
	MISSING_CONSTANT	=	9999.999
	DESCRIPTION	=	"Voltage of reference channel 1 = UCDP,
			for Foot +X/TRM"
END	_OBJECT	=	COLUMN
OBJ	ЕСТ	_	COLUMN
020	NAME		"T-I2 CHANNEL3"
	DATA TYPE		ASCII REAL
	START_BYTE		435
	BYTES		8
	FORMAT		"F8.3"
	UNIT		"VOLT"
	MISSING_CONSTANT		9999.999
	DESCRIPTION	=	"Intermediate voltage measured shortly after
			switching from temperature channel to reference
		_	channel 2, for Foot +X/TRM"
END	_OBJECT	=	COLUMN
OBJ	ECT	=	COLUMN
	NAME		"T-R2_CHANNEL3"
	DATA_TYPE		ASCII REAL
	_ START BYTE		444
	BYTES		8
	FORMAT		"F8.3"
	UNIT		"VOLT"
	MISSING_CONSTANT		9999.999
	DESCRIPTION		"Voltage of reference channel 2 = U + 28,
	DESCRIPTION		for Foot +X/TRM"
END	OBJECT	=	COLUMN
0.0.7	202		
OBJ			COLUMN
	NAME		"T-HK_CHANNEL4"
	DATA_TYPE		ASCII_REAL
	START_BYTE		453
	BYTES		8
	FORMAT		"F8.3"
	UNIT	=	"VOLT"
	MISSING_CONSTANT		9999.999
	DESCRIPTION	=	"Voltage of temperature channel using
			regular HK measurement, for Foot +X/ACC"
END	_OBJECT	=	COLUMN
	202		
OBJ			COLUMN
	NAME		"T-I1_CHANNEL4"
	DATA_TYPE		ASCII_REAL
	START_BYTE		462
	BYTES		8
	FORMAT	=	"F8.3"

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UNIT	= "VOLT"		
MISSING_CONSTANT	= 9999.999		
_ DESCRIPTION	<pre>= "Intermediate voltage measured switching from temperature channel 1, for Foot +X/ACC"</pre>		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "T-R1_CHANNEL4"		
DATA_TYPE	= ASCII_REAL		
START_BYTE	= 471		
BYTES	= 8		
FORMAT	= "F8.3"		
UNIT	= "VOLT"		
MISSING_CONSTANT	= 9999.999		
DESCRIPTION	<pre>= "Voltage of reference channel for Foot +X/ACC"</pre>	1 = UCDP,	
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "T-I2_CHANNEL4"		
DATA_TYPE	= ASCII_REAL		
START_BYTE	= 480		
BYTES	= 8		
FORMAT	= "F8.3"		
UNIT	= "VOLT"		
MISSING_CONSTANT	= 9999.999		
DESCRIPTION	<pre>= "Intermediate voltage measured switching from temperature ch channel 2, for Foot +X/ACC"</pre>		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "T-R2 CHANNEL4"		
DATA TYPE	= ASCII REAL		
	= 489		
BYTES	= 8		
FORMAT	= "F8.3"		
UNIT	= "VOLT"		
MISSING CONSTANT			
DESCRIPTION	= "Voltage of reference channel	2 = U + 28	1
END OBJECT	for Foot +X/ACC" = COLUMN		
OBJECT	= COLUMN		
NAME	= "T-HK_CHANNEL5"		
DATA_TYPE	= ASCII_REAL		
START_BYTE	= 498		
BYTES	= 8		
FORMAT	= "F8.3"		
UNIT	= "VOLT"		
MISSING_CONSTANT			
DESCRIPTION	= "Voltage of temperature channe	el using	

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	-
END OBJECT	<pre>regular HK measurement, for Foot +Y/TRM" = COLUMN</pre>
OBJECT	= COLUMN
NAME	= "T-I1_CHANNEL5"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 507
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING_CONSTANT	= 9999.999
DESCRIPTION	= "Intermediate voltage measured shortly after switching from temperature channel to reference
	channel 1, for Foot +Y/TRM"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "T-R1_CHANNEL5"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 516
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING_CONSTANT	= 9999.999
DESCRIPTION	<pre>= "Voltage of reference channel 1 = UCDP,     for Foot +Y/TRM"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "T-I2_CHANNEL5"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 525
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING_CONSTANT	= 9999.999
DESCRIPTION	<pre>= "Intermediate voltage measured shortly after switching from temperature channel to reference channel 2, for Foot +Y/TRM"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "T-R2_CHANNEL5"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 534
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING_CONSTANT	= 9999.999
DESCRIPTION	<pre>= "Voltage of reference channel 2 = U + 28, for Foot +Y/TRM"</pre>
END_OBJECT	= COLUMN

#### Reference: RO-LSE-DS-3102 **SESAME** Issue: 1.0, LSE v2.5 **SESAME EAICD** 17 December 2015 Date: **CASSE • DIM • PP** Page: 219 of 315 OBJECT = COLUMN = "T-HK CHANNEL6" NAME DATA TYPE = ASCII REAL START BYTE = 543 = 8 BYTES = "F8.3" FORMAT UNIT = "VOLT" = 9999.999 MISSING\_CONSTANT DESCRIPTION = "Voltage of temperature channel using regular HK measurement, for Foot +Y/ACC" END OBJECT = COLUMN OBJECT = COLUMN = "T-I1 CHANNEL6" NAME DATA TYPE = ASCII REAL START BYTE = 552 = 8 BYTES = "F8.3" FORMAT UNIT = "VOLT" MISSING CONSTANT = 9999.999 DESCRIPTION = "Intermediate voltage measured shortly after

channel 1, for Foot +Y/ACC"

= COLUMN

switching from temperature channel to reference

END OBJECT

OBJECT = COLUMN = "T-R1\_CHANNEL6" NAME DATA\_TYPE = ASCII\_REAL START BYTE = 561 BYTES = 8 FORMAT = "F8.3" UNIT = "VOLT" MISSING CONSTANT = 9999.999 DESCRIPTION = "Voltage of reference channel 1 = UCDP, for Foot +Y/ACC" END OBJECT = COLUMN OBJECT = COLUMN = "T-I2 CHANNEL6" NAME = ASCII REAL DATA TYPE = 570 START BYTE BYTES = 8 = "F8.3" FORMAT = "VOLT" UNIT MISSING\_CONSTANT = 9999.999 DESCRIPTION = "Intermediate voltage measured shortly after switching from temperature channel to reference channel 2, for Foot +Y/ACC" END OBJECT = COLUMN OBJECT = COLUMN NAME = "T-R2\_CHANNEL6" DATA TYPE = ASCII REAL

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START_BYTE	= 579
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING CONSTANT	= 9999.999
DESCRIPTION	= "Voltage of reference channel 2 = U + 28,
	for Foot +Y/ACC"
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "T-HK_CHANNEL7"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 588
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING_CONSTANT	= 9999.999
DESCRIPTION	= "Voltage of temperature channel using
	regular HK measurement, for CASSE PCB
	temperature"
END OBJECT	= COLUMN
—	
OBJECT	= COLUMN
NAME	= "T-I1 CHANNEL7"
DATA TYPE	= ASCII REAL
	= 597
 BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING CONSTANT	
DESCRIPTION	
	switching from temperature channel to reference
	channel 1, for CASSE PCB temperature"
END_OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "T-R1 CHANNEL7"
DATA TYPE	= ASCII REAL
	= 606
BYTES	= 8
FORMAT	= "F8.3"
UNIT	= "VOLT"
MISSING CONSTANT	= 9999.999
DESCRIPTION	= "Voltage of reference channel 1 = UCDP,
	for CASSE PCB temperature"
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "T-I2_CHANNEL7"
DATA_TYPE	= ASCII_REAL
	= 615
_ BYTES	= 8
FORMAT	= "F8.3"

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UNIT	= "VOLT"		
MISSING_CONSTANT	= 9999.999		
DESCRIPTION	= "Intermediate voltage measured	d shortly a	fter
	switching from temperature cl channel 2, for CASSE PCB temp		eference
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "T-R2_CHANNEL7"		
DATA_TYPE	= ASCII_REAL		
START_BYTE	= 624		
BYTES	= 8		
FORMAT	= "F8.3"		
UNIT	= "VOLT"		
MISSING_CONSTANT	= 9999.999		
DESCRIPTION	= "Voltage of reference channel	2 = U + 28	,
	for CASSE PCB temperature"		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "URAD-2"		
DATA_TYPE	= ASCII_REAL		
START_BYTE	= 633		
BYTES	= 8		
FORMAT	= "F8.3"		
UNIT	= "VOLT"		
MISSING_CONSTANT	= 9999.999		
DESCRIPTION	= "CASSE total dose (RadFET),		
	second measurement"		
END_OBJECT	= COLUMN		

#### The SESAME housekeeping parameters are described by the following TABLE object.

OBJECT	= FILE
RECORD_TYPE	= FIXED_LENGTH
FILE_RECORDS	=
^HK =	
OBJECT	= HK_TABLE
NAME	= HK
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 35
ROW_BYTES	= 302
^STRUCTURE	= "SESAME_HK.FMT"
END_OBJECT	= HK_TABLE
END_OBJECT	= FILE

The structure of the receiver data TABLE object is described in the file SESAME\_HK.FMT.

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The SESAME reading of Backup RAM Buffer are described by the following TABLE object.

OBJECT	= RBUF_TABLE
NAME	= RBUF
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 5
ROW_BYTES	= 221
^STRUCTURE	= "SESAME_RBUF.FMT"
END_OBJECT	= RBUF_TABLE

The structure of the receiver data TABLE object is described in the file SESAME\_RBUF.FMT.

SESAME CASSE • DIM • PP	SESAME EAICDReference: Issue:RO-LSE-DS-3102 1.0, LSE v2.5 Date:Date:1.0, LSE v2.5 
/* FILE_CONTENTS	= SESAME Read Backup RAM Buffer */
/* FILE_NAME	= SESAME_RBUF.FMT */
/* REVISION_NOTE	= K. Seidensticker, version 3, 2015-11-05 */
/* REVISION_NOTE	= W. Schmidt, version 4, 2015-11-11 */
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 1
BYTES	= 23
DESCRIPTION	<pre>= "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 25
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	<pre>= "Start time of measurement. SESAME local time   (SLT) runs with a resolution of 1/32 seconds.   SLT represents the least significant 32 bits   of LOBT. The most significant 5 bits are in   CDMS RSST (see SESAME Ready Message)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RBUF_SUBSYS"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 41
BYTES	= 8
DESCRIPTION	<pre>= "Unit subsystem address (echoed TC parameter, hex value 16#xxxx#)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RBUF_OFFSET"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 50
BYTES	= 8
DESCRIPTION	<pre>= "Offset in backup RAM buffer (echoed TC parameter, hex value 16#xxxx#)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RBUF_RECORD"
DATA_TYPE	- CHARACTER
	= 60
BYTES	= 159
FORMAT	= "A159"
DESCRIPTION	= "Contents of backup RAM buffer record:
	64 bytes displayed as groups of 4 characters

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(hex values) separated by blanks"
= COLUMN

END\_OBJECT

The SESAME Read Stored TC buffer data (to be stored into CASSE jobcard) are described by the following TABLE object.

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OBJECT	= RDJC_TABLE
NAME	= RDJC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 4
ROW_BYTES	= 130
^STRUCTURE	= "SESAME_RDJC.FMT"
END_OBJECT	= RDJC_TABLE

The structure of the receiver data TABLE object is described in the file SESAME\_RDJC.FMT.

OBJECT NAME DATA_TYPE START_BYTE BYTES DESCRIPTION	<pre>= COLUMN = "UTC" = TIME = 1 = 23 = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)"</pre>
END_OBJECT	= COLUMN
OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT DESCRIPTION	<pre>= COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 25 = 15 = "I15" = "Start time of measurement. SESAME local time   (SLT) runs with a resolution of 1/32 seconds.   SLT represents the least significant 32 bits   of LOBT. The most significant 5 bits are in</pre>
END OBJECT	CDMS RSST (see SESAME Ready Message)" = COLUMN
OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= COLUMN = "RDJC_OFFSET" = CHARACTER = 42 = 4 = "A4"</pre>
NAME DATA_TYPE START_BYTE BYTES FORMAT DESCRIPTION	<pre>= "RDJC_OFFSET" = CHARACTER = 42 = 4 = "A4" = "Offset in Stored TC Buffer (echoed</pre>
NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "RDJC_OFFSET" = CHARACTER = 42 = 4 = "A4" = "Offset in Stored TC Buffer (echoed</pre>
NAME DATA_TYPE START_BYTE BYTES FORMAT DESCRIPTION	<pre>= "RDJC_OFFSET" = CHARACTER = 42 = 4 = "A4" = "Offset in Stored TC Buffer (echoed</pre>

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The SESAME first to tenth command word of CDMS RSST message are described by the following TABLE object.

OBJECT	= RMES_TABLE
NAME	= RMES
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 5
ROW_BYTES	= 137
^STRUCTURE	= "SESAME_RMES.FMT"
END_OBJECT	= RMES_TABLE

#### The structure of the receiver data TABLE object is described in the file SESAME\_RMES.FMT-

/* FILE CONTENTS	= SESAME Ready Message */
—	= SESAME RMES.FMT */
_	= K. Seidensticker and W. Schmidt, */
/*	version 5, 2015-11-05 */
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 1
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 25
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	= "Start time of measurement. SESAME local time
	(SLT) runs with a resolution of $1/32$ seconds.
	SLT represents the least significant 32 bits of
	LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_SYS_MSG"
DATA_TYPE	= CHARACTER
START_BYTE	= 42
BYTES	= 30
FORMAT	= "A30"
DESCRIPTION	= "SESAME ready message:
	SESAME Flight S/W - Ready"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_SW_VER"

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DATA TYPE	= CHARACTER		
START BYTE	= 75		
BYTES	= 8		
FORMAT	= "A8"		
MISSING_CONSTANT	= "FM1 "		
DESCRIPTION	= "SESAME flight software versio	n,	
	8 characters, padded with tra	iling blan}	s,
	e.g. 'FM3.00 ';		
	does not exist for software v	ersion FM1'	'
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "SESAME_RSST"		
DATA_TYPE	= CHARACTER		
START_BYTE	= 86		
BYTES	= 49		
FORMAT	= "A49"		
DESCRIPTION	= "First to tenth command word of CD	MS RSST	
	message (system status table); hex	representa	ation;
	cf. CDMS specification (RO-LCD-SP-	3101);	
	does not exist for software versio	n FM1"	
END_OBJECT	= COLUMN		

#### 4.3.3 Science level 3 data product design

Level 3 contains calibrated and corrected CASSE and PP time series and DIM tables. The level 3 products have PDS detached labels and combined detached labels. The SESAME subdirectory contains calibrated housekeeping (HK) and health-check data all with the appropriate time-stamp. The calibration is described in SES\_CAS\_CALIBRATION\_DESC.TXT, SES\_DIM\_CALIBRATION\_DESC.TXT and SES\_PP\_CALIBRATION\_DESC.TXT (DOCUMENT directory).

#### 4.3.3.1 File Characteristics Data Elements

PDS data product **labels** contain data element information that describes important attributes of the physical structure of a data product file. The PDS file characteristic data elements for SEAME science level 3 data are:

RECORD\_TYPE RECORD\_BYTES FILE\_RECORDS

The RECORD\_TYPE data element identifies the record characteristics of the data product file. Physical records are always fixed-length. The RECORD\_BYTES data element identifies the number of bytes in each physical record in the data product file. The FILE\_RECORDS data element identifies the number of physical records in the file.

#### 4.3.3.2 Data Object Pointers Identification Data Elements

The SESAME data have combined detached labels. A single PDS detached data product label file is used to describe the contents of more than one data product file (the products belong to the same working session of a SESAME instrument). The combined detached label contains pointers to individual data products. The labels refer to FILE objects.

4.3.3.3 Instrument and Detector Descriptive Data Elements

The following data identification elements provide additional information about the SESAME data product.

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INSTRUMENT_HOST_ID	= RL	
INSTRUMENT_ID	= SESAME	
INSTRUMENT_NAME	<pre>= "SURFACE ELECTRIC SOUNDING AND ACOUSTIC MONIT EXPERIMENT"</pre>	CORING
INSTRUMENT_TYPE	<pre>= {"ACOUSTIC SENSOR", "DUST IMPACT DETECTOR", "PERMITTIVITY PROBE"}</pre>	

#### 4.3.3.4 Data Object Definition

#### 4.3.3.4.1 CASSE Data object definition

The CASSE data are organized as tables with 24 columns containing 12 times and 12 channel values (accelerometers or transmitters): time1 channel1 time2 channel2 ... time12 channel12.

The association axis-channel is fixed and it is given in the label. The « Jobcards » and « sequence parameters » are kept in separated files (combined detached labels)

Example: CASSE sounding (1 label file pointing to 4 data files)

SES_FS3_CSN_0510040300.LBL	(label)
SES_FS3_CSN_0510040300_JOBC.TAB	(parameters of jobcard)
SES_FS3_CSN_0510040300_SEQP.TAB	(sequence parameters)
SES_FS3_CSN_0510040300_DATA.TAB	(DATA: ACC or TX)
SES_FS3_CSN_0510040300_TAFT.TAB	(foot temperatures)

The label contains the Start and Stop times as LOBT and UTC. The data files contain time in ms relative to the start time.

