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DOCUMENT

Rosetta HK Engineering Data Experiment Archive Interface Control Document (EAICD)

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1 INTRODUCTION

1.1 Purpose and Scope

The purpose of this EAI CD (Experimenter to (Science) Archive Interface Control Document) is two fold.

First it provides users of the Rosetta Spacecraft engineering data with a detailed description of the product and a description of how it was generated, including data sources and destinations.

Secondly, it is the official interface between the Rosetta Spacecraft engineering data provision team and the archiving authority.

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 SCI-O Department

1.3 The Rosetta Mission and Instruments

Rosetta Mission overview

The main objective of the Rosetta mission, which was approved in November 1993 as the Planetary Cornerstone mission of ESA's Horizon 2000 long-term program, was to rendezvous with a comet. In-situ investigation of a cometary nucleus was regarded as of the utmost scientific interest.

The original target comet of Rosetta was 46P/Wirtanen, but after the failure of the Ariane 5 ECA in December 2002, the Ariane 5 P1+ was not ready to launch Rosetta in January 2003.

In February 2003 the Science Working Team (SWT) approved the preparation for a mission to be launched in February-March 2004. This alternative mission would rendezvous with comet 67P/Churyumov-Gerasimenko in 2014.

The Rosetta satellite was launched in March 2004 and after a 10 year journey which included three earth flybys, one mars flyby, two flybys of asteroids as well as a deep space hibernation phase, it was woken up on the 20th of January 2014.



Rosetta Mission Phases

Between this date and its arrival at the comet on the 6th of August 2014, the instruments were successfully commissioned and began to generate science data already at a significant distance from the comet.

The mission phase was called “Prelanding” (PRL) in that all data taken up to the Philae Lander delivery had an objective to support the landing site selection process. The prelanding phase ended approximately 5 days after the landing itself. At this point, the comet escort phase (ESC) kicked off whereby the spacecraft accompanied the comet through its perihelion passage and beyond. The nominal mission was due to end on the 31st of December 2015 but was approved for a mission extension (EXT) until the end of September 2016.

The data (to be) delivered by all instruments have been mapped to the 3 different comet mission phases above, PRL, ESC and EXT. In addition, for the case of the RPC-ICA instrument, the Lutetia asteroid flyby cruise data will be reviewed.

The Rosetta orbiter carried a significant set of scientific instruments – the following represents a list of those instruments and the science investigations being performed by each:

Remote sensing:

- OSIRIS (VIS and NIR imaging)
- VIRTIS (VIS and NIR mapping spectroscopy)
- ALICE (UV mapping spectroscopy)
- MIRO (microwave spectroscopy)

Composition analysis:

- ROSINA (neutral gas and ion mass spectrometry)
- COSIMA (dust mass spectrometry)

Dust physical properties:

- MIDAS (dust grain morphology)
- GIADA (dust velocity, impact momentum, mass flow)

Nucleus large-scale structure:

- CONSERT (radiowave sounding, nucleus tomography) – also on Philae Lander
- RSI (radio science)

Comet plasma environment and solar wind interaction:

- RPC (Rosetta plasma consortium)
 - > ICA (ion composition analyser)
 - > IES (ion and electron sensor)
 - > LAP (Langmuir probe)



- > MAG (fluxgate magnetometer)
- > MIP (mutual impedance probe)
- SREM Radiation Monitor Data

Engineering Datasets

- Rosetta Housekeeping Engineering Data [[THIS EAICD](#)]



1.4 Acronyms

For more acronyms refer to Rosetta Project Glossary [RO-EST-LI-5012]

AFM	Asteroid Flyby mode
AIU	AOCMS Interface Unit (AIU)
AOCMS	Attitude & Orbit Management System
APM	Antenna Pointing Mechanism
BCR	Battery Charge Regulator
BDR	Battery Discharge Regulator
BSM	Bus Support Module
CAM	Navigation Camera
CAP	Comet Acquisition Point
CAT	Close Approach Trajectory
CDMU	Control and Data Management Unit
CDMS	Central Data Management System
C-G	67P/Churyumov-Gerasimenko
CM	Control Module
CODMAC	Committee on Data Management and Computation
COP	Close Observation Phase
CR1...6	Mission phase: Cruise 1...6
CVP1/2	Mission phase: Commissioning and verification phase part 1/2
DDOR	Delta Differential One-way Range
DLR	German Aerospace Center
DMS	Data Management Subsystem
DSHM	Deep Space Hibernation Mode
DSM	Deep Space Manoeuvre
DSN	Deep Space Network
EAI CD	Experiment to Planetary Science Archive Interface Control Document
EAR1/2/3	Mission phase: Earth swing-by 1/2/3
EDAC	Error Detection & Correction
EEPROM	Electrically Erasable Programmable Read-Only Memory
EMC	Electromagnetic Compatibility
EOM	End of Mission
ESA	European Space Agency
ESC	Mission Phase : Escort phase
ESD	Electro Static Discharge
ESAC	European Space Astronomy Centre
ESOC	European Space Operations Center
ESTEC	European Space Research and Technology Center
EXT	Mission phase: Extended mission



FAT	Far approach trajectory
FCL	Fold-back Current Limiters
FDIR	Failure Detection Isolation and Recovery
F/D	Focal Diameter
FITS	Flexible Image Transport System
FOV	Field Of View
GCMS	Gas Chromatography / Mass Spectrometry
GMP	Global Mapping Phase
GSE	Ground Support Equipment
HDRM	Hold-Down and Release Mechanism
HGA	High Gain Antenna
HGAPE	High Gain Antenna Pointing Electronics
HGAPM	High Gain Antenna Pointing Mechanism
HPA	High Power Amplifier
HPCM	High Power Command Module
HK	HouseKeeping
H/W	Hard/Ware
I/C	Individually Controlled
I/F	InterFace
IMP	Inertial Measurement Packages
IMU	INERTIAL MEASUREMENT UNITS
KAL	Keep Alive Lines
LCC	Lander Control Center
LCL	Latching Current Limiters
LEOP	Launch and Early Orbit Phase
LGA	Low Gain Antenna
MC	Memory Controller
MGA	Medium Gain Antenna
MGAS	MGA S-band
MGAX	MGA X-band
MLI	Multi Layer Insulation
MM	Memory Module
MMH	MonoMethylHydrazine
MPPT	Maximum Power Point Trackers
MS	Microscope
NAVCAM	Navigation Cameras
NM	Normal Mode
NNO	New Norcia ground station