4.3.3.4.1.1 CASSE Jobcard definition (level 3) The jobcard is described by a TABLE object.

OBJECT	= JOBC_TABLE
NAME	= DATA
INTERCHANGE_FORMAT	= ASCII
ROWS	=
COLUMNS	=
ROW_BYTES	=
^STRUCTURE	= "JOBCARD_FM3.FMT"
END_OBJECT	= JOBC_TABLE

The structure of the TABLE object is defined in the file JOBCARD\_FM3.FMT.

```
OBJECT
                    = COLUMN
                     = "SESAME SEQ ID"
   NAME
   DATA TYPE = ASCII INTEGER
   START BYTE = 1
   BYTES
                    = 6
                = "I6"
 FORMAT
   UNIT
                    = "N/A"
   DESCRIPTION = "Sequence ID in the current data file"
END_OBJECT
                 = COLUMN
   NAME
DATI?
OBJECT
                    = COLUMN
                   = "JOB ID"
   DATA TYPE = CHARACTER
```

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START BYTE = 9 = 2 BYTES = "A2" FORMAT = "N/A" UNIT DESCRIPTION = "Jobcard identifier (hex value)" END\_OBJECT = COLUMN OBJECT = COLUMN = "JOB\_VERSION" NAME DATA TYPE = CHARACTER START\_BYTE = 14 BYTES = 1 = "A1" FORMAT = "N/A" UNIT DESCRIPTION = "The possible values are: 0 for FM-1 and FM-2 B for FM-3" = COLUMN END OBJECT OBJECT = COLUMN = "NMEAS" NAME DATA TYPE = ASCII INTEGER START BYTE = 17 BYTES = 3 = "I3" FORMAT = "N/A" UNIT DESCRIPTION = "Number of measurements (1 to 127)" END OBJECT = COLUMN OBJECT = COLUMN = "STACK" NAME DATA TYPE = CHARACTER START BYTE = 22 BYTES = 3 FORMAT = "A3" UNIT = "N/A" DESCRIPTION = "Indicates that the time series shall be stacked on board. The possible values are YES or NO." END OBJECT = COLUMN OBJECT = COLUMN NAME = "SOUND FREQ" = ASCII INTEGER DATA TYPE START BYTE = 27 BYTES = 5 = "I5" FORMAT UNIT = "HERTZ" DESCRIPTION = "Nominal sounding frequency" END OBJECT = COLUMN OBJECT = COLUMN NAME = "SND DURATION"

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DATA TYPE = ASCII REAL START BYTE = 33 BYTES = 9 FORMAT = "F9.1" = "MILLISECOND" UNIT MISSING CONSTANT = 9999999.9 DESCRIPTION = "Sounding duration in sounding mode" = COLUMN END OBJECT OBJECT = COLUMN = "TRIGGER TIMEOUT" NAME DATA\_TYPE = ASCII\_INTEGER START BYTE = 43 BYTES = 5 FORMAT = "15" UNIT = "SECOND" MISSING CONSTANT = 99999 DESCRIPTION = "Time-out duration, after which listening stops if no trigger signal occurred" = COLUMN END OBJECT OBJECT = COLUMN = "SAMPLING FREQ" NAME DATA TYPE = ASCII INTEGER START BYTE = 49 BYTES = 6 = "I6" FORMAT UNIT = "HERTZ" DESCRIPTION = "Sampling frequency per channel" END OBJECT = COLUMN OBJECT = COLUMN = "TX STATUS" NAME DATA TYPE = CHARACTER START BYTE = 57 BYTES = 5 = "A5" FORMAT UNIT = "N/A" DESCRIPTION = "Selection of transmitters to be used in Sounding Mode. If TX cycle is set, after a measurement the transmitter selection is (cyclically) shifted by one position up to yield the transmitters to be used for the next measurement. If Tx reverse is additionally set, the selection of active transmitters is shifted one position downwards instead. Bit field represented as 5 characters, the rightmost character corresponds to bit #0 and the leftmost to bit #4. Each character can be 1 (active sensor or cycle on or reversed on) or 0 (sensor not used) and have the following meaning: bit 0: TRM -Y

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bit 1: TRM +X bit 2: TRM +Y bit 3: TX cycle bit 4: TX reverse" END OBJECT = COLUMN OBJECT = COLUMN = "AGC" NAME DATA TYPE = CHARACTER START BYTE = 65 BYTES = 2 = "A2" FORMAT UNIT = "N/A" = "Amplification gain selection (hex value) DESCRIPTION Value to be written to the Amplifier Gain Control register of CASSE electronics. Decimal value ranges from 0 (maximal gain) to 15 (minimal gain). Note (a) the gain is not a monotone function of the AGC value, (b) the actually adjusted gain can deviate, if automatic gain setting (AGS) is enabled." = COLUMN END\_OBJECT OBJECT = COLUMN = "TRIGGER SRC" NAME DATA TYPE = CHARACTER START BYTE = 70 BYTES = 12 FORMAT = "A12" = "N/A" UNIT DESCRIPTION = "Subset of active sensor channels used as trigger sources. Bit field represented as 12 characters, the rightmost character corresponds to bit #0 and the leftmost to bit #11. Each character can be 1 (active sensor used as a trigger source) or 0 (sensor not used as a trigger source) and have the following meaning: bit 0: ACC -Y, x-axis bit 1: ACC -Y, y-axis bit 2: ACC -Y, z-axis bit 3: ACC +X, x-axis bit 4: ACC +X, y-axis bit 5: ACC +X, z-axis bit 6: ACC +Y, x-axis bit 7: ACC +Y, y-axis bit 8: ACC +Y, z-axis bit 9: TRM -Y bit 10: TRM +X bit 11: TRM +Y" END OBJECT = COLUMN OBJECT = COLUMN NAME = "TRIGGER DELAY" DATA TYPE = ASCII REAL

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START BYTE = 84 = 9 BYTES FORMAT = "F9.1" = "MILLISECOND" UNIT DESCRIPTION = "Determines the time range before (negative value) or after (positive value) a trigger event, which shall be included in the time series. Absolute value of TrgDelay must be less or equal LIS DURATION." END OBJECT = COLUMN OBJECT = COLUMN NAME = "TRIGGER LEVEL POS" DATA TYPE = ASCII\_INTEGER START BYTE = 94 BYTES = 4 = "I4" FORMAT = "N/A" UNTT DESCRIPTION = "Positive trigger level. Value to be written to the UTT hardware register, which fixes the upper (always positive) trigger threshold. Note that the actually adjusted value can be different, if automatic trigger level setting is enabled." END OBJECT = COLUMN OBJECT = COLUMN NAME = "TRIGGER LEVEL NEG" DATA TYPE = ASCII INTEGER START BYTE = 99 BYTES = 4 FORMAT = "I4" UNIT = "N/A" DESCRIPTION = "Negative trigger level. Value to be written to the LTT hardware register, which fixes the lower (always negative) trigger threshold. Note that the actually adjusted value can be different, if automatic trigger level setting is enabled." END OBJECT = COLUMN OBJECT = COLUMN = "LIS DURATION" NAME DATA TYPE = ASCII REAL START\_BYTE = 104 BYTES = 9 = "F9.1" FORMAT = "MILLISECOND" UNIT DESCRIPTION = "Listening duration" END OBJECT = COLUMN OBJECT = COLUMN NAME = "RX STATUS"

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DATA TYPE = CHARACTER START BYTE = 115 BYTES = 14 FORMAT = "A14" = "N/A" UNIT DESCRIPTION = "Selection of sensor channels to be used. If cycle is set, after a measurement the receiver selection is (cyclically) shifted by one position (in the same direction as the transmitters, as indicated in TX STATUS. If the reversed flag is additionally set, the receiver cycling shall take place in the opposite direction as the transmitter cycling. Bit field represented as 15 characters, the rightmost character corresponds to bit #0 and the leftmost to bit #13. Each character can be 1 (active sensor or cycle on or reversed on) or 0 (sensor not used) and have the following meaning: bit 0: ACC -Y, x-axis bit 1: ACC -Y, y-axis bit 2: ACC -Y, z-axis bit 3: ACC +X, x-axis bit 4: ACC +X, y-axis bit 5: ACC +X, z-axis bit 6: ACC +Y, x-axis bit 7: ACC +Y, y-axis bit 8: ACC +Y, z-axis bit 9: TRM -Y bit 10: TRM +X bit 11: TRM +Y bit 12: cycle bit 13: reversed" END OBJECT = COLUMN OBJECT = COLUMN = "G GEN" NAME DATA TYPE = ASCII INTEGER START BYTE = 131 BYTES = 1 = "I1" FORMAT = "N/A" UNIT DESCRIPTION = "Values 1 or 0 1: prepare data for automatic gain adjustment" = COLUMN END OBJECT OBJECT = COLUMN = "G COMP" NAME DATA TYPE = ASCII INTEGER START BYTE = 133 BYTES = 1 = "I1" FORMAT UNIT = "N/A" DESCRIPTION = "0: Do not calculate optimized gain

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1: Optimize for lower 1/3 of channels 2: Optimize for lower 2/3 of channels 3: Optimize for strongest channel" = COLUMN END OBJECT OBJECT = COLUMN = "TL GEN" NAME DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 135 = 1 BYTES = "I1" FORMAT = "N/A" UNIT DESCRIPTION = "Values 1 or 0 1: prepare data for automatic trigger level adjustment" END OBJECT = COLUMN OBJECT = COLUMN = "TL COMP" NAME DATA TYPE = ASCII INTEGER START BYTE = 137 BYTES = 1 FORMAT = "I1" = "N/A" UNIT DESCRIPTION = "Values 1 or 0 1: adjust optimized trigger levels" END OBJECT = COLUMN OBJECT = COLUMN NAME = "STATS" DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 139 BYTES = 1 = "I1" FORMAT = "N/A" UNIT DESCRIPTION = "Values 1 or 0 1: include channels statistics for each measurement" = COLUMN END OBJECT OBJECT = COLUMN = "SKIP TS" NAME DATA\_TYPE = ASCII\_INTEGER START BYTE = 141 BYTES = 1 = "I1" FORMAT = "N/A" UNIT DESCRIPTION = "Values 1 or 0 If 1 time series not included into telemetry (ignored in Stacking Mode)" END OBJECT = COLUMN OBJECT = COLUMN

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= "G TAR VAL" NAME DATA TYPE = ASCII INTEGER START BYTE = 143 BYTES = 3 FORMAT = "I3" UNIT = "N/A" = "Target value for automatic gain adjustment. DESCRIPTION Linearized ADC units in the range 1 to 255. In combination with the value of G COMP, gain is adjusted such that the absolute values of the samples of 1/3, 2/3 or all channels are close to, but below, G TAR VAL." END OBJECT = COLUMN OBJECT = COLUMN = "TL FACTOR" NAME DATA\_TYPE = ASCII\_INTEGER START BYTE = 147 BYTES = 4 FORMAT = I4 = "N/A" UNIT DESCRIPTION = "Factor for calculating the trigger levels from 10 to 2550%. Distance of trigger level from mean of time series (of selected trigger channels) relative to the distance between mean and the extreme sample values; TL FACTOR equals 10 (100 %) means that trigger level are set equal to the maximum deviation from mean during the pre-measurement. A TLFactor value less than or equal 10 would have caused a trigger signal during the pre-measurement. For each sensor channel marked as trigger channel, flight software calculates preliminary trigger levels based on statistical values (Max, Min, Mean) of a pre-measurement with trglevneg = (Min-Mean) \* TLFactor / 10 + Mean trglevpos = (Max-Mean) \* TLFactor / 10 + Mean The smallest value of the trglevneg obtained this way is adjusted as negative trigger level (TrgLevNeg), and the highest trglevpos as positive trigger level (TrgLevPos), possible after correcting different gain settings during the pre-measurement and the Trigger Mode measurement." END OBJECT = COLUMN OBJECT = COLUMN NAME = "AMP SETUP" DATA TYPE = ASCII REAL START BYTE = 152 BYTES = 4

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= "SECOND" UNIT DESCRIPTION = "Amplifier setup time in sounding mode. It represents the Duration after start of time series recording used for amplifier setup (to yield constant base lines). A value of 1 s should normally be used, because it enables the correct identification of sensor channels for all possible sampling frequencies (no wrap-around of FIFO buffer)." END OBJECT = COLUMN OBJECT = COLUMN = "FIFO LAG" NAME DATA TYPE = ASCII INTEGER START BYTE = 157 = 4 BYTES FORMAT = I4 = "N/A" UNIT DESCRIPTION = "Optional corrective offset of the address of the first sample to be transferred. Range from -127 to 127" END OBJECT = COLUMN OBJECT = COLUMN = "FOOT TEMP" NAME DATA TYPE = CHARACTER START BYTE = 163 BYTES = 7 = "A7" FORMAT UNIT = "N/A" DESCRIPTION = "Active foot temperature channels. Bit field represented as 7 characters, the rightmost character corresponds to bit #0 and the leftmost to bit #6. The Temperature and Radiation Dose Data Block will be generated by flight software, if at least one foot temperature channel is selected in FOOT TEMP. It will additionally be included at the end of a measuring sequence, if the additional 'after job temperature' flag is set. Each character can be 1 (channel selected) or 0 (channel not selected) and have the following meaning: bit 0: Temperature -Y, TRM bit 1: Temperature -Y, ACC bit 2: Temperature +X, TRM bit 3: Temperature +X, ACC bit 4: Temperature +Y, TRM bit 5: Temperature +Y, ACC bit 6: Additional after job temperatures" END OBJECT = COLUMN

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OBJECT	= COLUMN
NAME	= "ADD_DELAY"
DATA_TYPE	= ASCII_INTEGER
START_BYTE = 17	2
BYTES	= 3
UNIT	= "SECOND"
FORMAT	= I3
DESCRIPTION = '	Additional delay between measurements of
	a measurement sequence"
END_OBJECT = COLUM	IN

# 4.3.3.4.1.2 CASSE Sequence Parameters in burst mode definition (level3) The sequence parameters are described by a TABLE object.

OBJECT	=	SEQ_PARAM_BURST
NAME		= SEQ_PARAM_BURST3
INTERCHANGE_FORMAT		= ASCII
ROWS		=
COLUMNS		=
ROW_BYTES		=
^STRUCTURE		= "SEQ_PARAM_BURST3.FMT"
END_OBJECT		= SEQ_PARAM_BURST

## The structure of the Sequence parameters TABLE object is defined in the file SEQ\_PARAM\_BURST3.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "MEAS_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 8
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
DESCRIPTION	= "Measurement ID in the current sequence"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 15

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BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" END OBJECT = COLUMN OBJECT = COLUMN = "SESAME LOCAL TIME SEQ" NAME DATA\_TYPE = ASCII\_INTEGER START BYTE = 39 BYTES = 15 = "I15" FORMAT DESCRIPTION = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)" END OBJECT = COLUMN OBJECT = COLUMN = "FREQUENCY DIVIDER" NAME DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 55 BYTES = 3 = "I3" FORMAT = "N/A" UNIT DESCRIPTION = "Adjusted transmitter frequency register value" END OBJECT = COLUMN OBJECT = COLUMN NAME = "FREQUENCY INCREMENT" DATA TYPE = ASCII INTEGER DATA\_TYPE START\_BYTE = 59 BYTES = 5 = "I5" FORMAT UNIT = "N/A" DESCRIPTION = "Adjusted sampling rate registers value" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNELS" NAME DATA TYPE = ASCII INTEGER START BYTE = 65 BYTES = 3 = "I3" FORMAT = "N/A" UNIT DESCRIPTION = "Number of sensor channels minus one" END OBJECT = COLUMN OBJECT = COLUMN = "ADJ SOUND FREQ" NAME DATA\_TYPE = ASCII INTEGER START BYTE = 69 BYTES = 5

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FORMAT	= "I5"
UNIT	= "HERTZ"
DESCRIPTION	= "Transmitter frequency.
	Equals zero in Listening mode"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "ADJ_SAMPLING_FREQ"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 75
BYTES	= 10
FORMAT	
UNIT	= "HERTZ"
DESCRIPTION	= "Sampling frequency per sensor channel"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
	= ASCII_INTEGER
START_BYTE	
BYTES	
FORMAT	
DESCRIPTION	= "Start time of measurement. SESAME local time
	(SLT) runs with a resolution of $1/32$ seconds.
	SLT represents the least significant 32 bits of
	LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TOTAL_MEAS_LENGTH"
—	= CHARACTER
START_BYTE	
BYTES	= 8
FORMAT	= "A8"
UNIT	= "N/A"
DESCRIPTION	
	4 bytes, hexadecimal representation"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT-Y_TRM"
—	= ASCII_REAL
START_BYTE	
BYTES	= 6
FORMAT	
	= "KELVIN"
	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT-Y_ACC"
DATA_TYPE	= ASCII_REAL

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START_BYTE	= 120
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+X_TRM"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 127
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+X_ACC"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 134
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+Y_TRM"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 141
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+Y_ACC"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 148
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
—	

*4.3.3.4.1.3 CASSE Sequence Parameters in trigger mode definition (level3)* The sequence parameters are described by a TABLE object.

OBJECT	= SEQ_PARAM_TRIG
NAME	= SEQ_PARAM_BURST3

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INTERCHANGE_FORMAT	= ASCII
ROWS	=
COLUMNS	=
ROW_BYTES	=
^STRUCTURE	= "SEQ_PARAM_TRIG3.FMT"
END_OBJECT	= SEQ_PARAM_TRIG

## The structure of the Sequence parameters TABLE object for FM2 is defined in the file SEQ\_PARAM\_TRIG3.FMT.

<pre>NAME = "SESAME_SEQ_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 1 BYTES = 6 UNIT = "N/A" FORMAT = "I6" DESCRIPTION = "Sequence ID in the current data file" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "MEAS_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39 BYTES = 15</pre>	OBJECT	= COLUMN
<pre>START_BYTE = 1 BYTES = 6 UNIT = "N/A" FORMAT = "I6" DESCRIPTION = "Sequence ID in the current data file" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "MEAS_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN OBJECT = COLUMN</pre>	NAME	= "SESAME_SEQ_ID"
<pre>BYTES = 6 UNIT = "N/A" FORMAT = "I6" DESCRIPTION = "Sequence ID in the current data file" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "MEAS_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>	DATA_TYPE	= ASCII_INTEGER
<pre>BYTES = 6 UNIT = "N/A" FORMAT = "I6" DESCRIPTION = "Sequence ID in the current data file" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "MEAS_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>	START_BYTE	= 1
<pre>FORMAT = "I6" DESCRIPTION = "Sequence ID in the current data file" END_OBJECT = COLUMN NAME = COLUMN NAME = "MEAS_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>		
DESCRIPTION = "Sequence ID in the current data file" END_OBJECT = COLUMN NAME = "MEAS_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39	UNIT	= "N/A"
<pre>END_OBJECT = COLUMN NAME = "MEAS_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = ITIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>		
OBJECT = COLUMN NAME = "MEAS_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = IIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39	DESCRIPTION	= "Sequence ID in the current data file"
<pre>NAME = "MEAS_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN MAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>	END_OBJECT	= COLUMN
<pre>NAME = "MEAS_ID" DATA_TYPE = ASCII_INTEGER START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>		
DATA_TYPE = ASCII_INTEGER START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39		
<pre>START_BYTE = 8 BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>		
BYTES = 6 FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39		
<pre>FORMAT = "I6" UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>		
<pre>UNIT = "N/A" DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>		
DESCRIPTION = "Measurement index, i.e. the number of the measurement in the file. Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39		
<pre>of the measurement in the file. Starts from 1." END_OBJECT = COLUMN OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>		
Starts from 1." END_OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39	DESCRIPTION	
<pre>END_OBJECT = COLUMN OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>		
OBJECT = COLUMN NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39		
<pre>NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>	END_OBJECT = COLUM	IN
<pre>NAME = "UTC" DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>		
DATA_TYPE = TIME START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39	OBJECT	= COLUMN
<pre>START_BYTE = 15 BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39</pre>		
BYTES = 23 DESCRIPTION = "This column represents the UTC Time for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39	NAME	= "UTC"
for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39	NAME DATA_TYPE	= "UTC" = TIME
for start of the sequence" END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39	NAME DATA_TYPE START_BYTE	= "UTC" = TIME = 15
END_OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39	NAME DATA_TYPE START_BYTE BYTES	= "UTC" = TIME = 15 = 23
NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = '	<pre>= "UTC" = TIME = 15 = 23 This column represents the UTC Time</pre>
NAME = "SESAME_LOCAL_TIME" DATA_TYPE = ASCII_INTEGER START_BYTE = 39	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of	<pre>= "UTC" = TIME = 15 = 23 'This column represents the UTC Time E the sequence"</pre>
DATA_TYPE = ASCII_INTEGER START_BYTE = 39	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of	<pre>= "UTC" = TIME = 15 = 23 'This column represents the UTC Time E the sequence"</pre>
START_BYTE = 39	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUM	<pre>= "UTC" = TIME = 15 = 23 'This column represents the UTC Time E the sequence" MN</pre>
_	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUM	<pre>= "UTC" = TIME = 15 = 23 'This column represents the UTC Time E the sequence" MN = COLUMN</pre>
BYTES = 15	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUM OBJECT NAME	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME"</pre>
	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER</pre>
FORMAT = "I15"	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER</pre>
DESCRIPTION = "Start time of measurement. SESAME local time	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE START_BYTE BYTES	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 39 = 15</pre>
	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 39 = 15 = "I15"</pre>
	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 39 = 15 = "I15" = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds.</pre>
SLT represents the least significant 32 bits of	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 39 = 15 = "I15" = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of</pre>
	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 39 = 15 = "I15" = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of</pre>
SLT represents the least significant 32 bits of	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 39 = 15 = "I15" = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in</pre>
	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 39 = 15 = "I15"</pre>
	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 39 = 15 = "I15" = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds.</pre>
SLT represents the least significant 32 bits of	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 39 = 15 = "I15" = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of</pre>
SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" MN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 39 = 15 = "I15" = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in</pre>
SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in	NAME DATA_TYPE START_BYTE BYTES DESCRIPTION = ' for start of END_OBJECT = COLUN OBJECT NAME DATA_TYPE START_BYTE BYTES FORMAT DESCRIPTION	<pre>= "UTC" = TIME = 15 = 23 "This column represents the UTC Time E the sequence" NN = COLUMN = "SESAME_LOCAL_TIME" = ASCII_INTEGER = 39 = 15 = "I15" = "Start time of measurement. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)"</pre>

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OBJECT	= COLUMN
	= "ERROR INIT"
	= CHARACTER
START BYTE	
BYTES	= 4
FORMAT	= "A4"
	= "Error status after initialisation
	in hexadecimal format (2 bytes).
Possible v	
0001 EB F	REQ Invalid frequency increment (adjustment of sampling
	ncy); default (= 1312) used.
-	DIVRAT Invalid frequency divider (adjustment of sounding
_	ncy); default (= 1) used.
0004 EB	CDPU ADC Error during temperature A/D conversion.
4008 EB	NCHAN Fatal: Invalid number of sensor channels
4010 EB	TIMEO Fatal: Time-out during triggered mode.
4020 EB	NOSTRT Fatal: Measurement start condition not fulfilled.
8040 EB	RAMOVR Fatal: Allocated SESAME SRAM space exhausted.
_	FATAL MES Fatal error or time-out; current measurement
_	e aborted.
Columns ar	e filled by missing constant if the last case occurs (4000),
for the co	ncerned mesurement"
END_OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "FREQUENCY_DIVIDER"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 62
BYTES	= 3
FORMAT	= "I3"
UNIT	= "N/A"
DESCRIPTION	= "Adjusted transmitter frequency register value"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "FREQUENCY_INCREMENT"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 66
BYTES	
FORMAT	= "15"
UNIT	= "N/A"
DESCRIPTION	= "Adjusted sampling rate registers value"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CHANNELS"
	= ASCII_INTEGER
START_BYTE	
BYTES	
FORMAT	= "I3"
UNIT	= "N/A"
DESCRIPTION	= "Number of sensor channels minus one"

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END OBJECT = COLUMN OBJECT = COLUMN = "TRIGGER STATUS" NAME = ASCII INTEGER DATA TYPE START BYTE = 76 BYTES = 4 = "I4" FORMAT UNIT = "N/A" MISSING CONSTANT = 9999 DESCRIPTION = "Contents of Trigger Status Register at time of trigger" END OBJECT = COLUMN OBJECT = COLUMN = "TIME BURST ON" NAME DATA\_TYPE = CHARACTER START BYTE = 82 BYTES = 15 = "A15" FORMAT MISSING CONSTANT = 999999999999999 DESCRIPTION = "SESAME Local Time at start of recording of measurement represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END OBJECT = COLUMN OBJECT = COLUMN = "TIME TRIGGER" NAME DATA TYPE = CHARACTER START BYTE = 100 BYTES = 15 FORMAT = "A15" MISSING CONSTANT = 999999999999999 DESCRIPTION = "SESAME Local Time when trigger occurred represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END OBJECT = COLUMN OBJECT = COLUMN = "TIME\_BURST\_OFF" NAME DATA TYPE = CHARACTER DATA\_TYPE START BYTE = 118 BYTES = 15 FORMAT = "A15" MISSING\_CONSTANT = 999999999999999 DESCRIPTION = "SESAME Local Time at stop of recording represented as : Reset number (integer starting at 1) / seconds The time resolution is 0.03125 s" END OBJECT = COLUMN

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OBJECT	=	COLUMN
NAME	=	"FIFO_TRIGGER"
DATA TYPE		
_ START_BYTE		
BYTES		
FORMAT	=	"A8"
MISSING_CONSTANT		
		"FIFO RAM address when trigger occurred
		in hexadecimal format (4 bytes)"
END OBJECT		COLUMN
_		
OBJECT	=	COLUMN
NAME		
DATA_TYPE		
START_BYTE	=	147
BYTES	=	8
FORMAT	=	"A8"
MISSING_CONSTANT	=	9999999
DESCRIPTION	=	"FIFO RAM address when recording stopped
		in hexadecimal format (4 bytes)"
END_OBJECT	=	COLUMN
		COLUMN
NAME		
DATA_TYPE	=	CHARACTER
START_BYTE	=	158
BYTES	=	8
FORMAT	=	"A8"
MISSING_CONSTANT	=	9999999
DESCRIPTION	=	"FIFO RAM address of very first channel data
		in hexadecimal format (4 bytes)"
END_OBJECT	=	COLUMN
		COLUMN
NAME		"TEMP_FOOT-Y_TRM"
DATA_TYPE		
START_BYTE		
BYTES		
FORMAT		
		"KELVIN"
		"Foot temperature before measurement"
END_OBJECT	=	COLUMN
OBJECT	=	COLUMN
NAME		"TEMP FOOT-Y ACC"
DATA_TYPE		
START_BYTE		—
BYTES		
FORMAT		
		ro.2 "KELVIN"
		"Foot temperature before measurement"
		COLUMN
END_OBJECT	_	COTOLIN

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OBJECT	= COLUMN
NAME	= "TEMP_FOOT+X_TRM"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 182
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+X_ACC"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 189
	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+Y_TRM"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 196
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+Y_ACC"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 203
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN

# The structure of the Sequence parameters TABLE object for FM3 $\,$ is defined in the file SEQ\_PARAM\_TRIG3\_FM3.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN

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OBJECT	= COLUMN
NAME	= "MEAS ID"
DATA TYPE	= ASCII_INTEGER
_	= 6
FORMAT	= "16"
UNIT	= "N/A"
	= "Measurement ID in the current sequence"
END OBJECT	
_	
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
_ START_BYTE	
_ BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME LOCAL TIME"
DATA TYPE	= ASCII INTEGER
	—
BYTES	
	= "I15"
	"Start time of measurement. SESAME local time
	(SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "FREQUENCY DIVIDER"
	= ASCII INTEGER
BYTES	= 3
FORMAT	
	= "N/A"
	= "Value of transmitter frequency control register"
END_OBJECT =	
OBJECT	= COLUMN
	= "FREQUENCY_INCREMENT"
	= ASCII INTEGER
START_BYTE	—
BYTES	= 5
	= "I5"
	= "N/A"
	<pre>- N/A = "Value of sampling rate control registers"</pre>
END_OBJECT = C	
OBJECT	= COLUMN

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NAME	= "CHANNELS"
DATA TYPE	= ASCII INTEGER
	= 65
BYTES	= 3
FORMAT	= "I3"
UNIT	= "N/A"
DESCRIPTION	= "Number of sensor channels, derived from SLTLA word
	(sensor lookup table length and address register)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "AGC"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 69
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "N/A"
DESCRIPTION	= "Nominal amplifier gain; calculated by
	multiplying the gains of the active
	amplification stages indicated by the
	control register settings. An active
	amplifier stage is signified by the
	corresponding bit set to 0.
	Bits are counted from right to left
	Bit 1 nominal gain factor: 3.13
	Bit 2 nominal gain factor: 2.13
	Bit 3 nominal gain factor: 4.55 Bit 4 nominal gain factor: 5.55
	Bit 9 Hominal gain factor. 5.55 Bit pattern 1010 represents a nominal
	gain of $5.55 \times 2.13 = 11.82$ "
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "POWER_SETTING"
—	= CHARACTER
START_BYTE	= 77
BYTES	= 8
FORMAT	= "A8"
UNIT	= "N/A"
DESCRIPTION	= "Power register setting /mode
	This is a character string where each
	character represents one bit.
	Bits 0 to 3: value of power control register
	Bits 4 to 7 = 0: power set during measurement initialization Bits 4 to 7 = 1: power set by previous CAS PWRSW command "
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TRIGGER_STATUS"
_	= CHARACTER
START_BYTE	= 88
BYTES	= 12
FORMAT	= "A12"

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UNIT	= "N/A"		
DESCRIPTION	= "This is a Bit Pattern indicating wh	ich of the	
	selected trigger channels triggere		
	recording bit field represented as		ters,
	the rightmost character correspond		
	and the leftmost to bit #11.		
	Each character can be 1 (active se	ensor used a	as a
	trigger source) or 0 (sensor not u	ised as a	
	trigger source) and have the follo		ng.
	bit 0: ACC -Y, x-axis	5	5
	bit 1: ACC -Y, y-axis		
	bit 2: ACC -Y, z-axis		
	bit 3: ACC +X, x-axis		
	bit 4: ACC +X, y-axis		
	bit 5: ACC +X, z-axis		
	bit 6: ACC +Y, x-axis		
	bit 7: ACC +Y, y-axis		
	bit 8: ACC +Y, z-axis		
	bit 9: TRM -Y		
	bit 10: TRM +X		
	bit 11: TRM +Y"		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "TIME_BURST_ON"		
DATA_TYPE	= ASCII_INTEGER		
START_BYTE	= 102		
BYTES	= 10		
UNIT	= "N/A"		
FORMAT	= "I10"		
DESCRIPTION	= "SESAME High Resolution Time at star	t of record	ding
	with a resolution of 1/1024 s"		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "TIME_TRIGGER"		
DATA_TYPE	= ASCII_INTEGER		
START_BYTE	= 113		
BYTES	= 10		
FORMAT	= "I10"		
UNIT	= "N/A"		
DESCRIPTION	= "SESAME High Resolution Time when t	rigger	
END_OBJECT = COLUM	event occurred with a resolution on N	of 1/1024 s'	"
OBJECT	= COLUMN		
NAME	= "TIME_BURST_OFF"		
DATA_TYPE	= ASCII_INTEGER		
	= 124		
BYTES	= 10		
UNIT	= "N/A"		
FORMAT	= "110"		
DESCRIPTION	= "SESAME High Resolution Time when re	cording	

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was stopped with a resolution of 1/1024 s" END OBJECT = COLUMN OBJECT = COLUMN = "FIFO TRIGGER" NAME DATA TYPE = CHARACTER START BYTE = 136 = 8 BYTES FORMAT = "A8" DESCRIPTION = "FIFO RAM address when trigger occurred (hex value, 4 bytes)" END OBJECT = COLUMN OBJECT = COLUMN NAME = "FIFO\_BURST\_OFF" DATA TYPE = CHARACTER START\_BYTE = 147 BYTES = 8 UNIT = "N/A" FORMAT = "A8" DESCRIPTION = "FIFO RAM address when recording stopped (hex value, 4 bytes)" END\_OBJECT = COLUMN OBJECT = COLUMN NAME = "FIFO FIRST DAT" DATA\_TYPE = CHARACTER START\_BYTE = 158 BYTES = 8 = "N/A" UNIT FORMAT = "A8" DESCRIPTION = "FIFO RAM address of very first channel data (hex value, 4 bytes)" END OBJECT = COLUMN OBJECT = COLUMN = "NSAMP" NAME DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 168 = 10 BYTES = "I10" FORMAT = "N/A" UNIT DESCRIPTION = "Number of samples per channel in telemetry" END OBJECT = COLUMN OBJECT = COLUMN = "TEMP\_FOOT-Y TRM" NAME DATA TYPE = ASCII REAL START BYTE = 179 BYTES = 6 = "F6.2" FORMAT UNIT = "KELVIN" DESCRIPTION = "Sensor temperature before measurement"

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END OBJECT = COLUMN OBJECT = COLUMN = "TEMP FOOT-Y ACC" NAME DATA\_TYPE = ASCII\_REAL START\_BYTE = 186 BYTES = 6 = "F6.2" FORMAT UNIT = "KELVIN" DESCRIPTION = "Sensor temperature before measurement" END\_OBJECT = COLUMN = "KELVIN" OBJECT = COLUMN = "TEMP\_FOOT+X\_TRM" NAME DATA\_TYPE = ASC: START\_BYTE = 193 = ASCII REAL = 6 BYTES = "F6.2" = "KELVIN" FORMAT ONIT= "KELVIN"DESCRIPTION= "Sensor temperature before measurement"END\_OBJECT= COLUMN UNIT OBJECT = COLUMN NAME = "TEMP\_FOOT+X ACC" DATA TYPE = ASCII REAL START\_BYTE = 200 BYTES = 6 = "F6.2" FORMAT UNIT = "KELVIN" DESCRIPTION = "Sensor temperature before measurement" END\_OBJECT = COLUMN OBJECT = COLUMN NAME = "TEMP FOOT+Y TRM" DATA\_TYPE START\_BYTE = ASCII\_REAL = 207 = 6 BYTES = "F6.2" = "KELVIN" FORMAT UNIT ONII= "KELVIN"DESCRIPTION= "Sensor temperature before measurement"END\_OBJECT= COLUMN OBJECT = COLUMN NAME = "TEMP FOOT+Y ACC" DATA\_TYPE = ASCII\_REAL START\_BYTE = 214 BYTES = 6 = "F6.2" FORMAT FORMAT = "F6.2" UNIT = "KELVIN" DESCRIPTION = "Sensor temperature before measurement" END\_OBJECT = COLUMN OBJECT = COLUMN

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NAME	= "CASSE_PCB_TEMP"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 221
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "CASSE PCB temperature"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
OBJECT NAME	= COLUMN = "RADFET_VOLTAGE"
NAME	= "RADFET_VOLTAGE"
NAME DATA_TYPE	= "RADFET_VOLTAGE" = ASCII_REAL
NAME DATA_TYPE START_BYTE	<pre>= "RADFET_VOLTAGE" = ASCII_REAL = 228</pre>
NAME DATA_TYPE START_BYTE BYTES	<pre>= "RADFET_VOLTAGE" = ASCII_REAL = 228 = 6</pre>
NAME DATA_TYPE START_BYTE BYTES FORMAT	<pre>= "RADFET_VOLTAGE" = ASCII_REAL = 228 = 6 = "F6.3" = "MILLIVOLT"</pre>
NAME DATA_TYPE START_BYTE BYTES FORMAT UNIT	<pre>= "RADFET_VOLTAGE" = ASCII_REAL = 228 = 6 = "F6.3" = "MILLIVOLT"</pre>

#### 4.3.3.4.1.4 CASSE Data definition

The data produced in sounding or listening modes are described by the following TABLE object.

OBJECT	= DATA
NAME	= DATA
INTERCHANGE_FORMAT	= ASCII
ROWS	=
COLUMNS	=
ROW_BYTES	=
^STRUCTURE	= "DATA3.FMT"
END_OBJECT	= ACC

The format of the table object for CASSE sounding and listening modes is described in the file DATA3.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "MEAS_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 8
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
DESCRIPTION	= "Measurement ID in the current sequence"

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END OBJECT = COLUMN OBJECT = COLUMN = "RELATIVE TIME 1" NAME DATA\_TYPE = ASCII REAL START BYTE = 15 BYTES = 10 = "MILLISECOND" UNIT = "F10.3" FORMAT MISSING CONSTANT = 99999.999 DESCRIPTION = "Channel 1 time relative to start time of the measurement" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 1" NAME DATA\_TYPE = ASCII\_REAL START\_BYTE = 26 BYTES = 9 = "F9.4" FORMAT = "METER PER SECOND SQUARED" UNIT MISSING\_CONSTANT = 9999.9999 DESCRIPTION = "Acceleration data" END OBJECT = COLUMN DATA\_TYPE = ASCII\_REAL START\_BYTE = 36 BYTES OBJECT BYTES = 10 = "MILLISECOND" UNIT FORMAT = "F10.3" MISSING CONSTANT = 99999.999 DESCRIPTION = "Channel 2 time relative to start time of the measurement" END OBJECT = COLUMN = COLUMN OBJECT = "CHANNEL 2" NAME DATA\_TYPE = ASCII REAL START\_BYTE = 47 = 9 BYTES = "F9.4" FORMAT = "METER PER SECOND SQUARED" UNIT MISSING\_CONSTANT = 99999.9999 DESCRIPTION = "Acceleration data" END\_OBJECT = COLUMN OBJECT = COLUMN = "RELATIVE TIME 3" NAME DATA TYPE = ASCII REAL START BYTE = 57 BYTES = 10

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UNIT	= "MILLISECOND"
	= "F10.3"
MISSING_CONSTANT	
	= "Channel 3 time relative to
	start time of the measurement"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CHANNEL_3"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 68
BYTES	= 9
FORMAT	= "F9.4"
UNIT	= "METER PER SECOND SQUARED"
MISSING_CONSTANT	= 9999.9999
DESCRIPTION	= "Acceleration data"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RELATIVE_TIME_4"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 78
BYTES	= 10
UNIT	= "MILLISECOND"
FORMAT	= "F10.3"
MISSING_CONSTANT	
DESCRIPTION	= "Channel 4 time relative to
	start time of the measurement"
END_OBJECT	= COLUMN
	= COLUMN
	= "CHANNEL_4"
DATA_TYPE	
START_BYTE	= 89
BYTES	= 9 = "F9.4"
	= "METER PER SECOND SQUARED"
MISSING_CONSTANT	
	= "Acceleration data" = COLUMN
END_ODOECI	
OBJECT	= COLUMN
NAME	= "RELATIVE TIME 5"
DATA_TYPE	
START BYTE	—
—	= 10
UNIT	= "MILLISECOND"
FORMAT	= "F10.3"
MISSING_CONSTANT	
—	= "Channel 5 time relative to
	start time of the measurement"
END OBJECT	= COLUMN
_	

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OBJECT	=	COLUMN
NAME	=	"CHANNEL 5"
DATA_TYPE		-
		—
—	=	
FORMAT	=	"F9.4"
UNIT		"METER PER SECOND SQUARED"
MISSING_CONSTANT		
		"Acceleration data"
END OBJECT		COLUMN
OBJECT	=	COLUMN
NAME	=	"RELATIVE_TIME_6"
DATA TYPE	=	ASCII REAL
START BYTE	=	120
BYTES	=	10
UNIT	=	"MILLISECOND"
FORMAT	=	"F10.3"
MISSING CONSTANT	=	99999.999
—		"Channel 6 time relative to
		start time of the measurement"
END OBJECT	=	COLUMN
OBJECT	=	COLUMN
NAME	=	"CHANNEL_6"
DATA_TYPE	=	ASCII REAL
	=	131
BYTES	=	9
FORMAT	=	"F9.4"
UNIT	=	"METER PER SECOND SQUARED"
MISSING CONSTANT		
—		"Acceleration data"
		COLUMN
OBJECT	=	COLUMN
NAME	=	"RELATIVE_TIME_7"
DATA_TYPE	=	ASCII_REAL
START_BYTE	=	141
BYTES	=	10
UNIT	=	"MILLISECOND"
FORMAT	=	"F10.3"
MISSING CONSTANT	=	99999.999
—		"Channel 7 time relative to
		start time of the measurement"
END OBJECT	=	COLUMN
_		
OBJECT	=	COLUMN
NAME	=	"CHANNEL_7"
DATA_TYPE	=	ASCII_REAL
START_BYTE	=	152
BYTES	=	9
FORMAT	=	"F9.4"
UNIT	=	"METER PER SECOND SQUARED"

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MISSING CONSTANT = 9999.9999 DESCRIPTION = "Acceleration data" END OBJECT = COLUMN OBJECT = COLUMN NAME = "RELATIVE TIME 8" = ASCII REAL DATA TYPE START\_BYTE = 162 BYTES = 10 UNIT = "MILLISECOND" = "F10.3" FORMAT MISSING CONSTANT = 99999.999 DESCRIPTION = "Channel 8 time relative to start time of the measurement" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 8" NAME DATA TYPE = ASCII REAL START\_BYTE = 173 BYTES = 9 FORMAT = "F9.4" UNIT = "METER PER SECOND SQUARED" MISSING CONSTANT = 9999.9999 DESCRIPTION = "Acceleration data" END OBJECT = COLUMN OBJECT = COLUMN = "RELATIVE TIME 9" NAME = ASCII\_REAL DATA\_TYPE START\_BYTE = 183 BYTES = 10 UNIT = "MILLISECOND" FORMAT = "F10.3" MISSING\_CONSTANT = 99999.999 DESCRIPTION = "Channel 9 time relative to start time of the measurement" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 9" NAME DATA\_TYPE = ASCII\_REAL START\_BYTE = 194 BYTES = 9 = "F9.4" FORMAT UNIT = "METER PER SECOND SQUARED" MISSING\_CONSTANT = 9999.9999 DESCRIPTION = "Acceleration data" END OBJECT = COLUMN OBJECT = COLUMN NAME = "RELATIVE TIME 10" DATA TYPE = ASCII REAL

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START_BYTE	= 204
—	= 10
UNIT	= "MILLISECOND"
FORMAT	= "F10.3"
MISSING CONSTANT	= 99999.999
DESCRIPTION	= "Channel 10 time relative to
	start time of the measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CHANNEL_10"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 215
BYTES	= 9
	= "F9.4"
UNIT	= "METER PER SECOND SQUARED"
MISSING_CONSTANT	= 9999.9999
DESCRIPTION	= "Acceleration data"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RELATIVE_TIME_11"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 225
	= 10
UNIT	= "MILLISECOND"
FORMAT	= "F10.3"
MISSING_CONSTANT	= 99999.999
DESCRIPTION	= "Channel 11 time relative to
	start time of the measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CHANNEL_11"
DATA_TYPE	—
_	= 236
BYTES	= 9
FORMAT	= "F9.4"
	= "METER PER SECOND SQUARED"
MISSING_CONSTANT	
	= "Acceleration data"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "RELATIVE TIME 12"
DATA TYPE	
START BYTE	= 246
—	= 10
	= "MILLISECOND"
FORMAT	
MISSING_CONSTANT	
—	= "Channel 12 time relative to
	start time of the measurement"
	Start time of the measurement

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END\_OBJECT

= COLUMN

OBJECT	=	COLUMN
NAME	=	"CHANNEL_12"
DATA_TYPE	=	ASCII_REAL
START_BYTE	=	257
BYTES	=	9
FORMAT	=	"F9.4"
UNIT	=	"METER PER SECOND SQUARED"
MISSING_CONSTANT	=	9999.9999
DESCRIPTION	=	"Acceleration data"
END_OBJECT	=	COLUMN

#### 4.3.3.4.1.5 CASSE temperatures after measurement (level 3)

The feet temperatures (accelerometers and transmitters) can be acquired also after a measurement (sounding or listening). They will be stored in ASCII table described by a TABLE object.