NSHM	Near Sun Hibernation Mode
NTO	Nitrogen TetrOxide
OBCP	On-Board Control Procedures
OBDH	On-Board Data Handling
OCM	Orbit Control Mode
PCU	Power Conditioning Unit
PDU	Power Distribution Unit
PDS	Planetary Data System
PI	Principal Investigator
P/L	PayLoad
PL-PDU	Payload Power Distribution Unit
PM	Processor Module
PRL	Prelanding Phase (S/c wakeup Jan 2014 to week after lander delivery – Mid-Nov 2014)
PSA	Planetary Science Archive
PSM	Payload Support Module
PSS	Power SubSystem
PVV	PSA Validation and Verification Tool
RAM	Random Access Memory
RCS	Reaction Control System
RF	Radio Frequency
RFDU	RF Distribution Unit
RJ	Rotary Joints
RMOC	Rosetta Mission Operations Center
RO	Rosetta Orbiter
RPM	Revolutions per minute
RSGS	Rosetta Science Ground Segment
RTU	Remote Terminal Unit
RVM	Rendez-vous Manouver
RW	Reaction Wheel
RWA	Reaction Wheel Assembly
SA	Solar Array
SADE	Solar Array Drive Electronics
SADM	Solar Array Drive Mechanism
SAM	Sun Acquisition Mode
SAS	Sun Acquisition Sensors
SBM	Stand-By Mode
SBN	Small Bodies Node
SHM	Safe/Hold Mode
SAS	Sun Acquisition Sensor
S/C	SpaceCraft
SI	Silicon
SINC	Sharp Increase Phase (Escort Phase)
SKM	Sun Keeping Mode



SpM	Spin-up Mode
S/S	SubSystem
SSMM	Solid State Mass Memory
SS-PDU	Subsystems Power Distribution Unit
STR	Star Tracker
S/W	SoftWare
SWT	Science Working Team
TC	Telecommand
TC	Telecommunications
TCS	Thermal Control Subsystem
TFG	Transfer Frame Generator
TGM	Transition to global mapping
TM	Telemetry
TRP	Temperature Reference Point
TRSP	Transponder
TTC	Tracking, Telemetry and Command
TTM	Thruster Transition Mode
TWTL	Two Way Travelling Lighttime
TWTA	Travelling Wave Tube Amplifiers
USO	Ultra Stable Oscillator
VC	Virtual Channel
WDP	Wheel Damping Phase
WG	WaveGuide
WIU	Waveguide Interface Unit
WOL	Wheel Offloading

1.5 Contents

This document describes the data flow of the Rosetta Spacecraft engineering data from the s/c 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. The design of the data set structure and the data product is given.



1.6 Intended Readership

The staff of the archiving authority (Planetary Science Archive, ESA, PDS) and any potential user of the Rosetta Spacecraft Engineering data.

1.7 Scientific Objectives

The engineering data are not considered as pure scientific data however there is no doubt that some of this data can support science investigations e.g. Star tracker data, manoeuvre data.



1.8 Applicable Documents

- [1] Rosetta Archive Generation, Validation and Transfer Plan, RO-EST-PL-5011, Issue 2.3, 10 Jan 2006.
- [2] Rosetta Archive conventions document, RO-EST-TN-3372, Issue 8.0, 20 Apr 2015
- [3] Planetary Data System Standards Reference, JPLD-7669, Part 2, Version 3.6, 1 Aug 2003.
- [4] European Cooperation for Space Standardization, ECSS Internal Procedures, ECSS/SEC(2004)35

1.9 Reference Documents

- [5] PDS Standards Reference, JPL-D-7669, Part 2, version 3.7, 2006 March 20
- [6] Rosetta HK Engineering Data – High Level User Guide – Issue 2.0, 30th November 2019
- [7] Rosetta User Manual, Issue 5, 31st October 2003

1.10 Contact Names and Addresses

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2 OVERVIEW OF ROSETTA SPACECRAFT DESIGN, DATA HANDLING PROCESS AND PRODUCT GENERATION

2.1 Overview of Spacecraft Design

A high level drawing is provided below showing the Rosetta spacecraft in its launch configuration.

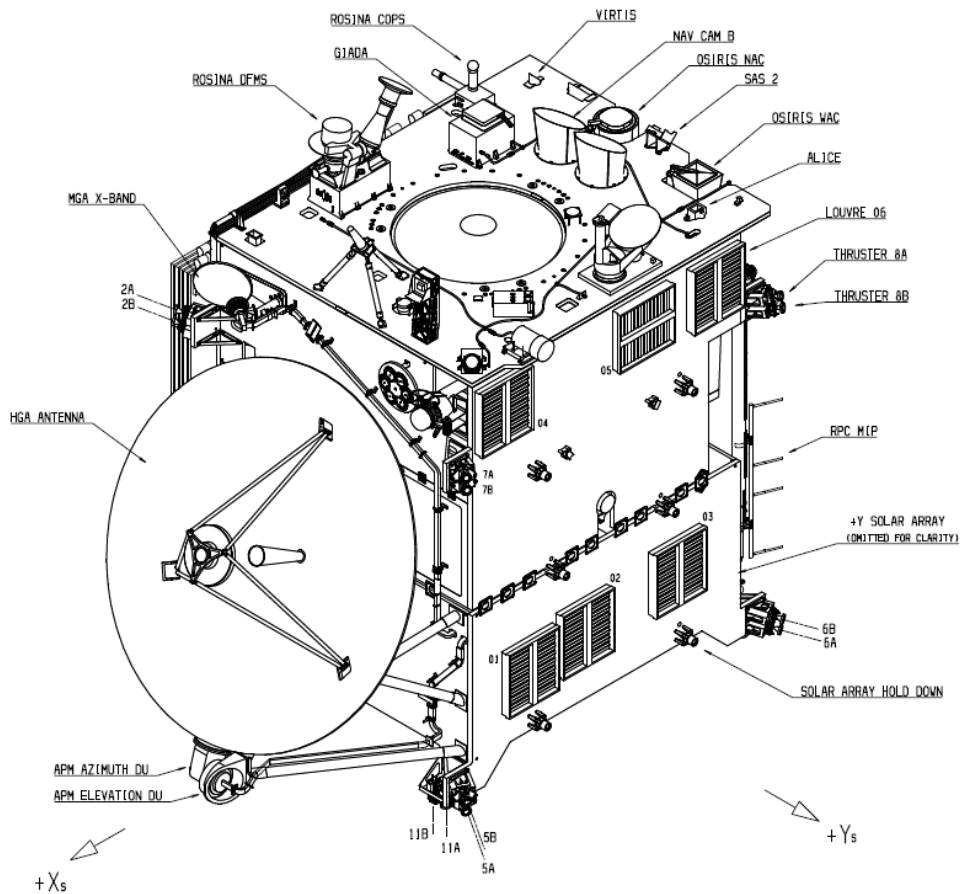


Figure 1 - Rosetta in Launch Configuration (+X face)

The internal workings of the Rosetta spacecraft and its subsystems are described in the Rosetta Housekeeping User Guide and will not be duplicated here. However, for the sake of understanding the different subsystems involved in creating the Rosetta HK engineering datasets, the following drawing of the on-board avionics provides a high level summary of the main subsystems on-board – Figure 2.