= TAFT
= TAFT
= ASCII
=
=
=
= "TAFT3.FMT"
= TAFT

The structure of the "after measurement temperatures" TABLE object for FM2 is defined in the file TAFT3.FMT-

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "MEAS_ID"
DATA_TYPE = AS	SCII_INTEGER
START_BYTE	= 8
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
DESCRIPTION	= "Measurement ID in the current sequence"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT-Y_TRM"
DATA_TYPE	= ASCII_REAL

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START_BYTE	= 15
BYTES	= 6
FORMAT	= "F6.2"
	= "KELVIN"
	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT-Y_ACC"
DATA_TYPE	= ASCII REAL
BYTES	
FORMAT	
	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP FOOT+X TRM"
DATA_TYPE	
START_BYTE	
BYTES	
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END OBJECT	= COLUMN
—	
OBJECT	= COLUMN
	= "TEMP_FOOT+X_ACC"
DATA_TYPE	
START_BYTE	= 36
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Foot temperature before measurement"
END OBJECT	= COLUMN
	002011
	- COLUMN
OBJECT	= COLUMN
	= "TEMP_FOOT+Y_TRM"
DATA_TYPE	
START_BYTE	= 43
BYTES	
	= 6
FORMAT	
UNIT	= "F6.2" = "KELVIN"
UNIT DESCRIPTION	<pre>= "F6.2" = "KELVIN" = "Foot temperature before measurement"</pre>
UNIT	= "F6.2" = "KELVIN"
UNIT DESCRIPTION END_OBJECT	<pre>= "F6.2" = "KELVIN" = "Foot temperature before measurement" = COLUMN</pre>
UNIT DESCRIPTION END_OBJECT OBJECT	<pre>= "F6.2" = "KELVIN" = "Foot temperature before measurement" = COLUMN = COLUMN</pre>
UNIT DESCRIPTION END_OBJECT OBJECT NAME	<pre>= "F6.2" = "KELVIN" = "Foot temperature before measurement" = COLUMN = "TEMP_FOOT+Y_ACC"</pre>
UNIT DESCRIPTION END_OBJECT OBJECT	<pre>= "F6.2" = "KELVIN" = "Foot temperature before measurement" = COLUMN = "TEMP_FOOT+Y_ACC"</pre>
UNIT DESCRIPTION END_OBJECT OBJECT NAME	<pre>= "F6.2" = "KELVIN" = "Foot temperature before measurement" = COLUMN = COLUMN = "TEMP_FOOT+Y_ACC" = ASCII_REAL</pre>
UNIT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE	<pre>= "F6.2" = "KELVIN" = "Foot temperature before measurement" = COLUMN = COLUMN = "TEMP_FOOT+Y_ACC" = ASCII_REAL</pre>
UNIT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE START_BYTE	<pre>= "F6.2" = "KELVIN" = "Foot temperature before measurement" = COLUMN = "TEMP_FOOT+Y_ACC" = ASCII_REAL = 50</pre>

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UNIT DESCRIPTION END\_OBJECT

= "Foot temperature before measurement"

= COLUMN

= "KELVIN"

The structure of the "after measurement temperatures" TABLE object for FM3 is defined in the file TAFT3\_FM3.FMT-

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "MEAS_ID"
DATA_TYPE = AS	
START_BYTE	
BYTES	
	= "I6"
	= "N/A"
	= "Measurement ID in the current sequence"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "TEMP_FOOT-Y_TRM"
DATA_TYPE	
START_BYTE	
BYTES	
FORMAT	
UNIT	= "KELVIN"
	= "Sensor temperature after measurement"
END OBJECT	
	002011
OBJECT	= COLUMN
NAME	= "TEMP_FOOT-Y_ACC"
DATA_TYPE	
START_BYTE	= 22
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Sensor temperature after measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+X_TRM"
DATA_TYPE	—
START_BYTE	
BYTES	
FORMAT	= "F6.2"

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UNIT	= "KELVIN"
DESCRIPTION	= "Sensor temperature after measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+X_ACC"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 36
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Sensor temperature after measurement"
	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+Y_TRM"
	= ASCII_REAL
—	—
START_BYTE BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
	= "Sensor temperature after measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TEMP_FOOT+Y_ACC"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 50
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "Sensor temperature after measurement"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CASSE_PCB_TEMP"
DATA TYPE	= ASCII_REAL
	—
BYTES	= 6
FORMAT	= "F6.2"
UNIT	= "KELVIN"
DESCRIPTION	= "CASSE PCB temperature"
	= COLUMN
OBJECT	
NAME	= COLUMN = "BADEET VOLTACE"
	= "RADFET_VOLTAGE" = ASCII_REAL
START_BYTE	_
BYTES	- 64 = 6
	= 6 = "F6.3"
FORMAT	
UNIT	= "VOLT"
	= "RadFET voltage"
END_OBJECT	= COLUMN

### 4.3.3.4.1.6 Structure of FM-3 Statistics data (level 3)

The channel statistics data are described by a TABLE object.

OBJECT	=	STAT
NAME		= STAT
INTERCHANGE_FORMAT		= ASCII
ROWS		=
COLUMNS		=
ROW_BYTES		=
^STRUCTURE		= "STAT2_FM3.FMT"
END_OBJECT		= STAT

The structure of the Sequence parameters TABLE object is defined in the file STAT2\_FM3.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "MEAS_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 8
BYTES	= 6
FORMAT	= "I6"
UNIT	= "N/A"
DESCRIPTION	= "Measurement ID in the current sequence"
END_OBJECT	
OBJECT	= COLUMN
NAME	= "CHANNEL_1_MIN"
—	= ASCII_INTEGER
START_BYTE	= 15
BYTES	= 4
FORMAT	= "I4"
UNIT	= "N/A"
MISSING_CONS	
DESCRIPTION	= "Channel 1 minimal sample value in
	ADC non-linear format"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "CHANNEL_1_MAX"
_	= ASCII_INTEGER
START_BYTE	
BYTES	= 4

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= "I4" FORMAT = "N/A" UNIT MISSING CONSTANT = 9999 DESCRIPTION = "Channel 1 maximal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL\_1\_MEAN" NAME DATA TYPE = ASCII REAL START\_BYTE = 25 = 6 BYTES = "F6.1" FORMAT = "N/A" UNIT MISSING CONSTANT = 9999.9 DESCRIPTION = "Channel 1 mean of linearized ADC sample values" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CHANNEL\_2\_MIN" DATA TYPE = ASCII INTEGER START BYTE = 32 BYTES = 4 = "I4" FORMAT = "N/A" UNIT MISSING CONSTANT = 9999 DESCRIPTION = "Channel 2 minimal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CHANNEL 2 MAX" DATA TYPE = ASCII INTEGER START BYTE = 37 BYTES = 4 FORMAT = "I4" = "N/A" UNIT MISSING\_CONSTANT = 9999 DESCRIPTION = "Channel 2 maximal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 2 MEAN" NAME DATA\_TYPE = ASCII\_REAL = 42 START\_BYTE BYTES = 6 = "F6.1" FORMAT = "N/A" UNIT MISSING CONSTANT = 9999.9 DESCRIPTION = "Channel 2 mean of linearized ADC sample values" END OBJECT = COLUMN

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OBJECT = COLUMN NAME = "CHANNEL\_3\_MIN" DATA TYPE = ASCII INTEGER START BYTE = 49 BYTES = 4 = "I4" FORMAT UNIT = "N/A" MISSING\_CONSTANT = 9999 DESCRIPTION = "Channel 3 minimal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL\_3\_MAX" NAME DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 54 = 4 BYTES = "I4" FORMAT UNIT = "N/A" MISSING CONSTANT = 9999 DESCRIPTION = "Channel 3 maximal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 3 MEAN" NAME = ASCII REAL DATA TYPE START\_BYTE = 59 = 6 BYTES = "F6.1" FORMAT = "N/A" UNIT MISSING\_CONSTANT = 9999.9 DESCRIPTION = "Channel 3 mean of linearized ADC sample values" = COLUMN END OBJECT OBJECT = COLUMN NAME = "CHANNEL\_4\_MIN" DATA\_TYPE = ASCII\_INTEGER START BYTE = 66 BYTES = 4 FORMAT = "I4" = "N/A" UNIT MISSING CONSTANT = 9999 DESCRIPTION = "Channel 4 minimal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CHANNEL 4 MAX" DATA TYPE = ASCII INTEGER START\_BYTE = 71 = 4 BYTES = "I4" FORMAT

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= "N/A" UNTT MISSING CONSTANT = 9999 DESCRIPTION = "Channel 4 maximal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL\_4\_MEAN" NAME DATA\_TYPE = AS START\_BYTE = 76 = ASCII\_REAL BYTES = 6 = "F6.1" FORMAT UNIT = "N/A" MISSING\_CONSTANT = 9999.9 DESCRIPTION = "Channel 4 mean of linearized ADC sample values" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL\_5\_MIN" NAME DATA TYPE = ASCII INTEGER START BYTE = 83 BYTES = 4 FORMAT = "I4" = "N/A" UNIT MISSING\_CONSTANT = 9999 DESCRIPTION = "Channel 5 minimal sample value in ADC non-linear format" END\_OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 5 MAX" NAME DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 88 = 4 BYTES = "I4" FORMAT UNIT = "N/A" MISSING\_CONSTANT = 9999 DESCRIPTION = "Channel 5 maximal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL\_5\_MEAN" NAME = ASCII REAL DATA TYPE START\_BYTE = 93 = 6 BYTES = "F6.1" FORMAT = "N/A" UNIT MISSING CONSTANT = 9999.9 DESCRIPTION = "Channel 5 mean of linearized ADC sample values" END\_OBJECT = COLUMN OBJECT = COLUMN

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= "CHANNEL\_6\_MIN" NAME DATA\_TYPE = ASCII\_INTEGER START BYTE = 100 BYTES = 4 = "I4" FORMAT = "N/A" UNIT MISSING CONSTANT = 9999 DESCRIPTION = "Channel 6 minimal sample value in ADC non-linear format" = COLUMN END OBJECT OBJECT = COLUMN NAME = "CHANNEL 6 MAX" DATA TYPE = ASCII\_INTEGER START\_BYTE = 105 BYTES = 4 FORMAT = "I4" UNIT = "N/A" MISSING CONSTANT = 9999 DESCRIPTION = "Channel 6 maximal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL\_6\_MEAN" NAME DATA\_TYPE START\_BYTE = ASCII REAL = 110 = 6 BYTES FORMAT = "F6.1" UNIT = "N/A" MISSING\_CONSTANT = 9999.9 DESCRIPTION = "Channel 6 mean of linearized ADC sample values" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CHANNEL 7 MIN" DATA TYPE = ASCII INTEGER START\_BYTE = 117 BYTES = 4 = "I4" FORMAT = "N/A" UNIT MISSING\_CONSTANT = 9999 DESCRIPTION = "Channel 7 minimal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 7 MAX" NAME DATA\_TYPE = ASCII\_INTEGER START\_BYTE = 122 BYTES = 4 FORMAT = "I4" UNIT = "N/A"

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MISSING CONSTANT = 9999 DESCRIPTION = "Channel 7 maximal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 7 MEAN" NAME DATA\_TYPE = ASCII\_REAL START\_BYTE = 127 BYTES = 6 = "F6.1" FORMAT = "N/A" UNIT MISSING CONSTANT = 9999.9 DESCRIPTION = "Channel 7 mean of linearized ADC sample values" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 8 MIN" NAME DATA TYPE = ASCII INTEGER START BYTE = 134 BYTES = 4 FORMAT = "I4" UNIT = "N/A" MISSING CONSTANT = 9999 DESCRIPTION = "Channel 8 minimal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CHANNEL 8 MAX" DATA TYPE = ASCII INTEGER START\_BYTE = 139 BYTES = 4 = "I4" FORMAT = "N/A" UNIT MISSING CONSTANT = 9999 DESCRIPTION = "Channel 8 maximal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL\_8\_MEAN" NAME DATA\_TYPE = ASC START\_BYTE = 144 = ASCII\_REAL BYTES = 6 = "F6.1" FORMAT = "N/A" UNIT MISSING CONSTANT = 9999.9 DESCRIPTION = "Channel 8 mean of linearized ADC sample values" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CHANNEL 9 MIN"

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DATA TYPE = ASCII INTEGER START BYTE = 151 BYTES = 4 FORMAT = "I4" = "N/A" UNIT MISSING CONSTANT = 9999 DESCRIPTION = "Channel 9 minimal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CHANNEL 9 MAX" DATA TYPE = ASCII INTEGER START BYTE = 156 = 4 BYTES = "I4" FORMAT UNIT = "N/A" MISSING\_CONSTANT = 9999 DESCRIPTION = "Channel 9 maximal sample value in ADC non-linear format" END OBJECT = COLUMN = COLUMN OBJECT = "CHANNEL 9 MEAN" NAME DATA\_TYPE = ASCII REAL \_ ----START\_BYTE = 161 BYTES = 6 FORMAT = "F6.1" UNIT = "N/A" MISSING CONSTANT = 9999.9 DESCRIPTION = "Channel 9 mean of linearized ADC sample values" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CHANNEL 10 MIN" DATA TYPE = ASCII INTEGER START BYTE = 168 BYTES = 4 FORMAT = "I4" = "N/A" UNIT MISSING CONSTANT = 9999 DESCRIPTION = "Channel 10 minimal sample value in ADC non-linear format" = COLUMN END OBJECT OBJECT = COLUMN = "CHANNEL 10 MAX" NAME DATA TYPE = ASCII INTEGER START BYTE = 173 BYTES = 4 = "I4" FORMAT UNIT = "N/A" MISSING CONSTANT = 9999

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= "Channel 10 maximal sample value in DESCRIPTION ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 10 MEAN" NAME DATA TYPE = ASCII REAL START BYTE = 178 = 6 BYTES = "F6.1" FORMAT UNIT = "N/A" MISSING CONSTANT = 9999.9 DESCRIPTION = "Channel 10 mean of linearized ADC sample values" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CHANNEL 11 MIN" DATA\_TYPE = ASCII\_INTEGER START BYTE = 185 BYTES = 4 FORMAT = "14" = "N/A" UNIT MISSING CONSTANT = 9999 DESCRIPTION = "Channel 11 minimal sample value in ADC non-linear format" = COLUMN END OBJECT OBJECT = COLUMN = "CHANNEL 11 MAX" NAME DATA TYPE = ASCII INTEGER START BYTE = 190 = 4 BYTES = "I4" FORMAT = "N/A" UNIT MISSING CONSTANT = 9999 DESCRIPTION = "Channel 11 maximal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL 11 MEAN" NAME DATA\_TYPE = ASCII REAL START BYTE = 195 = 6 BYTES = "F6.1" FORMAT = "N/A" UNIT MISSING\_CONSTANT = 9999.9 DESCRIPTION = "Channel 11 mean of linearized ADC sample values" END OBJECT = COLUMN OBJECT = COLUMN NAME = "CHANNEL 12 MIN" DATA TYPE = ASCII INTEGER

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START BYTE = 202 BYTES = 4 = "I4" FORMAT = "N/A" UNIT MISSING CONSTANT = 9999 DESCRIPTION = "Channel 12 minimal sample value in ADC non-linear format" END OBJECT = COLUMN OBJECT = COLUMN = "CHANNEL\_12\_MAX" NAME DATA\_TYPE = ASCII\_INTEGER START BYTE = 207 = 4 BYTES FORMAT = "I4" UNIT = "N/A" MISSING CONSTANT = 9999 DESCRIPTION = "Channel 12 maximal sample value in ADC non-linear format" = COLUMN END OBJECT OBJECT = COLUMN = "CHANNEL 12 MEAN" NAME DATA TYPE = ASCII REAL START BYTE = 212 BYTES = 6 = "F6.1" FORMAT UNIT = "N/A" MISSING CONSTANT = 9999.9 DESCRIPTION = "Channel 12 mean of linearized ADC sample values" END\_OBJECT = COLUMN

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#### 4.3.3.4.2 PP Data object definition (level 3)

#### 4.3.3.4.2.1 PP Active mode test

During an active mode test, one active PP measurement is performed. Adjusted and measured values (DAC table read back from PP memory, time series of transmitter current and receiver voltage samples) are sent to ground. Telemetry concludes with the results of the on-board data evaluation. Adjustable parameters of command active mode test are the configuration of electrodes, the transmitting frequency and the number of sine waves. Parameters are calibrated to voltages and currents where possible. For time series the relative offset from the first sample is given as fractions of a second.

The PP AMTEST data are organized as tables containing parameters, the DAC table read back from PP memory, transmitter and receiver time series. The tables are kept in separate data files (combined detached labels). Consequently there will be one PDS label pointing to four data files.

Following is an example of PDS files corresponding to an AMTEST measurement.

SES\_FS3\_PAM\_070929214512\_TEST.LBL (label) SES\_FS3\_PAM\_070929214512\_TPAR.TAB (parameters) SES\_FS3\_PAM\_070929214512\_TDAC.TAB (DAC table) SES\_FS3\_PAM\_070929214512\_TTX.TAB (transmitter time series) SES\_FS3\_PAM\_070929214512\_TRX.TAB (receiver time series)

The parameters are described by the following TABLE object.

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OBJECT	= AMTESTPARC_TABLE
NAME	= AMTESTPARC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 9
ROW_BYTES	= 90
^STRUCTURE	= "PP_AMT_PARC.FMT"
END_OBJECT	= AMTESTPAR_TABLE

#### The structure of the parameters table is described in the file PP\_AMT\_PARC.FMT.

```
/* PP AMTEST sensor settings / calibrated, version 2, 2015-11-14 */
OBJECT
           = COLUMN
   NAME = "SESAME SEQ ID"
   DATA_TYPE
                 = ASCII INTEGER
   START BYTE
                 = 1
             = 6
   BYTES
             = "N/A"
   UNIT
   FORMAT = "I6"
   DESCRIPTION = "Sequence ID in the current data file"
END OBJECT
               = COLUMN
OBJECT
           = COLUMN
 NAME
            = "UTC"
 NAME
DATA_TYPE = TIL
= 8
              = TIME
 BYTES
             = 23
 DESCRIPTION = "Measurement start time (UTC in PDS standard
   format YYYY-MM-DDThh:mm:ss.sss)"
              = COLUMN
END OBJECT
OBJECT
            = COLUMN
   NAME = "SESAME LOCAL TIME"
   DATA TYPE
                = ASCII_INTEGER
   START_BYTE
                   = 32
   BYTES
              = 15
   FORMAT = "I15"
   DESCRIPTION = "Measurement start time. SESAME local time
   (SLT) runs with a resolution of 1/32 seconds.
    SLT represents the least significant 32 bits
    of LOBT. The most significant 5 bits are in
    CDMS RSST (see SESAME Ready Message)"
END OBJECT = COLUMN
OBJECT
           = COLUMN
   NAME = "SENSOR_SETTINGS"
   DATA TYPE
               = ASCII INTEGER
   START BYTE
                  = 48
              = 7
   BYTES
   UNIT = "N/A"
   DESCRIPTION = "Commanded (echoed) electrode combination
    as 3-digit hexadecimal code 16#abi#
```

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with the following meaning: a: electrode connected to the TX A output. Possible values: 0 [none], 1 [+X leg], 2 [MUPUS PEN] b: electrode connected to the TX B output. Possible values: 0 [none], 2 [MUPUS PEN], 3 [APXS] i: input channel Possible values: 0 [potential difference] 1 [current at +X leg] 2 [current at MUPUS PEN] 3 [current at APXS] 4 [direct measurement at +Y foot] 5 [direct measurement at -Y foot] 6 [reference voltage -2.5 V] 7 [reference voltage +2.5 V] " END OBJECT = COLUMN OBJECT = COLUMN = "NOMINAL FREQUENCY" NAME = ASCII\_INTEGER DATA TYPE START BYTE = 56 BYTES = 5 UNIT = "HZ" FORMAT = "I5" = "Nominal transmitter frequency " DESCRIPTION END OBJECT = COLUMN OBJECT = COLUMN NAME = "CORRECTED\_FREQUENCY" DATA TYPE = ASCII\_REAL = 62 START\_BYTE = 8 BYTES = "HZ" UNIT FORMAT = "F8.2" DESCRIPTION = "Corrected transmitter frequency" END OBJECT = COLUMN = COLUMN OBJECT = "NUMBER\_OF\_WAVES" NAME DATA TYPE = ASCII\_INTEGER = 71 START BYTE = 2 BYTES = "N/A" UNIT FORMAT = I2 DESCRIPTION = "Number of generated transmitter sine waves " END OBJECT = COLUMN

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OBJECT = COLUMN = "NUMBER\_OF\_SAMPLES" NAME DATA TYPE = ASCII INTEGER START BYTE = 74 BYTES = 5 = "N/A" UNIT FORMAT = "I5" = "Number of transmitter current and receiver voltage DESCRIPTION samples " END OBJECT = COLUMN = COLUMN OBJECT NAME = "ERROR CODE" = ASCII\_INTEGER DATA TYPE START BYTE = 80 BYTES = 8 UNIT = "N/A" MISSING\_CONSTANT = 16#0000# DESCRIPTION = "Active mode results Hex value as 16#xxxx#. The possible values are: 8001 Invalid register address. 8002 Error verifying register write. 8004 Error accessing power register. 8008 MUX setting not allowed. 8010 Error accessing PP RAM. 8020 Tried to start measurement but a measurement is already running. 0040 Error during writing to instrument. 0080 Error during reading from instrument. 0100 Error using ADC of C-DPU. 0200 Error during DAC table generation. 0400 Calculated number of samples > N SAMP MAX. 8800 C-DPU memory exhausted. 9000 Measurement time out. 2000 Invalid command parameter. 8000 Flag indicates fatal error. " END OBJECT = COLUMN

The DAC table is described by the following TABLE object.

OBJECT	= AMTESTDAC_TABLE
NAME	= AMTESTDAC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 256
COLUMNS	= 5
ROW_BYTES	= 60
^STRUCTURE	= "PP_AMT_DACC.FMT"
END_OBJECT	= AMTESTDAC_TABLE

The structure of the DAC table is described in the file PP\_AMT\_DACC.FMT.

OBJECT = COLUMN

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NAME	= "SESAME SEQ ID"
DATA TYPE	= ASCII INTEGER
START BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 32
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	<pre>= "Measurement start time. SESAME local time  (SLT) runs with a resolution of 1/32 seconds.  SLT represents the least significant 32 bits  of LOBT. The most significant 5 bits are in  CDMS RSST (see SESAME Ready Message)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "DAC TIME OFFSET"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 48
BYTES	= 7
UNIT	= "MILLISECOND"
FORMAT	= "F7.3"
DESCRIPTION	= "DAC time offset from start of wave"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "DAC_VOLTAGE"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 56
BYTES	= 7
UNIT	= "VOLT"
FORMAT	= "F7.3"
DESCRIPTION	= "Transmitter electrode difference voltage "
END_OBJECT	= COLUMN

The receiver time series is described by the following TABLE object.

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OBJECT	= AMTESTRX_TABLE
NAME	= AMTESTRX
INTERCHANGE_FORMAT	= ASCII
ROWS	= 8192
COLUMNS	= 5
ROW_BYTES	= 77
^STRUCTURE	= "PP_AMT_RXC.FMT"
END_OBJECT	= AMT_RX_TABLE

The structure of the receiver time series table is described in the file PP\_AMT\_RXC.FMT.

	- 00111001
OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
—	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23
DESCRIPTION	
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	—
START_BYTE	= 32
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	= "Measurement start time. SESAME local time
	(SLT) runs with a resolution of 1/32 seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RX_TIME "
DATA_TYPE	= ASCII_REAL
START_BYTE	= 48
BYTES	= 8
UNIT	= "MILLISECOND"
FORMAT	= "F8.3"
DESCRIPTION	= "Relative to start time"
END_OBJECT	= COLUMN

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OBJECT	= COLUMN
NAME	= "RX_POTENTIAL_DIFFERENCE"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 57
BYTES	= 8
UNIT	= "VOLT"
FORMAT	= "F8.3"
DESCRIPTION	= "RX potential difference "
END_OBJECT	= COLUMN

The transmitter time series is described by the following TABLE object.

OBJECT	= AMTESTTX_TABLE
NAME	= AMTESTTX
INTERCHANGE_FORMAT	= ASCII
ROWS	= 8192
COLUMNS	= 5
ROW_BYTES	= 68
^STRUCTURE	= "PP_AMT_TXC.FMT"
END_OBJECT	= AMTESTTX_TABLE

#### The structure of the transmitter TABLE object is defined in the file PP\_AMT\_TXC.FMT.

OBJECT	= COLUMN
NAME	= "SESAME SEQ ID"
DATA_TYPE	
START BYTE	—
_	= 6
UNIT	= "N/A"
	= "I6"
	= "Sequence ID in the current data file"
END OBJECT	= Sequence ID In the cultent data life = COLUMN
END_OBJECT	- COLOMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA TYPE	= TIME
START_BYTE	= 8
—	= 2.3
	= "Measurement start time (UTC in PDS standard
DESCRIPTION	format YYYY-MM-DDThh:mm:ss.sss)"
END OBJECT	= COLUMN
END_OBJECT	
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA TYPE	= ASCII INTEGER
_ START_BYTE	—
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	= "Measurement start time. SESAME local time
	(SLT) runs with a resolution of $1/32$ seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in

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	CDMS RSST (see SESAME Ready Messa	ige)"	
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "TX_TIME "		
DATA_TYPE	= ASCII_REAL		
START_BYTE	= 48		
BYTES	= 8		
UNIT	= "MILLISECOND"		
FORMAT	= "F8.3"		
DESCRIPTION	= "Relative to start time"		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "TX_CURRENT"		
DATA_TYPE	= ASCII_REAL		
START_BYTE	= 57		
BYTES	= 9		
UNIT	= "MILLIAMPERE"		
FORMAT	= "F9.6"		
DESCRIPTION	= "Tx current at electronics' transr	nitter outpu	it "
END_OBJECT	= COLUMN		

#### 4.3.3.4.2.2 PP Health Check (HC) data

Following is an example of PDS files corresponding to an HC measurement.

**SES\_FS3\_PHC\_070929214512\_HC.LBL** (label) SES\_FS3\_PHC\_070929214512\_HC.TAB (parameters)

The HC data are described in the following TABLE object (simple detached label). All values are given as voltages or currents.

OBJECT	= SES_PHC_TABLE
NAME	= "SES_PHC"
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 14
ROW_BYTES	= 144
^STRUCTURE	= "PP_HCC.FMT"
END_OBJECT	= SES_PHC_TABLE

The structure of the TABLE object is defined in the file PP\_HCC.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN

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OBJECT	= COLUMN
NAME	= "UTC"
DATA TYPE	= TIME
START BYTE	= 8
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
	= 32
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	= "Measurement start time. SESAME local time
	(SLT) runs with a resolution of 1/32 seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LP_VALUE"
	= ASCII INTEGER
DATA_TYPE	= 48
START_BYTE	= 40
BYTES	= 5 = "N/A"
UNIT FORMAT	
	= "I5"
DESCRIPTION	<pre>= "Result count of Langmuir probe measurement/not calibrated "</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "ADC_OFFSET"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 54
BYTES	= 7
UNIT	= "VOLT"
FORMAT	= "F7.4"
DESCRIPTION	= "Should be close to 0 V"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "-2.5V REF"
DATA TYPE	= ASCII REAL
	—
- BYTES	= 7
UNIT	= "VOLT"
FORMAT	= "F7.4"
DESCRIPTION	= "-2.5V REF and +2.5V REF should be nearly
END OBJECT	symmetrical to ADC offset" = COLUMN
	- 00100100

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OBJECT	= COLUMN
NAME	= "+2.5V_REF"
DATA_TYPE	
START_BYTE	= 70
BYTES	= 7
UNIT	= "VOLT"
FORMAT	= "F7.4"
DESCRIPTION	= "-2.5V REF and +2.5V REF should be nearly
	symmetrical to ADC offset"
END_OBJECT	= COLUMN
	= COLUMN
	= "DELTA"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 78
BYTES	= 7
UNIT	= "VOLT"
FORMAT	= "F7.4"
DESCRIPTION	= "Differential value -Y foot - +Y foot"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LEG+Y_RX1"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 86
BYTES	= 8
UNIT	= "MILLIVOLT"
	= "F8.3"
DESCRIPTION	= "Direct voltage from receiver 1 at +Y leg (at 20C)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LEG-Y_RX2"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 95
BYTES	= 8
UNIT	= "MILLIVOLT"
FORMAT	= "F8.3"
DESCRIPTION	= "Direct voltage from receiver 2 at -Y leg (at 20C)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LEG+X_TX1"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 104
BYTES	= 9
UNIT	= "MILLIAMPERE"
FORMAT	= "F9.6"
DESCRIPTION	= "Transmitter current at electrode 1.
	No voltage applied.
	Should be close to 0 mA"
END_OBJECT	= COLUMN
—	

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OBJECT	= COLUMN
NAME	= "MUPUS PEN TX2"
DATA TYPE	
—	= 114
BYTES	= 9
	= "MILLIAMPERE"
FORMAT	
	= "Transmitter current at electrode 2.
	No voltage applied.
	Should be close to 0 mA"
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "APXS_TX3"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 124
BYTES	= 9
	= "MILLIAMPERE"
	= "F9.6"
DESCRIPTION	= "Transmitter current at electrode 3.
	No voltage applied.
	Should be close to 0 mA"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "ERROR_CODE"
DATA TYPE	—
- START BYTE	—
 BYTES	= 8
UNIT	= "N/A"
MISSING_CONSTANT	= 16#0000#
	= "Hex value as 16#xxxx#. The possible values are:
	8001 Invalid register address.
	8002 Error verifying register write.
	8004 Error accessing power register.
	8008 MUX setting not allowed.
	8010 Error accessing PP RAM.
	8020 Tried to start measurement but a measurement
	is already running.
	0040 Error during writing to instrument.
	0080 Error during reading from instrument.
	0100 Error using ADC of C-DPU.
	0200 Error during DAC table generation.
	0400 Calculated number of samples > N_SAMP_MAX.
	8800 C-DPU memory exhausted.
	9000 Measurement time out.
	2000 Invalid command parameter.
	8000 Flag indicates fatal error. "
END_OBJECT	= COLUMN

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This measurement sequence is mainly used for ground tests and is not a regular flight measurement. Following is an example of PDS files corresponding to an LM measurement.

#### SES\_FS3\_PLM\_070929214512\_LM.LBL (label)

SES\_FS3\_PLM\_070929214512\_LM.TAB (parameters)

The LM data are described in the following TABLE object (simple detached label).

OBJECT	= SES_PLM_TABLE
NAME	= "SES_LM"
INTERCHANGE_FORMAT	= ASCII
ROWS	= 17
COLUMNS	= 5
ROW_BYTES	= 64
^STRUCTURE	= "PP_LMC.FMT"
END_OBJECT	= SES_PLM_TABLE

The structure of the TABLE object is defined in the file PP\_LMC.FMT.

/\* PP Langmuir Probe measurement /calibrated, version 2, 2015-11-14\*/ OBJECT = COLUMN = "SESAME\_SEQ\_ID" NAME DATA TYPE = ASCII INTEGER START BYTE = 1 = 6 BYTES FORMAT = "N/A" FORMAT = "I6" DESCRIPTION = "Sequence ID in the current data file" OBJECT = COLUMN END OBJECT = COLUMN OBJECT = COLUMN = "UTC" NAME = TIME DATA TYPE START BYTE = 8 BYTES = 23 = "Measurement start time (UTC in PDS standard DESCRIPTION format YYYY-MM-DDThh:mm:ss.sss)" END OBJECT = COLUMN OBJECT = COLUMN NAME = "SESAME LOCAL TIME" DATA\_TYPE = ASCII\_INTEGER START BYTE = 32 BYTES = 15 FORMAT = "I15" DESCRIPTION = "Measurement start time. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)" END OBJECT = COLUMN

# SESAME

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OBJECT	= COLUMN
NAME	= "INTEGRATION_TIME"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 48
BYTES	= 8
UNIT	= "MILLISECOND"
FORMAT	= "F8.4"
DESCRIPTION	= "Integration time until trigger limit reached"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "PLASMA_WAVE_AMPLITUDE"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 57
BYTES	= 5
UNIT	= "MILLIVOLT"
UNIT FORMAT	= "MILLIVOLT" = "F5.2"
	= "F5.2"
FORMAT	= "F5.2" = "99.99"

#### 4.3.3.4.2.4 PP Passive Mode Test (PMTEST)

The PP PMTEST data are organized as tables containing parameters, selectable analog channel time series and receiver (Rx) time series. The tables are kept in separate data files (combined detached labels). Consequently there will be one PDS label pointing to three data files. The parameters are given as calibrated voltages or frequencies where possible, the time series are given with a time offset relative to the first sample and voltages for each time series values, calibrated for pre-amplifier temperatures of +20°C. For actual temperatures the values have to be reduced according to the ratio of the preamplifier amplification, nominally 8.1, but at temperatures of -160°C close to 6.

Following is an example of PDS files corresponding to a PMTEST measurement.

```
SES_FS3_PPM_070929214512_TEST.LBL (label)
SES_FS3_PPM_070929214512_TPAR.TAB (parameters)
SES_FS3_PPM_070929214512_TCH.TAB (parameters)
SES_FS3_PPM_070929214512_TRX.TAB (receiver time series)
```

The PMTEST parameters are described in the following TABLE object (simple detached label).

OBJECT	= PMTEST_PAR_TABLE
NAME	= "PMTEST_PAR"
INTERCHANGE_FOF	RMAT = ASCII
ROWS	= 12
COLUMNS	= 11
ROW_BYTES	= 114
^STRUCTURE	= "PP_PMT2_PARC.FMT"
END_OBJECT	= PMTEST_PAR_TABLE

The structure of the parameters table is described in the file PP\_PMT2\_PARC.FMT.

OBJECT = COLUMN NAME = "SESAME\_SEQ\_ID"

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"

	5
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "16"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	
BYTES	= 23
DESCRIPTION	<pre>= "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
—	= ASCII_INTEGER
START_BYTE	
BYTES	= 15
FORMAT DESCRIPTION	
	(SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LP_INT_INC"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 48
BYTES	= 9
UNIT	= "SECOND"
FORMAT	= "F9.7"
DESCRIPTION	= "Time increment duration per integrator unit "
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LP_VALUE"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 58
BYTES	= 9
UNIT	= "SECOND"
FORMAT	= "F9.7"
DESCRIPTION	= "Integration time of Langmuir probe measurement
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LP_MEAS_ERR"
DATA TYPE	
_	-

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	- (0
START_BYTE	
BYTES	-
	= "N/A"
MISSING_CONSTANT	
DESCRIPTION	= "Error code for LP measurement.
	Hex value as 16#xxxx#. The possible values are:
	8001 Invalid register address.
	8002 Error verifying register write.
	8004 Error accessing power register.
	8008 MUX setting not allowed.
	8010 Error accessing PP RAM.
	8020 Tried to start measurement but a measurement is already running.
	0040 Error during writing to instrument.
	0080 Error during reading from instrument.
	0100 Error using ADC of C-DPU.
	0200 Error during DAC table generation.
	0400 Calculated number of samples > N SAMP MAX.
	8800 C-DPU memory exhausted.
	9000 Measurement time out.
	2000 Invalid command parameter.
	8000 Flag indicates fatal error. "
END OBJECT	= COLUMN
—	
OBJECT	= COLUMN
NAME	= "TIME INC"
DATA TYPE	= ASCII REAL
-	= 77
BYTES	= 9
UNIT	= "SECOND"
FORMAT	= "F9.7"
DESCRIPTION	= "Time increment between samples"
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "NB SAMPLES"
DATA TYPE	= ASCII INTEGER
START BYTE	= 87
BYTES	= 5
UNIT	= "N/A"
FORMAT	= "I5"
DESCRIPTION	= "Number of used samples (excluding skipped samples) "
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "ERROR_CODE"
DATA_TYPE	= ASCII_INTEGER
START BYTE	= 93
_ BYTES	= 8
UNIT	= "N/A"
MISSING_CONSTANT	= 16#0000#
DESCRIPTION	
	8001 Invalid register address.