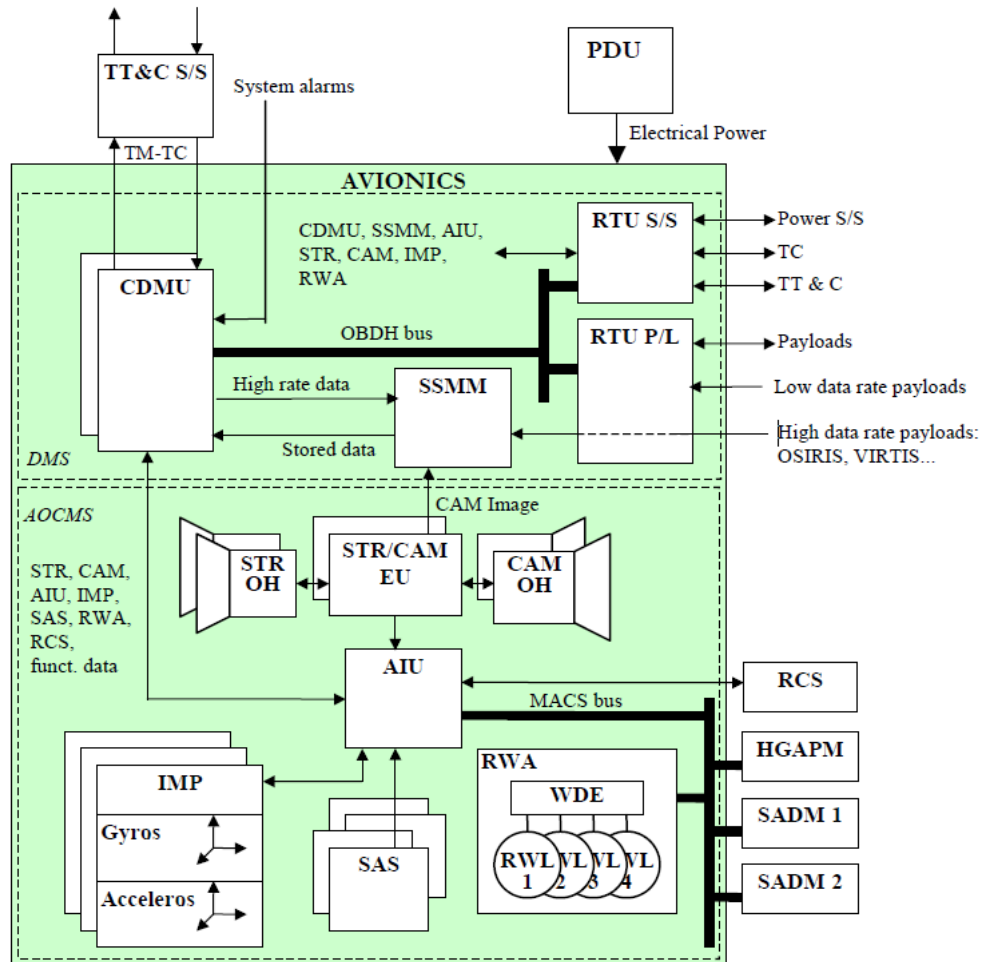


Figure 2 - Rosetta Avionics Subsystem Breakdown

The Subsystem breakdown relevant to the provided datasets is the following:

- Reaction Control Subsystem (RCS)
- Star Trackers (STR)
- Navigation Cameras (CAM)
- Inertial Measurement Package (IMP)
- Reaction Wheel Assembly (RWA)
- High Gain Antenna & Antenna Pointing Mechanism (HGA & APM)
- Radio Frequency Communication subsystem (TT&C)

- Power Distribution Unit (PDU)
- Solar Arrays and Solar Array Drive Mechanism (SA & SADM)

Further to this, data is provided for general AOCMS telemetry (including wheel offloading) and for Error Detection & Correction (EDAC).

2.2 Product Generation

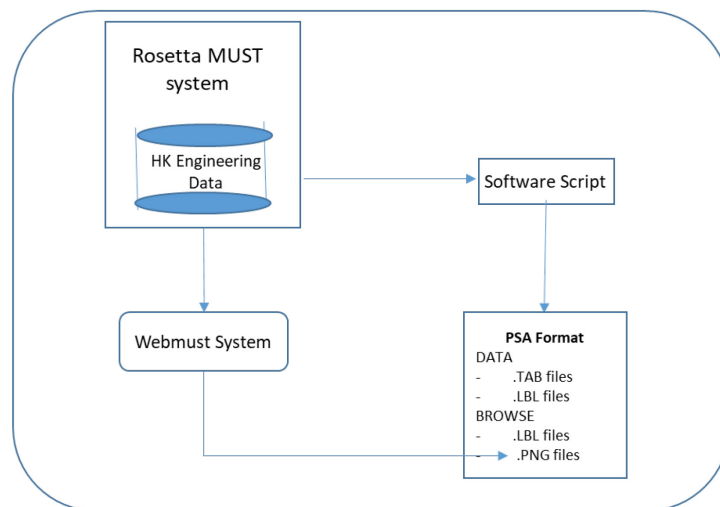


Figure 3 - Overview of the data generation process.

Figure 3 summarizes all the processes involved in the data flow from the Rosetta MUST system, that contains the calibrated housekeeping engineering data, to the ESA Planetary Science Archive.

The telemetry data coming from the spacecraft was stored in the MUST system at the Rosetta Mission Operations Centre. This is a database which provides calibration against the Spacecraft DB for all telemetry parameters. The MUST system was transferred to ESAC in the post-operations phase.