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	8002 Errc	or verifying register wr	cite.	
	8004 Errc	or accessing power regis	ster.	
		setting not allowed.		
		or accessing PP RAM.	1	
		ed to start measurement already running.	but a measu	irement
		or during writing to ins	trument	
		or during reading from i		
		or using ADC of C-DPU.		
	0200 Errc	or during DAC table gene	eration.	
	0400 Calc	culated number of sample	es > N_SAMP_	MAX.
	8800 C-DF	PU memory exhausted.		
	9000 Meas	surement time out.		
	2000 Inva	alid command parameter.		
	-	g indicates fatal error.	"	
END_OBJECT	= COLUMN			
OBJECT	= COLUMN			
NAME	= "NB_FREQ_BI	INS"		
DATA TYPE	= ASCII INTEG			
- START BYTE	= 102			
BYTES	= 2			
UNIT	= "N/A"			
FORMAT	= "12"			
DESCRIPTION	= "Number of	frequency bins "		
END_OBJECT	= COLUMN			
OBJECT	= COLUMN			
NAME	= "MATH ERR C	'ODE."		
DATA TYPE	= ASCII INTEG			
- START BYTE	= 105			
- BYTES	= 8			
UNIT	= "N/A"			
MISSING_CONSTANT	= 16#0000#			
DESCRIPTION	= "Indicates	errors, which can only	occur durir	ıg
	on-board d	lata reduction (hex valu	ie as 16#xxx	<x#).< td=""></x#).<>
	0001 Redu	ace: number of vector el	ements odd	or less
		n 2; fatal.		
		and: less than four elem	ents in ing	put
		much data for analysis;	truncating	1.
		few data for analysis;		
		l number of waves is not		
	trur	ncated.		
		the expected number of the ered arrays; fatal.	elements ir	1
		ment for sine table() r	ot in valio	l range
		deg2 <=720.	ICC III VAII(	a runge
	0080 Over	flow in divsin() or res	sult inexact	Ξ.
		few data for trimmed me alar mean used.	ean calculat	cion;
	-	lata for warr.mean; part	cicular: and	alysis
		ds no data.		



END OBJECT

#### The PMTEST receiver data are described in the following TABLE object (simple detached label).

OBJECT	= PMT_RX_TABLE
NAME	= PMT_RX
INTERCHANGE_FORMAT	= ASCII
ROWS	= 8192
COLUMNS	= 5
ROW_BYTES	= 66
^STRUCTURE	= "PP_PMT2_RXC.FMT"
END_OBJECT	= PMT_RX_TABLE

The structure of the receiver time series table is described in the file PP\_PMT2\_RXC.FMT.

OBJECT	= COLUMN
NAME	= "SESAME SEQ ID"
DATA TYPE	= ASCII INTEGER
	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "16"
DESCRIPTION	= "Sequence ID in the current data file"
END OBJECT	= COLUMN
-	
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 32
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	= "Measurement start time. SESAME local time
	(SLT) runs with a resolution of $1/32$ seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TIME_OFFSET "
DATA_TYPE	= ASCII_REAL

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START_BYTE	= 48
BYTES	= 7
UNIT	= "MILLISECOND"
FORMAT	= "F7.3"
DESCRIPTION	= "Time offset from first sample"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "POTENTIAL_DIFF"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 56
BYTES	= 8
UNIT	= "MILLIVOLT"
FORMAT	= "F8.3"
DESCRIPTION	= "Potential Difference between +Y and -Y foot "
END_OBJECT	= COLUMN

#### 4.3.3.4.3 Flight software version FM2

#### 4.3.3.4.3.1 PP Active mode test

During an active mode test, one active PP measurement is performed. Adjusted and measured values (DAC table read back from PP memory, time series of transmitter current and receiver voltage samples) are sent to ground. All values are calibrated according to frequencies or voltages where possible. Telemetry concludes with the results of the on-board data evaluation. Adjustable parameters of command active mode test are the configuration of electrodes, the transmitting frequency and amplitude and the number of sine waves. Because telemetry contains the raw time series data and the results of the on-board evaluation it is possible to check both, details of the time series and the correct working of the data evaluation.

The PP AMTEST2 data are organized as tables containing parameters including the on-board evaluation results, the DAC table read back from PP memory, transmitter and receiver time series. The tables are kept in separate data files (combined detached labels). Consequently there will be one PDS label pointing to four data files.

Following is an example of PDS files corresponding to an AMTEST2 measurement.

#### SES\_FS3\_PAM\_070929214512\_TEST.LBL (label)

SES\_FS3\_PAM\_070929214512\_TPAR.TAB (parameters) SES\_FS3\_PAM\_070929214512\_TDAC.TAB (DAC table) SES\_FS3\_PAM\_070929214512\_TTX.TAB (transmitter time series) SES\_FS3\_PAM\_070929214512\_TRX.TAB (receiver time series)

The parameters are described by the following TABLE object.

OBJECT	= AMT2_PARC_TABLE
NAME	= AMT2_PARC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 13
ROW_BYTES	= 111
^STRUCTURE	= "PP_AMT2_PARC.FMT"
END_OBJECT	= AMT2_PARC_TABLE

The structure of the parameters table is described in the file PP\_AMT2\_PARC.FMT.

/\* PP AMTEST2 parameter settings / calibrated, version 3, 2015-12-16 \*/

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OBJECT	= COLUMN
NAME	= "SESAME SEQ ID"
	= ASCII INTEGER
	—
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "16"
	= "Sequence ID in the current data file"
END OBJECT	-
THP_OPOPEL	
OBJECT	= COLUMN
NAME	= "UTC"
DATA TYPE	= TIME
START BYTE	= 8
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
DESCRIPTION	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME LOCAL TIME"
	= ASCII INTEGER
START BYTE	—
BYTES	= 52
	= "15" = "115"
FORMAT DESCRIPTION	
END_OBJECT	<pre>(SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)" = COLUMN</pre>
OBJECT	= COLUMN
NAME	= "SENSOR_SETTINGS_USED"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 48
BYTES	= 7
UNIT	= "N/A"
DESCRIPTION	<pre>= "Used electrode combination as 3-digit hexadecimal code 16#abi# with the following meaning: a: electrode connected to the TX A output. Possible values: 0 [none], 1 [+X leg], 2 [MUPUS PEN] b: electrode connected to the TX B output. Possible values: 0 [none], 2 [MUPUS PEN], 3 [APX]</pre>
	i: input channel Possible values:

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			0 [potential difference]
			1 [current at +X leg]
			2 [current at MUPUS PEN]
			3 [current at APX]
			<pre>4 [direct measurement at +Y foot]</pre>
			5 [direct measurement at - foot]
			6 [reference voltage -2.5 V]
			7 [reference voltage +2.5 V] "
END_	OBJECT	=	COLUMN
0 D T			~~~~~~~
OBJE			COLUMN
			"NOMINAL_FREQUENCY"
	DATA_TYPE		
	START_BYTE		
	BYTES	=	5
	UNIT	=	"HZ"
	FORMAT	=	"15"
	DESCRIPTION	=	"Nominal transmitter frequency"
END_	OBJECT	=	COLUMN
OBJE	CT	=	COLUMN
	NAME	=	"CORRECTED_FREQUENCY"
	DATA_TYPE		—
	START_BYTE		—
	—	=	
			"HZ"
			"F8.2"
			"Corrected transmitter frequency"
END_OBJECT =		=	COLUMN
OBJE	CT	=	COLUMN
	NAME	=	"NUMBER_OF_WAVES"
	DATA_TYPE	=	ASCII INTEGER
	START BYTE		71
	BYTES	=	2
	UNIT	=	"N/A"
	FORMAT	=	"12"
			"Number of generated transmitter sine waves"
END			COLUMN
	-		
OBJE	СТ	=	COLUMN
	NAME		"RX SAMPLING FREQUENCY"
	DATA TYPE		
	START BYTE		—
	—		
	-		
			"HZ"
	FORMAT		"F8.1"
			"Receiver sampling frequency"
END_	OBJECT	=	COLUMN
OBJE	СТ	=	COLUMN
	NAME		"RX SAMPLING FREQUENCY"
	DATA TYPE		ASCII REAL
		-	

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START_BYTE	= 83
BYTES	= 8
UNIT	= "HZ"
FORMAT	= "F8.1"
DESCRIPTION	= "Transmitter DAC sampling frequency"
	= COLUMN
OBJECT	= COLUMN
NAME	= "NO_OF_DAC_VALUES"
DATA_TYPE	= ASCII_INTEGER
	= 92
BYTES	= 3
UNIT	= "N/A"
FORMAT	= "I3"
DESCRIPTION	= "DAC vector length"
	= COLUMN
OBJECT	= COLUMN
NAME	= "TX OUT DAMPING"
DATA TYPE	
START BYTE	_
—	= 1
UNIT	= "N/A"
FORMAT	= "I1"
DESCRIPTION	= "TX Voltage Amplitude Reduction.
	The possible values are:
	0 maximum amplitude.
	1 half amplitude.
	2 quarter amplitude.
	3 1/8 amplitude.
	4 1/16 amplitude."
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "POINTS PER WAVE"
DATA TYPE	
- START BYTE	= 98
_ BYTES	= 3
UNIT	= "N/A"
FORMAT	= "I3"
MISSING_CONSTANT	
	= "Number of points per wave used by receiver "
END OBJECT	= COLUMN

The DAC table is identical to the FM1 version and is described by the following TABLE object.

OBJECT	= AMT_DACC_TABLE
NAME	= AMTESTDACC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 256
COLUMNS	= 5
ROW_BYTES	= 65
^STRUCTURE	= "PP_AMT_DACC.FMT"

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END\_OBJECT

= AMT\_DACC\_TABLE

#### The structure of the DAC table is described in the file PP\_AMT\_DACC.FMT.

/\* PP AMTEST / AMTEST2 DAC table entry, version 2, 2015-11-14 \*/ OBJECT = COLUMN = "SESAME SEQ ID" NAME DATA TYPE = ASCII INTEGER START BYTE = 1 BYTES = 6 UNIT = "N/A" = "I6" FORMAT DESCRIPTION = "Sequence ID in the current data file" END OBJECT = COLUMN OBJECT = COLUMN = "UTC" NAME DATA TYPE = TIME START BYTE = 8 BYTES = 23 DESCRIPTION = "Measurement start time (UTC in PDS standard format YYYY-MM-DDThh:mm:ss.sss)" = COLUMN END OBJECT OBJECT = COLUMN = "SESAME LOCAL TIME" NAME DATA TYPE = ASCII INTEGER START BYTE = 32 = 15 BYTES FORMAT = "I15" = "Measurement start time. SESAME local time DESCRIPTION (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)" END OBJECT = COLUMN OBJECT = COLUMN NAME = "DAC TIME OFFSET" = ASCII\_REAL DATA\_TYPE START BYTE = 48 BYTES = 7 = "MILLISECOND" UNIT = "F7.3" FORMAT DESCRIPTION = "DAC time offset from start of wave" END\_OBJECT = COLUMN OBJECT = COLUMN = "DAC VOLTAGE" NAME = ASCII\_REAL DATA\_TYPE START BYTE = 56 = 7 BYTES

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UNIT	= "VOLT"		
FORMAT	= "F7.3"		
DESCRIPTION	= "Transmitter electrode difference	voltage "	
END_OBJECT	= COLUMN		

The receiver time series is identical to the FM1 version and is described by the following TABLE object.

OBJECT	= AMT_RXC_TABLE
NAME	= AMTESTRXC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 8192
COLUMNS	= 5
ROW_BYTES	= 67
^STRUCTURE	= "PP_AMT_RXC.FMT"
END_OBJECT	= AMT_RXC_TABLE

#### The structure of the receiver time series table is described in the file PP\_AMT\_RXC.FMT.

OBJECT	= COLUMN
NAME	= "SESAME SEQ ID"
DATA TYPE	= SESAME_SEQ_ID = ASCII INTEGER
-	= 1
START_BYTE BYTES	- 1 = 6
-	= 0 = "N/A"
UNIT	
FORMAT	= "I6"
	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME = 8
START_BYTE	-
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME LOCAL TIME"
DATA TYPE	
	= 32
_ BYTES	= 15
FORMAT	= "115"
DESCRIPTION	= "Measurement start time. SESAME local time
	(SLT) runs with a resolution of 1/32 seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "RX_TIME "
	-

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DATA_TYPE	=	ASCII_REAL
START_BYTE	=	48
BYTES	=	8
UNIT	=	"MILLISECOND"
FORMAT	=	"F8.3"
DESCRIPTION	=	"Relative to start time"
END_OBJECT	=	COLUMN
OBJECT	=	COLUMN
NAME	=	"RX_POTENTIAL_DIFFERENCE"
DATA_TYPE	=	ASCII_REAL
START_BYTE	=	57
BYTES	=	8
UNIT	=	"VOLT"
FORMAT	=	"F8.3"
DESCRIPTION	=	"RX potential difference "
END_OBJECT	=	COLUMN

The transmitter time series is identical to the FM1 version and is described by the following TABLE object.

OBJECT	= AMT_TX_TABLE
NAME	= AMT_TXC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 8192
COLUMNS	= 5
ROW_BYTES	= 68
^STRUCTURE	= "PP_AMT_TXC.FMT"
END_OBJECT	= AMT_TX_TABLE

The structure of the transmitter TABLE object is defined in the file PP\_AMT\_TXC.FMT.

/\* PP AMTEST2 Tx table entry, version 2, 2015-11-14 \*/

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
—	

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OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	—
START_BYTE	
BYTES	
	= "I15"
DESCRIPTION	"Measurement start time. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TX_TIME "
DATA_TYPE	= ASCII_REAL
START_BYTE	= 48
BYTES	= 8
UNIT	= "MILLISECOND"
FORMAT	= "F8.3"
DESCRIPTION	= "Relative to start time"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TX_CURRENT"
DATA_TYPE	= ASCII_REAL
	= 57
BYTES	= 9
UNIT	= "MILLIAMPERE"
FORMAT	= "F9.6"
DESCRIPTION	= "Tx current at electronics' transmitter output "
END_OBJECT	

#### 4.3.3.4.3.2 PP Health Check (HC) data

Same as FM1

4.3.3.4.3.3 PP Langmuir Probe Test (LM) data

Same as FM1

4.3.3.4.3.4 PP Passive Mode (PM) data

The PP PM data are organized as tables containing parameters and power spectra. The tables are kept in separate data files (combined detached labels). Consequently there will be one PDS label pointing to two data files.

Following is an example of PDS files corresponding to a PM measurement.

SES\_FS3\_PPM\_070929214512\_PM.LBL (label) SES\_FS3\_PPM\_070929214512\_PAR.TAB (parameters) SES\_FS3\_PPM\_070929214512\_POW.TAB (power spectrum)

The parameters are described by the following TABLE object.

OBJECT	= PM2_PAR_TABLE
NAME	= PM2PAR

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INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 11
ROW_BYTES	= 115
^STRUCTURE	= "PP_PM2_PARC.FMT"
END_OBJECT	= PM2_PAR_TABLE

#### The structure of the parameters TABLE object is described in the file PP\_PM2\_PARC.FMT.

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA TYPE	= ASCII INTEGER
START BYTE	= 1
 BYTES	= 6
UNIT	= "N/A"
FORMAT	= "16"
	= "Sequence ID in the current data file"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA TYPE	= TIME
-	= 8
BYTES	= 23
	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME LOCAL TIME"
DATA TYPE	
	—
—	= 15
FORMAT	= "I15"
DESCRIPTION	= "Measurement start time. SESAME local time
	(SLT) runs with a resolution of 1/32 seconds.
	SLT represents the least significant 32 bits
	of LOBT. The most significant 5 bits are in
	CDMS RSST (see SESAME Ready Message)"
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LP_INT_INC"
DATA_TYPE	= ASCII_REAL
START BYTE	= 48
BYTES	= 9
UNIT	= "SECOND"
FORMAT	= "F9.7"
DESCRIPTION	= "Time increment duration per integrator unit "
END_OBJECT	= COLUMN
_	
OBJECT	= COLUMN
NAME	= "LP_VALUE"

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DATA TYPE	= ASCII REAL
	= 58
BYTES	= 9
UNIT	= "SECOND"
FORMAT	= "F9.7"
DESCRIPTION	= "Integration time of Langmuir probe measurement "
END OBJECT	= COLUMN
_	
OBJECT	= COLUMN
	= "LP MEAS ERR"
DATA TYPE	
—	= 68
BYTES	= 8
UNIT	= "N/A"
MISSING CONSTANT	
DESCRIPTION	= "Error code for LP measurement as
	Hex value 16#xxxx#. The possible values are:
	8001 Invalid register address.
	5
	8002 Error verifying register write.
	8004 Error accessing power register.
	8008 MUX setting not allowed.
	8010 Error accessing PP RAM.
	8020 Tried to start measurement but a measurement
	is already running.
	0040 Error during writing to instrument.
	0080 Error during reading from instrument.
	0100 Error using ADC of C-DPU.
	0200 Error during DAC table generation.
	0400 Calculated number of samples $> N_SAMP_MAX$ .
	8800 C-DPU memory exhausted.
	9000 Measurement time out.
	2000 Invalid command parameter.
	8000 Flag indicates fatal error. "
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TIME_INC"
DATA_TYPE	
START_BYTE	= 77
BYTES	
UNIT	
FORMAT	
DESCRIPTION	= "Time increment between samples"
END_OBJECT	
OBJECT	= COLUMN
NAME	= "NB_SAMPLES"
DATA_TYPE	= ASCII_INTEGER
_ START_BYTE	—
BYTES	
UNIT	
FORMAT	
	= "Number of used samples (excluding skipped samples) "

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END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "ERROR CODE"
DATA TYPE	_
START_BYTE	—
BYTES	= 8
UNIT	
MISSING_CONSTANT	
DESCRIPTION	= "Hex value AS 16#XXXX#. The possible values are:
	8001 Invalid register address.
	8002 Error verifying register write.
	8004 Error accessing power register.
	8008 MUX setting not allowed.
	8010 Error accessing PP RAM.
	8020 Tried to start measurement but a measurement
	is already running.
	0040 Error during writing to instrument.
	0080 Error during reading from instrument.
	0100 Error using ADC of C-DPU.
	0200 Error during DAC table generation.
	0400 Calculated number of samples > N_SAMP_MAX.
	8800 C-DPU memory exhausted.
	9000 Measurement time out.
	2000 Invalid command parameter.
	8000 Flag indicates fatal error. "
END_OBJECT	= COLUMN
OBJECT	= COLUMN
	= "NB FREQ BINS"
DATA TYPE	
—	= 102
START_BYTE	
BYTES	= 2
UNIT	= "N/A"
FORMAT	= "I2"
DESCRIPTION	= "Number of frequency bins "
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "MATH ERR CODE"
DATA TYPE	= ASCII INTEGER
START BYTE	= 105
BYTES	= 8
UNIT	= "N/A"
MISSING CONSTANT	
DESCRIPTION	= "Indicates errors, which can only occur during
	on-board data reduction (hex value).
	0001 Reduce: number of vector elements odd or less
	than 2; fatal.
	0002 Expand: less than four elements in input
	vector; fatal.
	0004 Too much data for analysis; truncating.
	0004 Too few data for analysis; padding with '128'
	toto for acta for analysis, padding with 120

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	0010	Used number of waves is not	a power of	2;
		truncated.		
	0020	Not the expected number of	elements ir	1
		filtered arrays; fatal.		
	0040	Argument for sine_table() n	ot in valio	l range
		0<= deg2 <=720.		
	0080	Overflow in divsin() or res	ult inexact	
	0100	Too few data for trimmed me	an calculat	tion;
		regular mean used.		
	0200	No data for warr.mean; part	icular: and	alysis
		yields no data.		
	0400	Passive mode: not enough da	ta in bin.	
	0800	Not enough memory for data	reduction.'	1
END_OBJECT	= COLUMN			

#### The power spectrum is described by the following TABLE object.

OBJECT	= PM2_POWC_TABLE
NAME	= PM2_POWC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 10
COLUMNS	= 5
ROW_BYTES	= 68
^STRUCTURE	= "PP_PM2_POWC.FMT"
END_OBJECT	= PM2_POWC_TABLE

#### The structure of the power spectrum TABLE object is described in the file PP\_PM2\_POWC.FMT

```
/* PP calibrated power values, version 2, 2015-11-14 */
OBJECT = COLUMN
NAME = "SESAME_SEQ_ID"
   DATA_TYPE
                = ASCII_INTEGER
   _
START_BYTE
                    = 1
   BYTES = 6
UNIT = "N/A"
   UNIT
   UNIT = "N/A"
FORMAT = "I6"
DESCRIPTION = "Sequence ID in the current data file"
END_OBJECT = COLUMN
OBJECT = COLUMN
NAME = "UTC"
 DATA_TYPE = TIME
 START BYTE
                 = 8
 BYTES = 23
 DESCRIPTION = "Measurement start time (UTC in PDS standard
   format YYYY-MM-DDThh:mm:ss.sss)"
END OBJECT
               = COLUMN
OBJECT = COLUMN
   NAME = "SESAME LOCAL TIME"
   DATA_TYPE = ASCII_INTEGER
START_BYTE = 32
```

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```
BYTES
               = 15
              = "I15"
   FORMAT
   DESCRIPTION
                    = "Measurement start time. SESAME local time
   (SLT) runs with a resolution of 1/32 seconds.
    SLT represents the least significant 32 bits
    of LOBT. The most significant 5 bits are in
    CDMS RSST (see SESAME Ready Message)"
END_OBJECT
              = COLUMN
           = COLUMN
OBJECT
   NAME = "CENTER FREQ"
              = ASCII_REAL
   DATA TYPE
   START BYTE
                 = 48
   BYTES
          = 7
   FORMAT
              = "F7.1"
   UNIT = "Hz"
   DESCRIPTION = "Frequency bins Center Frequency +/- 1/3"
END_OBJECT
              = COLUMN
OBJECT
           = COLUMN
   NAME = "VOLTAGE_DENSITY"
   DATA_TYPE = ASCII_REAL
START_BYTE = 56
   BYTES = 10
              = "F10.2"
   FORMAT
   UNIT = "<mV*(Hz**-1/2)>"
   DESCRIPTION = "Voltage Density"
END OBJECT = COLUMN
```

#### 4.3.3.4.3.5 PP Passive Mode Test (PMTEST) data

The PP PMTEST2 data are organized as tables containing parameters, power spectra and receiver (Rx) time series. The tables are kept in separate data files (combined detached labels). Consequently there will be one PDS label pointing to three data files.

Following is an example of PDS files corresponding to an PMTEST measurement.

```
SES_FS3_PPM_070929214512_TEST.LBL (label)
SES FS3 PPM 070929214512 TPAR.TAB (parameters)
SES_FS3_PPM_070929214512_TPOW.TAB (power spectrum)
SES_FS3_PPM_070929214512_TRX.TAB (receiver time series)
```

The parameters are described by the following TABLE object.

OBJECT	= PMT2_PARC_TABLE
NAME	= PMT2_PARC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 1
COLUMNS	= 11
ROW_BYTES	= 115
^STRUCTURE	= "PP_PMT2_PACR.FMT"
END_OBJECT	= PMT2_PARC_TABLE

The structure of the parameters TABLE object is described in the file PP PMT2 PARC.FMT.

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/\* PP PM2 calibrated parameters, version 2, 2015-11-14 \*/

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	
START_BYTE	= 1
-	= 6
	= "N/A"
	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
	= 23
DESCRIPTION	= "Measurement start time (UTC in PDS standard
	format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "SESAME_LOCAL_TIME"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 32
BYTES	= 15
FORMAT	= "I15"
DESCRIPTION	<pre>= "Measurement start time. SESAME local time (SLT) runs with a resolution of 1/32 seconds. SLT represents the least significant 32 bits of LOBT. The most significant 5 bits are in CDMS RSST (see SESAME Ready Message)"</pre>
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "LP_INT_INC"
DATA_TYPE	_
-	= 48 = 9
BYTES	= "SECOND"
UNIT FORMAT	
	= "J." = "Time increment duration per integrator unit "
END_OBJECT	= COLUMN
OBJECT	= COLUMN
DATA TYPE	= "LP_VALUE" = ascii real
—	—
-	= 58
BYTES	= 9 - "SECOND"
UNIT FORMAT	= "SECOND" - "FQ 7"
	= "Integration time of Langmuir probe measurement "
END_OBJECT	= COLUMN

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OBJECT	= COLUMN
NAME	= "LP_MEAS_ERR"
DATA_TYPE	= ASCII_INTEGER = 68
START_BYTE	= 8
BYTES UNIT	
MISSING_CONSTANT	
DESCRIPTION	= "Error code for LP measurement. Hex value as 16#xxxx#. The possible values are:
	-
	8001 Invalid register address.
	8002 Error verifying register write.
	8004 Error accessing power register.
	8008 MUX setting not allowed.
	8010 Error accessing PP RAM. 8020 Tried to start measurement but a measurement
	is already running.
	0040 Error during writing to instrument. 0080 Error during reading from instrument.
	0100 Error using ADC of C-DPU.
	0200 Error during DAC table generation.
	0400 Calculated number of samples > N SAMP MAX.
	8800 C-DPU memory exhausted.
	9000 Measurement time out.
	2000 Invalid command parameter.
	8000 Flag indicates fatal error. "
END OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "TIME_INC"
DATA_TYPE	= ASCII_REAL
START_BYTE	= 77
BYTES	= 9
UNIT	= "SECOND"
FORMAT	= "F9.7"
DESCRIPTION	= "Time increment between samples"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "NB_SAMPLES"
NAME DATA_TYPE	= "NB_SAMPLES" = ASCII_INTEGER
NAME DATA_TYPE START_BYTE	<pre>= "NB_SAMPLES" = ASCII_INTEGER = 87</pre>
NAME DATA_TYPE START_BYTE BYTES	<pre>= "NB_SAMPLES" = ASCII_INTEGER = 87 = 5</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT	<pre>= "NB_SAMPLES" = ASCII_INTEGER = 87 = 5 = "N/A"</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT	<pre>= "NB_SAMPLES" = ASCII_INTEGER = 87 = 5 = "N/A" = "I5"</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION	<pre>= "NB_SAMPLES" = ASCII_INTEGER = 87 = 5 = "N/A" = "I5" = "Number of used samples (excluding skipped samples) "</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT	<pre>= "NB_SAMPLES" = ASCII_INTEGER = 87 = 5 = "N/A" = "I5" = "Number of used samples (excluding skipped samples) "</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT	<pre>= "NB_SAMPLES" = ASCII_INTEGER = 87 = 5 = "N/A" = "I5" = "Number of used samples (excluding skipped samples) " = COLUMN</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT	<pre>= "NB_SAMPLES" = ASCII_INTEGER = 87 = 5 = "N/A" = "I5" = "Number of used samples (excluding skipped samples) " = COLUMN</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT NAME	<pre>= "NB_SAMPLES" = ASCII_INTEGER = 87 = 5 = "N/A" = "I5" = "Number of used samples (excluding skipped samples) " = COLUMN = "ERROR_CODE"</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT OBJECT NAME DATA_TYPE	<pre>= "NB_SAMPLES" = ASCII_INTEGER = 87 = 5 = "N/A" = "I5" = "Number of used samples (excluding skipped samples) " = COLUMN = COLUMN = "ERROR_CODE" = ASCII_INTEGER</pre>
NAME DATA_TYPE START_BYTE BYTES UNIT FORMAT DESCRIPTION END_OBJECT NAME	<pre>= "NB_SAMPLES" = ASCII_INTEGER = 87 = 5 = "N/A" = "I5" = "Number of used samples (excluding skipped samples) " = COLUMN = COLUMN = "ERROR_CODE" = ASCII_INTEGER</pre>

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UNIT	= "N/A"		
MISSING CONSTANT	= 16#0000#		
DESCRIPTION	= "Hex value as 16#xxxx#. The possi	ble values	are:
	8001 Invalid register address.		
	8002 Error verifying register wr	ite.	
	8004 Error accessing power regis	ter.	
	8008 MUX setting not allowed.		
	8010 Error accessing PP RAM.		
	8020 Tried to start measurement	but a measu	urement
	is already running.		
	0040 Error during writing to ins	trument.	
	0080 Error during reading from i	nstrument.	
	0100 Error using ADC of C-DPU.		
	0200 Error during DAC table gene		
	0400 Calculated number of sample	s > N_SAMP	_MAX.
	8800 C-DPU memory exhausted.		
	9000 Measurement time out.		
	2000 Invalid command parameter.		
	8000 Flag indicates fatal error.	"	
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "NB_FREQ_BINS"		
DATA_TYPE	= ASCII INTEGER		
_ START BYTE	= 102		
BYTES	= 2		
UNIT	= "N/A"		
FORMAT	= "I2"		
DESCRIPTION	= "Number of frequency bins "		
END_OBJECT	= COLUMN		
OBJECT	= COLUMN		
NAME	= "MATH_ERR_CODE"		
DATA_TYPE	= ASCII_INTEGER		
START_BYTE	= 105 = 8		
BYTES	= ° = "N/A"		
UNIT MISSING CONSTANT			
MISSING_CONSTANT DESCRIPTION	<pre>= 16#0000# = "Indicates errors, which can only</pre>	occur duri	o.a.
DESCRIPTION	on-board data reduction (hex valu		-
	0001 Reduce: number of vector el		·· •
	than 2; fatal.	ellencs oud	01 1835
	0002 Expand: less than four elem	ente in in	
	vector; fatal.		Juc
	0004 Too much data for analysis;	truncatin	r
	0008 Too few data for analysis;		-
	0010 Used number of waves is not		
	truncated.	1 1 1 1 1 1 1	
	0020 Not the expected number of	elements in	n
	filtered arrays; fatal.		
	0040 Argument for sine table() n	ot in valid	d range
	0<= deg2 <=720.		-
	0080 Overflow in divsin() or res	ult inexac <sup>†</sup>	t.

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	0100	Too few data for trimmed me regular mean used.	an calculat	cion;
	0200	No data for warr.mean; part yields no data.	icular: ana	alysis
	0400	Passive mode: not enough da	ta in bin.	
	0800	Not enough memory for data	reduction.'	1
END_OBJECT	= COLUMN			

### The calibrated power spectrum is described by the following TABLE object.

OBJECT	= PMT2_POWC_TABLE
NAME	= PMT2_POWC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 10
COLUMNS	= 5
ROW_BYTES	= 68
^STRUCTURE	= "PP_PM2_POWC.FMT"
END_OBJECT	= PMT2_POWC_TABLE

# The structure of the power TABLE object is identical to PM2C and is described in the file PP\_PM2\_POWC.FMT

/* PP calibrated power values, version 2, 2015-11-14 */
OBJECT = COLUMN
NAME = "SESAME_SEQ_ID"
DATA_TYPE = ASCII_INTEGER
START BYTE = 1
BYTES = 6
UNIT = "N/A"
FORMAT = "I6"
DESCRIPTION = "Sequence ID in the current data file" END_OBJECT = COLUMN
END_OBJECT = COLUMN
OBJECT = COLUMN
NAME = "UTC"
DATA_TYPE = TIME
START_BYTE = 8
BYTES = 23
DESCRIPTION = "Measurement start time (UTC in PDS standard
format YYYY-MM-DDThh:mm:ss.sss)"
END_OBJECT = COLUMN
OBJECT = COLUMN
NAME = "SESAME_LOCAL_TIME"
DATA_TYPE = ASCII_INTEGER
START_BYTE = 32
BYTES = 15
FORMAT = "I15"
DESCRIPTION = "Measurement start time. SESAME local time
(SLT) runs with a resolution of $1/32$ seconds.
SLT represents the least significant 32 bits
of LOBT. The most significant 5 bits are in

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CDMS RSST (see SESAME Ready Message)" END\_OBJECT = COLUMN OBJECT = COLUMN NAME = "CENTER FREQ"

	1111111	
	DATA_TYPE	= ASCII_REAL
	START_BYTE	= 48
	BYTES	= 7
	FORMAT	= "F7.1"
	UNIT	= "Hz"
	DESCRIPTION	<pre>s = "Frequency bins Center Frequency +/- 1/3"</pre>
END	_OBJECT	= COLUMN
OBJ	ECT	= COLUMN
	NAME	= "VOLTAGE_DENSITY"
	DATA_TYPE	= ASCII_REAL
	START_BYTE	= 56
	BYTES	= 10
	FORMAT	= "F10.2"
	UNIT	= " <mv*(hz**-1 2)="">"</mv*(hz**-1>
	DESCRIPTION	<pre>N = "Voltage Density"</pre>
END	_OBJECT	= COLUMN

The receiver data are described by the following TABLE object.

OBJECT	= PMT2RXC_TABLE
NAME	= PM2TRXC
INTERCHANGE_FORMAT	= ASCII
ROWS	= 8192
COLUMNS	= 5
ROW_BYTES	= 66
^STRUCTURE	= "PP_PMT2_RXC.FMT"
END_OBJECT	= PMT2RX_TABLE

The structure of the receiver data TABLE object is described in the file PP\_PMT2\_RXC.FMT.

/\* PP AMTEST2 Calibrated Rx table entry, version 2, 2015-11-14 \*/

OBJECT	= COLUMN
NAME	= "SESAME_SEQ_ID"
DATA_TYPE	= ASCII_INTEGER
START_BYTE	= 1
BYTES	= 6
UNIT	= "N/A"
FORMAT	= "I6"
DESCRIPTION	= "Sequence ID in the current data file"
END_OBJECT	= COLUMN
OBJECT	= COLUMN
NAME	= "UTC"
DATA_TYPE	= TIME
START_BYTE	= 8
BYTES	= 23

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DESCRIPTION	= "Measurement start time (UTC in PD format YYYY-MM-DDThh:mm:ss.sss)"	S standard	
END_OBJECT	= COLUMN		
OBJECT NAME	<pre>= COLUMN = "SESAME_LOCAL_TIME"</pre>		
DATA_TYPE START_BYTE	= ASCII_INTEGER = 32		
BYTES FORMAT	= 15 = "I15"		
DESCRIPTION	"Measurement start time. SESAME lo (SLT) runs with a resolution of 1/ SLT represents the least signific of LOBT. The most significant 5 b CDMS RSST (see SESAME Ready Messa	32 seconds. ant 32 bits its are in	
END_OBJECT	= COLUMN	-	
OBJECT	= COLUMN		
NAME DATA_TYPE	= "TIME_OFFSET " = ASCII_REAL		
START_BYTE BYTES	= 48 = 7		
UNIT FORMAT	= "MILLISECOND" = "F7.3"		
DESCRIPTION END_OBJECT	<pre>= "Time offset from first sample" = COLUMN</pre>		
OBJECT	= COLUMN		
NAME DATA_TYPE	= "POTENTIAL_DIFF" = ASCII_REAL		
START_BYTE BYTES UNIT	= 56 = 8 = "MILLIVOLT"		
FORMAT DESCRIPTION	<pre>= "F8.3" = "Potential Difference between +Y a</pre>	nd -Y foot	"
END_OBJECT	= COLUMN		

#### 4.3.3.4.4 SESAME common data object definition

Same as level 2 (see §4.3.2.7.5).

4.3.3.5 Description of Instrument

The description of the instrument can be found in chapter 2.2 and as a brief overview in the INST.CAT catalogue file.

4.3.3.6 Parameters Index File Definition N/A

4.3.3.7 Mission Specific Keywords

N/A

4.3.3.8 Data quality definition (level 3)

4.3.3.8.1 CASSE

Same definition as for level 2 (see §4.3.2.7.1)

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4.3.3.8.2 DIM

Same definition as for level 2 (see 4.3.2.7.2)

4.3.3.8.3 PP

The DATA\_QUALITY\_ID for PP is defined according to the operating mode as follows.

4.3.3.8.3.1 PP Health Check

DATA\_QUALITY\_DESC = -1: NOT QUALIFIED

0: Data complete; no errors

- 1: At least one value is replaced by placeholder due to distorted raw data (= "0" or "255")
- 2: N/A
- 3: N/A
- 4: N/A

4.3.3.8.3.2 PP Active Mode and Active Mode Test (PP\_AM2, PP\_AMTEST2)

- DATA\_QUALITY\_DESC = -1: NOT QUALIFIED
  - 0: Data complete; no errors
  - 1: <50% QUAL-flags = 0x0F, a few errors
  - 2: 50% to 100% QUAL-flags = 0x0F, many errors
  - 3: N/A
  - 4: N/A

4.3.3.8.3.3 PP Passive Mode and Passive Mode Test (PP\_PM2, PP\_PMTEST2)

- DATA\_QUALITY\_DESC = -1: NOT QUALIFIED
  - 0: Data complete; no errors
  - 1: Data distorted; level 2: ID = "1"
  - 2: N/A
  - 3: N/A
  - 4: N/A

4.3.3.8.4 SESAME Health-Check

Same definition as for level 2 (see § 4.3.2.7.4)

### 5 Appendix

#### 5.1 SESAME and PDS Glossary

- Archive An archive consists of one or more data sets along with all the documentation and ancillary information needed to understand and use the data. An archive is a logical construct independent of the medium on which it is stored.
- Archive Volume, Archive Volume Set A volume is a unit of media on which data products are stored; for example, one CD-ROM or DVD-ROM. An *archive volume* is a volume containing all or part of an archive; that is, data products plus documentation and ancillary files. When an archive spans multiple volumes, they are called an *archive volume set*. Usually the documentation and some ancillary files are repeated on each volume of the set, so that a single volume can be used alone.
- **Catalog Information** Descriptive information about a data set (e.g. mission description, spacecraft description, instrument description), expressed in Object Description Language (ODL), which is suitable for loading into a PDS catalog.
- **Central Electronics (CE)** Complete SESAME electronics in E-Box: *Common Electronics* and the 3 instrument PCBs
- **Common Electronics** Common SESAME electronics in E-Box: Interface board, Common DPU and SESAME Experiment bus.

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- **Data Product** A labeled grouping of data resulting from a scientific observation, usually stored in one file. A product label identifies, describes, and defines the structure of the data. An example of a data product is a planetary image, a spectrum table, or a time series table.
- **Data Set –** An accumulation of data products. A data set together with supporting documentation and ancillary files is an archive.
- E-Box Common container for the PCBs of most ROSETTA Lander sub-units and experiments
- **Experiment** The SESAME experiment set-up, consisting of Common Electronics and the three instruments (CASSE, DIM and PP)
- **Health-Check** Procedure to check the status of a SESAME instrument by dedicated tests, calibrations, and measurements of health-relevant parameters. Health-Checks are solely controlled by the Common DPU. The time duration of health data acquisition is not critical. The whole parameter set may be determined in one cycle within milliseconds or more. The resulting parameter values are fed into the science data stream.