The data is extracted from the MUST DB in two ways:

- Via a software script which retrieves the selected TM parameter values and creates the required PDS Label files and associated .DAT (for binary contents) or .TAB (for ascii contents). The software script creates the required directory structure and places these files there. The software script also produces the directory structure & .LBL files for the browse images.



- Via the Webmust system which allows the user to create plots from selected TM parameters. These files are saved as .PNG files and placed into the browse directories.



2.3 Overview of Data Products

2.3.1 Engineering Data Calibrations & Timing & Units

All data has been provided with the calibration performed via the MUST system. The calibration curves, polynomials etc applied are not included in the delivery as they are not an output of the MUST system.

With that said, there are a number of parameters where a calibration table is provided to derive the value provided in the ASCII table with a specific status. The calibration tables are provided in the Science User guide.

The first field (in the provided **binary** files) is the **timestamp** of the parameter sample expressed as the number of milliseconds from the epoch of 1970-01-01T00:00:00Z (As stored in the MUST database).

The first field (in the provided ASCII files) is the nominal timestamp in UTC.

The second field is the **value** of the parameter sample (if the “**unit**” is available in MUST, it is indicated in the column definition). One can also see the units in the thumbnail drawings beside the relevant HK parameter + they are provided in the relevant tables in the science user guide.

2.3.2 In-Flight Data Products incl. precision

The In-flight data includes data generated since launch until the end of the mission. The data products can be provided as tables (ext: .TAB) with two columns: Time (UTC) and engineering data, or in Binary data again with time in UTC and data. There is one table per parameter.

The precision in use to perform the conversion from ASCII to Binary is via the PDS3 format "**E20.6**". This format is commonly used in instrument's datasets and is believed to be flexible enough for the values stored.

The E specifier is for the exponential form of decimal real data items. The form is:

Ew.d

where:

w indicates that the field to be edited occupies w positions.



d indicates that the fractional part of the number (the part to the right of the decimal point) has d digits.

The output field for the E **w.d** edit specifier has the width **w**. The value is right-justified in that field. The field consists of zero or more leading blanks followed by either a minus if the value is negative, or an optional plus, followed by a zero, a decimal point, the magnitude of the value of the list item rounded to **d** decimal digits, and an exponent.

An overview of the archived HK parameters is given in the Science User Guide.

The software used to process the data at ESOC is not archived.

2.3.3 Documentation

The following documentation is provided, in order to support the data analysis:

- The EAI CD (PDF format) : THIS DOCUMENT
- Science User Guide (PDF format)

2.3.4 Derived and other Data Products

The data set contains data that has been already calibrated. Further calibration tables for specific TM parameters are provided in the Science User Guide. The format is as follows : using the example below

Calibration parameters for NAWDoV05

2262	0	0	SBM
2262	1	1	SAM
2262	2	2	SHM
2262	3	3	SKM
2262	4	4	NSH
2262	5	5	NM
2262	6	6	AFM
2262	7	7	TTM
2262	8	8	OCM
2262	9	9	SPM

The first column shows the calibration id number as defined in the Satellite DB. The second/third columns show the values that appear in the dataset tables. The values match with a status as defined in the fourth column.

2.3.5 Rosetta Housekeeping specific Keywords



Additional keywords have been added into the Rosetta dictionary for the MUST datasets. These are :

Name: ROSETTA:SC_HK_SUBSYSTEM
 ODL Type: KEYWORD
 Status: PSA-APPROVED
 PSA value type: SCALAR
 Generic value type: CHARACTER
 Standard value type: DYNAMIC
 Description: The SC_HK_SUBSYSTEM keyword in the Rosetta dictionary identifies, at a high level, the Rosetta spacecraft subsystem from which the Engineering data has been obtained. For example, STARTRACKER would indicate housekeeping measurements from one of the star tracker units onboard the spacecraft. This keyword can be used in combination with the ROSETTA:SUBSYSTEM_DATA_TYPE keyword to identify the housekeeping measurements to be retrieved from the archive.
 Allowed values: [ANTENNA-STATUS, AOC-GEN, EDAC, HGA-APM, IMP, NAVCAM, OCM-RCS, RWL, SOLAR-ARRAY, STARTRACKER, TCS]

=====

Name: ROSETTA:SUBSYSTEM_DATA_TYPE
 ODL Type: KEYWORD
 Status: PSA-APPROVED
 PSA value type: SCALAR
 Generic value type: CHARACTER
 Standard value type: DYNAMIC
 Description: The SUBSYSTEM_DATA_TYPE keyword in the Rosetta dictionary identifies a select set of different types of housekeeping data being produced by the subsystem in question. This keyword can be used in combination with the ROSETTA:SC_HK_SUBSYSTEM keyword to identify the housekeeping measurements to be retrieved from the archive.
 Allowed values: [HGA_MGA_X_BAND_STATUS, S_BAND_TX_1_2_STATUS, TRSP_1_2_LOCK_STATUS, TRSP_1_2_RX_BITRATE_SELECTION, TRSP_1_2_S_TX_ON_STATUS, TRSP_1_2_X_TX_ON_STATUS, TRSP_1_X_S_BAND_TX_STATUS, TRSP_2_X_S_BAND_TX_STATUS, USO_STATUS, CURRENT_AOCS_MODE, WOL_MANAGER, WOL_PHASE_DURATION, AOCS_AND_DMS_EDAC_CNTR, NAVCAM_A_EDAC_CNTR, NAVCAM_B_EDAC_CNTR, STR_A_EDAC_CNTR, STR_B_EDAC_CNTR, STR_NB_SEU_FOUND, HGA_A_ABSANG_ERR_AZ_EL, HGA_A_DISP_ERR_AZ_EL, HGA_B_ABSANG_ERR_AZ_EL, HGA_B_DISP_ERR_AZ_EL, HGA_EARTH_AZ_ELEV, HGA_MEAS_AZ_ELEV, GYRO_CONS_ERR, IMP_A_GYRO, IMP_B_GYRO, IMP_C_GYRO, IMP_RATE, NAVCAM_A_OP_MODE, NAVCAM_B_OP_MODE, OCM_ACCEL_MEAS, OCM_EST_DIST_TORQUES, OCM_ESTIM_TRANS_VEL, OCM_IMPULSE_MEAS, RCS_CUM_FUEL_THRUST_CONS, RCS_CUM_THRUST_CONS_1_TO_8, RCS_CUM_THRUST_CONS_9_TO_12, RCS_THRUST_ON_CYCLES_1_TO_8, RCS_THRUST_ON_CYCLES_9_TO_12, RWL_EST_FRICT_TORQUE, RWL_FRICT_COEFF, RWL_MEAS_ANG_MOM, RWL_WHEEL_DIRECTION, RWL_WHEEL_SPEED, MASTER_BUS_VOLTAGE_CM_A_B, POWER_CONTROL_UNIT_CM_A_B, POWER_CONTROL_UNIT_CM_A_CURR,