- **Housekeeping** Procedure to check the status of a SESAME instrument by periodic calls of the CDMS, asking SESAME to read out single health-relevant key parameters in a pre-defined cycle. The resulting parameter value is delivered to the CDMS and included in the Lander housekeeping data stream.

A subset of the SESAME housekeeping parameters is extracted by the CDMS to form part of the Lander "Health Status Report" provided for Mission Control. The set of housekeeping parameters form a subset of the health-check parameters.

- **Instrument** The SESAME sub-units CASSE, DIM and PP, each with its own sensor / actuator assembly, the harness and a PCB within the *Central Electronics* (CE).
- **Jobcard, Job Card** Data structure of 32 byte length, especially developed for the CASSE instrument to completely control a CASSE measurement. A CASSE *Jobcard* contains all necessary parameter values (e.g. sampling frequency, "ping" frequency and duration, etc.) defining the complete performance of a measurement.

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#### 5.2 Example of PDS label for CASSE level 2 data product

PDS VERSION ID = PDS3LABEL REVISION NOTE = "2017-02-13, SONC, version 1.0" /\* Edited SC data from CASSE Sounding Mode (SONC Level 2) \*/ DATA SET ID = "RL-C-SESAME-2-FSS-V1.0" DATA\_SET\_NAME = "ROSETTA-LANDER 67P SESAME 2 FSS V1.0" PRODUCT\_ID = "SES\_FS2\_CSN\_1411140016" PRODUCT\_CREATION\_TIME = 2017-02-13T17:41:41 MISSION\_NAME = "INTERNATIONAL ROSETTA MISSION" MISSION\_PHASE\_NAME = "FIRST SCIENCE SEQUENCE" MISSION ID = ROSETTA INSTRUMENT HOST NAME = "ROSETTA-LANDER" INSTRUMENT\_HOST\_ID = RL PRODUCT\_TYPE = EDR START TIME = 2014-11-14T00:16:05.068 STOP TIME = 2014-11-14T00:25:42.381 SPACECRAFT CLOCK START COUNT = "3/374544893.26" SPACECRAFT CLOCK STOP COUNT = "3/374545471.04" PRODUCER ID = "SONC" PRODUCER FULL NAME = "SCIENCE OPERATIONS AND NAVIGATION CENTER" PRODUCER INSTITUTION NAME = "CNES" INSTRUMENT ID = SESAME = "SURFACE ELECTRIC SOUNDING AND INSTRUMENT\_NAME ACOUSTIC MONITORING EXPERIMENT" INSTRUMENT\_TYPE = {"ACOUSTIC SENSOR", "DUST IMPACT DETECTOR", "PERMITTIVITY PROBE"} TARGET\_NAME = "67P/CHURYUMOV-GERASIMENKO 1 (1969 R1)" = "COMET" TARGET TYPE PROCESSING\_LEVEL\_ID = "2" DATA\_QUALITY\_ID = "-1" DATA\_QUALITY\_DESC = "-1 : NOT QUALIFIED" /\* DATA OBJECT DEFINITION \*/ OBJECT = FILE RECORD\_TYPE RECORD\_BYTES = FIXED\_LENGTH = 176 FILE RECORDS = 2 ^JOBC\_TABLE = "SES\_FS2\_CSN\_1411140016\_JOBC.TAB"
= JOBC\_TABLE OBJECT NAME = "JOB CARD" INTERCHANGE FORMAT = ASCII ROWS COLUMNS = 2 = 29 ROW\_BYTES = 176

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^STRUCTURE = "JOB CARD FM3.FMT" END\_OBJECT = JOBC\_TABLE D\_OBJECT = FILE END OBJECT OBJECT = FILE RECORD\_TYPE = FIXED LENGTH RECORD BYTES = 189 = 2 ^SEQ\_PARAM\_TABLE = "SES\_FS2\_CSN\_1411140016\_SEQP.TAB" OBJECT = SEQ PARAM TABLE NAME = "SEQ PARAM" INTERCHANGE\_FORMAT = ASCII ROWS = 2 = 22 COLUMNS ROW\_BYTES = 189 ^STRUCTURE = "SEQ\_PARAM\_BURS END\_OBJECT = SEQ\_PARAM\_TABLE END\_OBJECT = FILE = "SEQ PARAM BURST2 FM3.FMT" OBJECT = FILE RECORD TYPE = FIXED\_LENGTH RECORD BYTES = 231 = 42144 FILE RECORDS = "SES FS2 CSN 1411140016 DATA.TAB" ^DATA TABLE = DATA TABLE OBJECT = "DATA" NAME = ASCII INTERCHANGE\_FORMAT ROWS = 42144 COLUMNS = 26 ROW BYTES = 231 = "DATA2.FMT" ^STRUCTURE END OBJECT = DATA TABLE END OBJECT = FILE OBJECT = FILE RECORD TYPE = FIXED LENGTH RECORD BYTES = 219 FILE\_RECORDS = 2 = 2 = "SES\_FS2\_CSN\_1411140016\_STAT.TAB" = STAT\_TABLE ^STAT TABLE OBJECT = "STAT" NAME INTERCHANGE FORMAT = ASCII ROWS = 2 = 38 COLUMNS ROW BYTES = 219 ^STRUCTURE = "STAT2 FM3.FMT" = STAT\_TABLE END OBJECT = FILE END OBJECT

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#### 5.3 Example of PDS label for DIM BC level 2 data product

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= PDS3 PDS VERSION ID LABEL REVISION NOTE = "2017-02-13, SONC, version 1.0" /\* Edited SC data from DIM Burst Continuous Mode (SONC Level 2) \*/ = "RL-C-SESAME-2-FSS-V1.0" DATA SET ID DATA\_SET\_NAME = "ROSETTA-LANDER 67P SESAME 2 FSS V1.0" PRODUCT\_ID = "SES\_FS2\_DBC\_1411130702" PRODUCT CREATION TIME = 2017-02-13T17:41:17 MISSION\_NAME = "INTERNATIONAL ROSETTA MISSION" MISSION\_PHASE\_NAME = "FIRST SCIENCE SEQUENCE" MISSION ID = ROSETTA INSTRUMENT\_HOST\_NAME = "ROSETTA-LANDER" INSTRUMENT HOST ID = RL = EDR = 2014-11-13T07:02:21.677 PRODUCT TYPE START\_TIME STOP TIME = 2014-11-13T07:53:08.397 SPACECRAFT CLOCK START COUNT = "3/374482870.14" SPACECRAFT\_CLOCK\_STOP\_COUNT = "3/374485917.05" = "SONC" PRODUCER ID PRODUCER FULL NAME = "SCIENCE OPERATIONS AND NAVIGATION CENTER" PRODUCER INSTITUTION NAME = "CNES" INSTRUMENT ID = SESAME INSTRUMENT\_NAME = "SURFACE ELECTRIC SOUNDING AND ACOUSTIC MONITORING EXPERIMENT" INSTRUMENT\_TYPE = {"ACOUSTIC SENSOR", "DUST IMPACT DETECTOR", "PERMITTIVITY PROBE" } = "67P/CHURYUMOV-GERASIMENKO 1 (1969 R1)" TARGET NAME TARGET TYPE = "COMET" PROCESSING LEVEL ID = "2" DATA\_QUALITY\_ID = "-1" DATA\_QUALITY\_DESC = "-1 : NOT QUALIFIED" /\* DATA OBJECT DEFINITION \*/ OBJECT = FILE RECORD\_TYPE = FIXED LENGTH RECORD BYTES = 71 FILE RECORDS = 6 = v = "SES\_FS2\_DBC\_1411130702\_PAR.TAB" = BC\_PAR\_TABLE ^BC\_PAR\_TABLE OBJECT NAME = "BC PAR" INTERCHANGE\_FORMAT = ASCII ROWS COLUMNS = 6 = 11 ROW\_BYTES = 71

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^STRUCTURE	= "DIM_BC_PAR.FMT"
END_OBJECT	= BC_PAR_TABLE
END_OBJECT	= FILE
OBJECT	= FILE
RECORD_TYPE	= FIXED_LENGTH
RECORD_BYTES	= 16
FILE_RECORDS	= 60
^BC_AM_TABLE	= "SES_FS2_DBC_1411130702_AM.TAB"
OBJECT	= BC_AM_TABLE
NAME	= "BC_AM"
INTERCHANGE_FORMA	T = ASCII
ROWS	= 60
COLUMNS	= 3
ROW_BYTES	= 16
^STRUCTURE	= "DIM_BC_AM.FMT"
END_OBJECT	= BC_AM_TABLE
END_OBJECT	= FILE
OBJECT	= FILE
RECORD_TYPE	= FIXED_LENGTH
RECORD_BYTES	= 318
FILE_RECORDS	= 540
^BC_BM_TABLE	= "SES_FS2_DBC_1411130702_BM.TAB"
OBJECT	= BC_BM_TABLE
NAME	= "BC_BM"
INTERCHANGE_FORMA	T = ASCII
ROWS	= 540
COLUMNS	= 62
ROW_BYTES	= 318
^STRUCTURE	= "DIM_BC_BM.FMT"
END_OBJECT	= BC_BM_TABLE
END_OBJECT	= FILE

END

### 5.4 Example of PDS label for PP PM level 2 data product

PDS_VERSION_ID	= PDS3
LABEL_REVISION_NOTE	= "2017-02-13, SONC, version 1.0"
/* Edited SC data from	m PP Passive Mode (SONC Level 2) */
DATA_SET_ID	= "RL-C-SESAME-2-FSS-V1.0"
DATA_SET_NAME	= "ROSETTA-LANDER 67P SESAME 2 FSS V1.0"
PRODUCT_ID	= "SES_FS2_PPM_1411130810"
PRODUCT_CREATION_TIME	= 2017-02-13T17:41:35
MISSION_NAME	= "INTERNATIONAL ROSETTA MISSION"
MISSION_PHASE_NAME	= "FIRST SCIENCE SEQUENCE"
MISSION_ID	= ROSETTA
INSTRUMENT_HOST_NAME	= "ROSETTA-LANDER"
INSTRUMENT_HOST_ID	= RL

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PRODUCT\_TYPE = EDR START TIME = 2014-11-13T08:10:28.554 STOP TIME = 2014-11-13T08:13:40.085 SPACECRAFT CLOCK START COUNT = "3/374486957.10" SPACECRAFT CLOCK STOP\_COUNT = "3/374487148.27" PRODUCER ID = "SONC" PRODUCER\_FULL\_NAME = "SCIENCE OPERATIONS AND NAVIGATION CENTER" PRODUCER INSTITUTION NAME = "CNES" INSTRUMENT\_ID = SESAME
INSTRUMENT\_NAME = "SURFACE ELECTRIC SOUNDING AND ACOUSTIC MONITORING EXPERIMENT" INSTRUMENT\_TYPE = {"ACOUSTIC SENSOR", "DUST IMPACT DETECTOR", "DEDMINETULEW\_DECODE") "PERMITTIVITY PROBE"} TARGET\_NAME TARGET\_TYPE = "67P/CHURYUMOV-GERASIMENKO 1 (1969 R1)"
= "COMET" PROCESSING LEVEL ID = "2" DATA\_QUALITY\_ID = "-1" DATA\_QUALITY\_DESC = "-1 : NOT QUALIFIED" /\* DATA OBJECT DEFINITION \*/ OBJECT = FILE = FIXED\_LENGTH RECORD\_TYPE RECORD BYTES = 99 FILE RECORDS = 2 = "SES FS2 PPM 1411130810 PAR.TAB" ^PM PAR TABLE OBJECT = PM PAR TABLE NAME = "PM PAR" INTERCHANGE\_FORMAT = ASCII ROWS = 2 COLUMNS = 11 ROW\_BYTES = 99 ^STRUCTURE = "PP\_PM2\_PAR.FMT" END\_OBJECT = PM\_PAR\_TABLE END OBJECT = FILE OBJECT = FILE RECORD TYPE = FIXED LENGTH RECORD BYTES = 62 FILE RECORDS = 20 = "SES\_FS2\_PPM\_1411130810\_POW.TAB" ^PM POW TABLE OBJECT = PM\_POW\_TABLE NAME = "PM\_POW" INTERCHANGE\_FORMAT = ASCII ROWS = 20 = 5 COLUMNS ROW\_BYTES = 62 ^STRUCTURE = "PP PM2 POW.FMT"



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END OBJECT END\_OBJECT

= PM POW TABLE = FILE

END

#### Example of PDS label for CASSE level 3 data product 5.5

PDS VERSION ID = PDS3 LABEL REVISION NOTE = "2017-02-13, SONC, version 1.0" /\* Edited SC data from CASSE Sounding Mode (SONC Level 3) \*/ DATA\_SET\_ID = "RL-C-SESAME-3-FSS-V1.0" DATA SET NAME = "ROSETTA-LANDER 67P SESAME 3 FSS V1.0" PRODUCT ID = "SES\_FS3\_CSN\_1411140016" PRODUCT CREATION TIME = 2017-02-13T17:42:29 MISSION NAME = "INTERNATIONAL ROSETTA MISSION" MISSION\_PHASE\_NAME = "FIRST SCIENCE SEQUENCE" MISSION ID = ROSETTA INSTRUMENT\_HOST\_NAME = "ROSETTA-LANDER" INSTRUMENT\_HOST\_ID = RL PRODUCT TYPE = RDR START TIME = 2014-11-14T00:16:05.068 STOP TIME = 2014-11-14T00:25:42.381 SPACECRAFT CLOCK START COUNT = "3/374544893.26" SPACECRAFT CLOCK STOP COUNT = "3/374545471.04" PRODUCER ID = "SONC" PRODUCER FULL NAME = "SCIENCE OPERATIONS AND NAVIGATION CENTER" PRODUCER INSTITUTION NAME = "CNES" INSTRUMENT\_ID = SESAME
INSTRUMENT\_NAME = "SURFACE ELECTRIC SOUNDING AND ACOUSTIC MONITORING EXPERIMENT" INSTRUMENT\_TYPE = {"ACOUSTIC SENSOR", "DUST IMPACT DETECTOR", "PERMITTIVITY PROBE" } TARGET NAME = "67P/CHURYUMOV-GERASIMENKO 1 (1969 R1)" = "COMET" TARGET TYPE PROCESSING\_LEVEL\_ID = "3" DATA\_QUALITY\_ID = "-1" DATA\_QUALITY\_DESC = "-1 : NOT QUALIFIED" /\* DATA OBJECT DEFINITION \*/ OBJECT = FILE = FIXED\_LENGTH = 176 RECORD\_TYPE RECORD\_BYTES FILE\_RECORDS = 2 ^JOBC TABLE = "SES\_FS3\_CSN\_1411140016\_JOBC.TAB"

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OBJECT = JOBC TABLE NAME = "JOB\_CARD" INTERCHANGE FORMAT = ASCII ROWS = 2 COLUMNS = 29 COLUMNS ROW\_BYTES = 176 ^STRUCTURE = "JOB\_CARD\_FM3.FMT" ID OBJECT = JOBC\_TABLE END\_OBJECT END OBJECT = FILE OBJECT = FILE RECORD TYPE = FIXED LENGTH RECORD BYTES = 198 = 2 FILE RECORDS ^SEQ\_PARAM\_TABLE = "SES\_FS3\_CSN\_1411140016\_SEQP.TAB" OBJECT = SEQ\_PARAM\_TAI NAME = "SEQ\_PARAM" = SEQ PARAM TABLE INTERCHANGE\_FORMAT = ASCII ROWS = 2 COLUMNS = 22 COLORINGROW\_BYTES= 198^STRUCTURE= "SEQ\_PARAM\_BURST3\_FM3.FMT"ND OBJECT= SEQ\_PARAM\_TABLE ^STRUCIC. END\_OBJECT = SE ~ = FILE END OBJECT OBJECT = FILE RECORD TYPE = FIXED LENGTH = 267 RECORD\_BYTES = 42144 FILE RECORDS = "SES\_FS3\_CSN\_1411140016\_DATA.TAB" ^DATA TABLE OBJECT = DATA TABLE NAME = "DATA" INTERCHANGE\_FORMAT = ASCII ROWS = 42144 COLUMNS = 26 ROW BYTES = 267 ^STRUCTURE = DATA\_TABLE = "DATA3.FMT" END OBJECT END OBJECT = FILE OBJECT = FILE RECORD\_TYPE = FIXED LENGTH RECORD BYTES = 219 FILE RECORDS = 2 ^STAT TABLE = "SES\_FS3\_CSN\_1411140016\_STAT.TAB" = STAT\_TABLE OBJECT = "STAT" NAME = ASCII INTERCHANGE FORMAT ROWS = 2 = 38 COLUMNS ROW BYTES = 219 = "STAT2\_FM3.FMT" = STAT\_TABLE ^STRUCTURE END OBJECT

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END OBJECT

= FILE

END

#### 5.6 Example of PDS label for PP level 3 data product

PDS VERSION ID = PDS3 LABEL REVISION NOTE = "2017-02-13, SONC, version 1.0" /\* Edited SC data from PP Active Test Mode (SONC Level 3) \*/ = "RL-C-SESAME-3-FSS-V1.0" DATA SET ID = "ROSETTA-LANDER 67P SESAME 3 FSS V1.0" DATA\_SET\_NAME = "ROSETTA-LANDER 67P SESAN PRODUCT\_ID = "SES\_FS3\_PAT\_1411130810" PRODUCT CREATION TIME = 2017-02-13T17:42:48 MISSION\_NAME = "INTERNATIONAL ROSETTA MISSION" MISSION PHASE NAME = "FIRST SCIENCE SEQUENCE" MISSION\_ID = ROSETTA INSTRUMENT HOST NAME = "ROSETTA-LANDER" INSTRUMENT HOST ID = RL PRODUCT\_TYPE = RDR START TIME = 2014-11-13T08:10:49.054 = 2014-11-13T08:13:07.335 STOP TIME SPACECRAFT\_CLOCK\_START\_COUNT = "3/374486977.26" SPACECRAFT\_CLOCK\_STOP\_COUNT = "3/374487116.03" PRODUCER\_ID = "SONC" PRODUCER\_FULL\_NAME = "SCIENCE OPERATIONS AND NAVIGATION CENTER" PRODUCER INSTITUTION NAME = "CNES" = SESAME = "SURFACE ELECTRIC SOUNDING AND INSTRUMENT ID INSTRUMENT NAME = {"ACOUSTIC SENSOR", "DUST IMPACT DETECTOR", "PERMITTIVITY PROPE": INSTRUMENT TYPE "PERMITTIVITY PROBE"} TARGET NAME = "67P/CHURYUMOV-GERASIMENKO 1 (1969 R1)" TARGET TYPE = "COMET" PROCESSING\_LEVEL\_ID = "3" DATA QUALITY ID = "-1" DATA\_QUALITY\_DESC = "-1 : NOT QUALIFIED" /\* DATA OBJECT DEFINITION \*/ OBJECT = FILE RECORD TYPE = FIXED LENGTH RECORD BYTES = 102 FILE RECORDS = 11 ^AMT PAR TABLE = "SES FS3 PAT 1411130810 PARC.TAB" = AMT\_PAR\_TABLE OBJECT

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= "AMT PAR" NAME INTERCHANGE\_FORMAT = ASCII ROWS = 11 = 12 COLUMNS ROW\_BYTES ^STRUCTURE = 102 = "PP\_AMT2\_PARC.FMT" = AMT\_PAR\_TABLE END OBJECT END\_OBJECT = FILE OBJECT = FILE RECORD TYPE = FIXED LENGTH RECORD\_BYTES = 64 FILE RECORDS = 2161 ^AMT\_DAC\_TABLE = "SES\_FS3\_PAT\_1411130810\_DACC.TAB" = AMT\_DAC\_TABLE OBJECT NAME = "AMT DAC" INTERCHANGE\_FORMAT = ASCII ROWS = 2161 COLUMNS = 5 ROW\_BYTES = 64 ^STRUCTURE = "PP\_AMT\_DACC END\_OBJECT = AMT\_DAC\_TABLE = "PP AMT DACC.FMT" END OBJECT = FILE OBJECT = FILE RECORD TYPE = FIXED LENGTH RECORD BYTES = 67 = 9792 FILE\_RECORDS = "SES FS3\_PAT\_1411130810\_TXC.TAB" ^AMT TX TABLE OBJECT = AMT\_TX\_TABLE = "AMT TX" NAME INTERCHANGE\_FORMAT = ASCII ROWS = 9792 COLUMNS = 5 ROW\_BYTES = 67 ^STRUCTURE = "PP AMT TXC.FMT" = AMT\_TX\_TABLE END OBJECT END\_OBJECT = FILE OBJECT = FILE RECORD TYPE = FIXED LENGTH = 66 RECORD\_BYTES = 9792 FILE RECORDS ^AMT RX TABLE = "SES FS3 PAT 1411130810 RXC.TAB" OBJECT = AMT\_RX\_TAX NAME = "AMT\_RX" = AMT\_RX\_TABLE INTERCHANGE\_FORMAT = ASCII ROWS = 9792 COLUMNS = 5 ROW\_BYTES ^STRUCTURE = 66 = "Pr\_rand\_ = AMT\_RX\_TABLE - FTLE = "PP AMT RXC.FMT" END\_OBJECT END OBJECT



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END