POWER_CONTROL_UNIT_CM_A_VOLT, POWER_DIST_UNIT_PRIMARY_CURRENT,
POWER_DIST_UNIT_SECONDARY_VOLTAGE, SOLAR_ARRAY_DISPL_ERROR,
SOLAR_ARRAY_INCIDENCE_ANGLE, SOLAR_ARRAY_MEAS_ANG_POS_DEG,
SOLAR_ARRAY_MEAS_ANG_POS_RAD, SOLAR_ARRAY_MISALIGNMENT,
STR_A_ANG_VELOCITY, STR_A_B_INTEGRATION_TIME,
STR_A_B_MEAN_BACKGRND, STR_A_B_MODE, STR_A_B_NO_OF_LARGE_OBJECTS,
STR_A_B_NO_OF_STARS_FOUND, STR_A_B_STAR_QUALITY_STAT,
STR_A_B_STD_DEV_BACKGRND, STR_A_B_TRACKED_STARS,
STR_A_CURRENT_OP_MODE, STR_A_STARS_1_TO_9_ID_NO,
STR_A_STARS_1_TO_9_MAGNITUDE, STR_A_STARS_1_TO_9_SXYZ_COORD,
STR_A_STARS_1_TO_9_XY_COORD, STR_B_ANG_VELOCITY,
STR_B_CURRENT_OP_MODE, STR_B_STARS_1_TO_9_ID_NO,
STR_B_STARS_1_TO_9_MAGNITUDE, STR_B_STARS_1_TO_9_SXYZ_COORD,
STR_B_STARS_1_TO_9_XY_COORD, CONSERT_ANT_TEMP, GIADA_TEMP,
MIDAS_TEMP, MIRO_TEMP, OSIRIS_TEMP, RF_ANTENNA_TEMP, ROSINA_TEMP,
RPC_BOOM_TEMP, RPC_ICA_TEMP, RPC_IES_TEMP, SAS_TEMP, SREM_TEMP,
SSP_ANT_TEMP, VIRTIS_TEMP]
=====

3 ARCHIVE FORMAT AND CONTENT

3.1 Format and Conventions

3.1.1 Data Set ID Formation

The HouseKeeping parameters are archived in eleven datasets :

Dataset name: ROSETTA ATTITUDE & ORBIT CONTROL SYSTEM ENGINEERING DATA
Dataset ID: RO-X-HK-3-AOCGEN-V1.0

Dataset name: ROSETTA ORBIT CONTROL MANOEUVRE ENGINEERING DATA
Dataset ID: RO-X-HK-3-OCMRCS-V1.0

Dataset name: ROSETTA INERTIAL MEASUREMENT PACKAGE ENGINEERING DATA
Dataset ID: RO-X-HK-3-IMP-V1.0

Dataset name: ROSETTA RADIATION DATA CORRECTION ENGINEERING DATA
Dataset ID: RO-X-HK-3-EDAC-V1.0

Dataset name: ROSETTA REACTION WHEEL ENGINEERING DATA
Dataset ID: RO-X-HK-3-RWL-V1.0

Dataset name: ROSETTA HIGH GAIN ANTENNA ENGINEERING DATA
Dataset ID: RO-X-HK-3-HGAAPM-V1.0

Dataset name: ROSETTA NAVIGATION CAMERA ENGINEERING DATA
Dataset ID: RO-X-HK-3-NAVCAM-V1.0

Dataset name: ROSETTA STARTRACKER ENGINEERING DATA
Dataset ID: RO-X-HK-3-STARTRACKER-V1.0

Dataset name: ROSETTA SOLAR ARRAY & POWER ENGINEERING DATA



Dataset ID: RO-X-HK-3-SOLARARRAY-V1.0

Dataset name: ROSETTA RF ANTENNA ENGINEERING DATA

Dataset ID: RO-X-HK-3-ANTENNA STATUS-V1.0

Dataset name: ROSETTA THERMAL CONTROL SYSTEM ENGINEERING DATA

Dataset ID: RO-X-HK-3-TCS-V1.0

3.1.2 Directory structure

The following is the directory structure – as extracted from the AAREADME.TXT file.

Files on this volume are organized into a set of subdirectories below the top-level directory. The following table shows the structure and content of these directories. In the table, directory names are enclosed in square brackets ([]). See the *INFO.TXT files in some directories for specific information on the files in that directory.

[TOP-LEVEL-DIRECTORY]

```

|-- AAREADME.TXT   This file
|-- VOLDESC.CAT   Description of the contents of this volume
|-- |--[BROWSE]    Directory containing PNG thumbnails
|   | |--[PARAMETER] Directory containing thumbnails for given
|   | |             parameter
|   | |-- *.PNG    PNG images with overviews of the DATA files
|   | |-- *.LBL    Detached label of the corresponding PNG file
|--[CATALOG]      Directory containing PDS catalog objects
|   |-- CATINFO.TXT Description of files in this subdirectory
|   |-- DATASET.CAT Description of this dataset
|   |-- INST_ROS_HK.CAT Description of the Rosetta Housekeeping at the
|   |                   instrument level
|   |-- INSTHOST.CAT Description of the Rosetta orbiter
|   |-- MISSION.CAT  Description of the Rosetta Mission
|   |-- PERS_HK.CAT  Description of personnel who created this volume
|   |-- REF.CAT      List of useful references
|   |-- SOFTWARE.CAT Software Catalog File

```



```

|--[DATA]          Directory containing data files
|
|--[PARAMETER]    Directories containing data from a
|                  given [PARAMETER]
|
|-- [YYYY]        Directories containing data from the Year
|
| OR
|-- [YYYY_MM]    Directories containing data from the Year
|                  and Month
|
| OR
|-- [YYY_QX]     Directories containing data from the Year
|                  and Quarter
|
| |
| | |-- *.TAB  ASCII data tables
| | |-- *.LBL  PDS label file associated with each data product
|
|--[EXTRAS]       Directory containing data files
|
|-- EXTRINFO.TXT  Overview of the contents of the Extras directory
|
|--[PARAMETER]    Directories containing data from a
|                  given [PARAMETER]
|
|-- [YYYY]        Directories containing data from the Year
|
| OR
|-- [YYYY_MM]    Directories containing data from the Year
|                  and Month
|
| OR
|-- [YYY_QX]     Directories containing data from the Year
|                  and Quarter
|
| |
| | |-- *.DAT  Binary data files
| | |-- *.LBL  PDS label file associated with each data product
|
|--[DOCUMENT]     Directory for Rosetta Housekeeping documentation
|
|-- DOCINFO.TXT   Overview of the contents of Rosetta Housekeeping
|                  documentation folder
|-- EAICD_HK.PDF  Rosetta Housekeeping Archiving Plan
|-- EAICD_HK.LBL  Detached label file for the EAICD document
|-- USER_GUIDE.PDF User Guide for the Rosetta Housekeeping data
|-- USER_GUIDE.LBL Detached label file for the User Guide document
  
```



```

|--[INDEX]          Directory containing index files
|-- INDXINFO.TXT    Description of files in the INDEX directory
|-- INDEX.TAB       Table of all DATA files in the dataset
|-- INDEX.LBL       Detached Label file for the INDEX.TAB
|-- BROWSE_INDEX.TAB Table of all BROWSE files in the dataset
|-- BROWSE_INDEX.LBL Detached Label file for the BROWSE_INDEX.TAB

```

3.1.3 Data & Browse directories - Naming Convention

3.1.3.1 /DATA Subdirectory structure

Under the /DATA subdirectory, there exist further subdirectories :

Subdirectory 1 (**RO_X_HK_3-<Param Description>**)
 Sub-subdirectory 2 (FileDuration)

SUBDIRECTORY 1 - RO_X_HK_3-<Param Description>

Where <Param Description> is a descriptive text intended to allow the user to understand what information do the parameters contained in the lower level directories provide once plotted.

For completeness, here is the full list of subdirectories falling into this category linked to the Dataset ID under which they have been placed.

```

/RO-X-HK-3-ANTENNASTATUS-V1.0
  /DATA
    /TRSP_1_2_RX_BITRATE_SELECTION
    /TRSP_1_X_S_BAND_TX_STATUS
    /TRSP_2_X_S_BAND_TX_STATUS
    /TRSP_1_2_LOCK_STATUS
    /X_BAND_TWTA_1_2_STATUS
    /S_BAND_TX_1_2_STATUS
    /USO_STATUS
    /HGA_MGA_X_BAND_STATUS
    /TRSP_1_2_S_TX_ON_STATUS
    /TRSP_1_2_X_TX_ON_STATUS

```

```

/RO-X-HK-3-AOCGEN-V1.0
  /DATA
    /CURRENT_AOCS_MODE
    /WOL_MANAGER
    /WOL_PHASE_DURATION

```

```

/RO-X-HK-3-EDAC-V1.0
  /DATA

```



/AOCES_AND_DMS_EDAC_CNTR
 /NAVCAM_A_EDAC_CNTR
 /NAVCAM_B_EDAC_CNTR
 /STR_A_EDAC_CNTR
 /STR_B_EDAC_CNTR
 /STR_NB_SEU_FOUND

/RO-X-HK-3-HGAAPM-V1.0
 /DATA

/HGA_EARTH_AZ_ELEV
 /HGA_MEAS_AZ_ELEV
 /HGA_A_ABSANG_ERR_AZ_EL
 /HGA_A_DISP_ERR_AZ_EL
 /HGA_B_ABSANG_ERR_AZ_EL
 /HGA_B_DISP_ERR_AZ_EL

/RO-X-HK-3-IMP-V1.0
 /DATA

/IMP_RATE
 /IMP_A_GYRO
 /IMP_B_GYRO
 /IMP_C_GYRO
 /GYRO_CONS_ERR

/RO-X-HK-3-NAVCAM-V1.0
 /DATA

/NAVCAM_A_OP_MODE
 /NAVCAM_B_OP_MODE

/RO-X-HK-3-OCMRCS-V1.0
 /DATA

/OCM_IMPULSE_MEAS
 /OCM_ACCEL_MEAS
 /OCM_ESTIM_TRANS_VEL
 /OCM_EST_DIST_TORQUES
 /RCS_THRUST_ON_CYCLES_1_TO_8
 /RCS_THRUST_ON_CYCLES_9_TO_12
 /RCS_CUM_THRUST_CONS_1_TO_8
 /RCS_CUM_THRUST_CONS_9_TO_12
 /RCS_CUM_FUEL_THRUST_CONS

/RO-X-HK-3-RWL-V1.0
 /DATA

/RWL_FRICT_COEFF
 /RWL_EST_FRICT_TORQUE
 /RWL_MEAS_ANG_MOM
 /RWL_WHEEL_SPEED
 /RWL_WHEEL_DIRECTION

/RO-X-HK-3-SOLARARRAY-V1.0
 /DATA

/POWER_DIST_UNIT_PRIME_CURRENT
 /POWER_DIST_UNIT_SECONDARY_VOLTAGE
 /MASTER_BUS_VOLTAGE_CM_A_B
 /SOLAR_ARRAY_DISPL_ERROR



/SOLAR_ARRAY_MEAS_ANG_POS_DEG
 /SOLAR_ARRAY_MEAS_ANG_POS_RAD
 /SOLAR_ARRAY_MISALIGNMENT
 /SOLAR_ARRAY_INCIDENCE_ANGLE
 /POWER_CONTROL_UNIT_CM_A_B
 /POWER_CONTROL_UNIT_CM_A_CURR

/RO-X-HK-3-STARTRACKER-V1.0

/DATA

/STR_A_CURRENT_OP_MODE
 /STR_B_CURRENT_OP_MODE
 /STR_A_B_TRACKED_STARS
 /STR_A_ANG_VELOCITY
 /STR_B_ANG_VELOCITY
 /STR_A_B_MODE
 /STR_A_B_INTEGRATION_TIME
 /STR_A_B_MEAN_BACKGRND
 /STR_A_B_STD_DEV_BACKGRND
 /STR_A_B_NO_OF_STARS_FOUND
 /STR_A_B_NO_OF_LARGE_OBJECTS
 /STR_A_STARS_1_TO_9_SXYZ_COORD
 /STR_A_STARS_1_TO_9_XY_COORD
 /STR_B_STARS_1_TO_9_SXYZ_COORD
 /STR_B_STARS_1_TO_9_XY_COORD
 /STR_A_B_STAR_QUALITY_STAT
 /STR_A_STARS_1_TO_9_MAGNITUDE
 /STR_A_STARS_1_TO_9_MAGNITUDE
 /STR_B_STARS_1_TO_9_MAGNITUDE
 /STR_A_STARS_1_TO_9_ID_NO
 /STR_B_STARS_1_TO_9_ID_NO

/RO-X-HK-3-TCS-V1.0

/DATA

/CONCERT_ANT_TEMP
 /GIADA_TEMP
 /MIDAS_TEMP
 /MIRO_TEMP
 /OSIRIS_TEMP
 /RF_ANTENNA_TEMP
 /ROSINA_TEMP
 /RPC_BOOM_TEMP
 /RPC_ICA_TEMP
 /RPC_IES_TEMP
 /SAS_TEMP
 /SREM_TEMP
 /SSP_ANT_TEMP
 /VIRTIS_TEMP



SUB-SUBDIRECTORY 2 : /FileDuration

This directory can come as YYYY_QN or as YYYY_MM or as YYYY where YYYY is the Year, Q is the Quarter, N is the Quarter Number in the year and N is the Month Number.

The majority of files are generated covering a monthly duration however the directories are split up to match with the timing of the data that has been plotted in the browse image directory.

For example, for the RWL data contained in the folder “RWL_MEAS_ANG_MOM”, there are four main HK TM parameters which should be taken together to understand the measured angular momentum of the 4 Reaction Wheels of the spacecraft at any one time. These 4 parameters have been plotted in a single browse product covering a period of 3 months e.g. 2014_Q3.

In such a case, one can find the equivalent data that was used for the generation of these plots placed in a file duration directory structure that matches this as follows :

```

/RO-X-HK-3-RWL-V1.0
  /DATA
    /RWL_MEAS_ANG_MOM
      /2014_Q3
  
```

3.1.3.2 /BROWSE Subdirectory structure

The /BROWSE directory is only created if browse images are provided. Browse images are not provided for every parameter set but rather only a selected set. See the user guide and the BROWINFO.txt file (in each browse folder) for more information. The .LBL and .PNG files are placed in the /BROWSE folder.



3.1.4 Filenaming Convention

3.1.4.1 Data Files in the /DATA Sub-subdirectory

The data files can be found in the /DATA/Paramdescr/FileDuration Subfolder. The filename convention for the files located there is linked to whether all the data can be placed in a single file per quarter, or whether the data is split on a month per month basis.

If the data contained in the file covers a full year then the naming convention is :

ROS_HK_<parameter id>_YYYY

Where YYYY is the year with the file extension being .LBL (for a Label file), or .TAB (for an ASCII file)

If the data contained in the file covers a full quarter then the naming convention is :

ROS_HK_<parameter id>_YYYY_QN

Where YYYY is the year, QN is the quarter number, with the file extension being .LBL (for a Label file), or .TAB (for an ASCII file).

If the data contained in the file covers a monthly basis then the naming convention is :

ROS_HK_<parameter id>_YYYY_MN

Where YYYY is the year, MN is the Month number in the quarter. So Q4 of 2015, will have an ending 2015_10, 2015_11 and 2015_12. Again, the file extension being .LBL (for a Label file) or .TAB (for an ASCII file). Note that the same naming convention is used for binary formatted data files, which, when available are found in the EXTRAS subdirectory (Section 3.4.7). In the case of the binary files, the file extension is .DAT.

The parameter id corresponds to the ID as defined in the Mission Operations Centre Satellite DB. See Appendix 1 of this document which provides the full list of TM parameters per dataset. Further details on how to use these parameters is described in the user guide.

3.1.4.2 Browse Files in the /BROWSE Subdirectory

The browse products are provided as .PNG images. The naming convention is defined to match with the <param description> part of the directory structure defined in the /DATA directories.



In that respect, if one looks at the corresponding data & browse directories, one can see the similarities. The data filenames are coloured in blue.

```
/RO-X-HK-3-STARTRACKER-V1.0
  /DATA
    /STR_A_CURRENT_OP_MODE
      /2014_Q3
        /ROS_HK_<parameterid>_2014_Q3.LBL
        /ROS_HK_<parameterid>_2014_Q3.TAB
  /BROWSE
    /STR_A_CURRENT_OP_MODE_2014_Q3.LBL
    /STR_A_CURRENT_OP_MODE_2014_Q3.PNG
```



3.2 Standards Used in Data Product Generation

3.2.1 PDS Standards

PDS 3.5 is used.

3.2.2 Time Standards

The time standard is defined in the Data Archive Plan [AD1]. UTC is used.

Within the data files (Binary & Ascii), the following should be noted as regards timing information :

- The first field (in the provided **binary** files) is the **timestamp** of the parameter sample expressed as the number of milliseconds from the epoch of 1970-01-01T00:00:00Z (As stored in the MUST database).
- The first field (in the provided ASCII files) is the nominal timestamp in UTC.

3.2.3 Reference Systems

The reference system (for the satellite) is defined in the Data Archive Plan [AD1].

3.3 Data Validation

The data has been validated using the Rosetta Science Ground Segment Data Validation Software.

Before release to the science community and to the public, the data have been peer reviewed.

3.4 Content

3.4.1 Directories

See section 3.1.2 for more details.

Here is the overview of the structure of the dataset e.g. Star tracker

/RO-X-HK-3-STARTRACKER-V1.0

```
|  
|- [BROWSE]  
|- [CATALOG]  
|- [DATA]  
|- [DOCUMENT]  
|- [EXTRAS]
```

3.4.2 Root Directory

AAREADME.TXT
VOLDESC.CAT

3.4.3 Browse Directory

If Browse images exist, then they are placed in this directory

3.4.4 Catalog Directory

It contains the following required files:

- MISSION.CAT
- MISSION_HOST.CAT
- DATASET.CAT
- INSTRUMENT.CAT
- REF.CAT
- CATINFO.TXT

3.4.5 DATA Directory

This directory contains the subdirectories & files as mentioned in section 3.1

3.4.6 Document Directory

It contains the following folders and files:

DOCINFO.TXT: gives the content of the directory.

The EAI CD folder contains the Experiment-to-Archive Interface Control Document (EAI CD) in Word & PDF formats.

The USERGUIDE folder contains the Science User Guide user manual (PDF format)

3.4.7 EXTRAS Directory

It contains the following folders and files:

- EXTRINFO.TXT
- SUBDIRECTORY STRUCTURE: mirrored from the DATA subdirectory structure described in Section 3.1
- *.DAT Binary data files
- *.LBL – label files



APPENDIX 1 – PARAMETERS CONTAINED IN EACH DATASET

Dataset name: ROSETTA SPACECRAFT ATTITUDE & ORBIT CONTROL SYSTEM ENGINEERING DATA

Dataset ID: RO-X-HK-3-AOCCGEN-V1.0

/RO-X-HK-3-AOCCGEN-V1.0

/DATA

/CURRENT_AOCS_MODE

/WOL_MANAGER

/WOL_PHASE_DURATION

Parameters contained in the Dataset

General	Dataset Directory name	Parameter ID	Parameter description
Current AOCS mode	CURRENT_AOCS_MODE	NAWDoV05	Current AOCS mode being executed on board
Wheel Offloading Manager	WOL_MANAGER	NACP0435	Wheel offloading manager status
Wheel offloading duration	WOL_PHASE_DURATION	NACW1G02	Wheel offloading duration



**Dataset name: ROSETTA SPACECRAFT ORBIT CONTROL MANOEUVRE
ENGINEERING DATA**

Dataset ID: RO-X-HK-3-OCMRCS-V1.0

/RO-X-HK-3-OCMRCS-V1.0
 /DATA
 /OCM_IMPULSE_MEAS
 /OCM_ACCEL_MEAS
 /OCM_ESTIM_TRANS_VEL
 /OCM_EST_DIST_TORQUES
 /RCS_THRUST_ON_CYCLES_1_TO_8
 /RCS_THRUST_ON_CYCLES_9_TO_12
 /RCS_CUM_THRUST_CONS_1_TO_8
 /RCS_CUM_THRUST_CONS_9_TO_12
 /RCS_CUM_FUEL_THRUST_CONS

Parameters contained in the Dataset

General	Directory name	Parameter ID	Description
OCM Impulse Meas Approach	OCM_IMPULSE_MEAS	NACW1D0A	OCM Impls Estim Velocity
OCM Impulse Meas Approach	OCM_IMPULSE_MEAS	NACW1D07	OCM: Impulse Cmd delta-V
OCM Acceleration Meas approach	OCM_ACCEL_MEAS	NACW1D05	OCM: Accel Cmd delta-V
OCM Acceleration Meas approach	OCM_ACCEL_MEAS	NACW1D09	OCM Accel Estim Velocity
OCM Estim Transverse Vel	OCM_ESTIM_TRANS_VEL	NACW1D0E	OCM Estim Transverse Vel
OCM Estim Disturbance Torques	OCM_EST_DIST_TORQUES	NACW1D0O	OCM Estim Dist Torque X1
OCM Estim Disturbance Torques	OCM_EST_DIST_TORQUES	NACW1D0P	OCM Estim Dist Torque X2
OCM Estim Disturbance Torques	OCM_EST_DIST_TORQUES	NACW1D0Q	OCM Estim Dist Torque X3



RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_1_TO_8	NACW0M0J	RCS Thr1 Nb ON Cycles
RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_1_TO_8	NACW0M0K	RCS Thr2 Nb ON Cycles
RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_1_TO_8	NACW0M0L	RCS Thr3 Nb ON Cycles
RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_1_TO_8	NACW0M0M	RCS Thr4 Nb ON Cycles
RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_1_TO_8	NACW0M0N	RCS Thr5 Nb ON Cycles
RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_1_TO_8	NACW0M0O	RCS Thr6 Nb ON Cycles
RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_1_TO_8	NACW0M0P	RCS Thr7 Nb ON Cycles
RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_1_TO_8	NACW0M0Q	RCS Thr8 Nb ON Cycles
RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_9_TO_12	NACW0M0R	RCS Thr9 Nb ON Cycles
RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_9_TO_12	NACW0M0S	RCS Thr10 Nb ON Cycles
RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_9_TO_12	NACW0M0T	RCS Thr11 Nb ON Cycles
RCS Thruster Number On Cycles	RCS_THRUST_ON_CYCLES_9_TO_12	NACW0M0U	RCS Thr12 Nb ON Cycles
RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_1_TO_8	NACW0M0V	RCS Cum Consumption Thr1
RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_1_TO_8	NACW0M0W	RCS Cum Consumption Thr2
RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_1_TO_8	NACW0M0X	RCS Cum Consumption Thr3
RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_1_TO_8	NACW0M0Y	RCS Cum Consumption Thr4
RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_1_TO_8	NACW0M0Z	RCS Cum Consumption Thr5
RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_1_TO_8	NACW0M10	RCS Cum Consumption Thr6
RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_1_TO_8	NACW0M11	RCS Cum Consumption Thr7



RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_1_TO_8	NACW0M12	RCS Cum Consumption Thr8
RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_9_TO_12	NACW0M13	RCS Cum Consumption Thr9
RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_9_TO_12	NACW0M14	RCS Cum Consumptn Thr10
RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_9_TO_12	NACW0M15	RCS Cum Consumptn Thr11
RCS Cum Thruster Consumption	RCS_CUM_THRUST_CONS_9_TO_12	NACW0M16	RCS Cum Consumptn Thr12
RCS Cum Thruster Consumption	RCS_CUM_FUEL_THRUST_CONS	NAWG0060	RCS Cum Fuel Consumption



**Dataset name: ROSETTA SPACECRAFT INERTIAL MEASUREMENT PACKAGE
ENGINEERING DATA**

Dataset ID: RO-X-HK-3-IMP-V1.0

/RO-X-HK-3-IMP-V1.0

 /DATA

 /IMP_RATE

 /IMP_A_GYRO

 /IMP_B_GYRO

 /IMP_C_GYRO

 /GYRO_CONS_ERR

General	Directory name	ParameterID	Description
IMP Rate Measurements	IMP_RATE	NACX0001	IMP Rate Measurement X
IMP Rate Measurements	IMP_RATE	NACX0002	IMP Rate Measurement Y
IMP Rate Measurements	IMP_RATE	NACX0003	IMP Rate Measurement Z
IMP A Gyro Measuremnt	IMP_A_GYRO	NACW0E00	IMP A Gyro Measuremnt X1
IMP A Gyro Measuremnt	IMP_A_GYRO	NACW0E01	IMP A Gyro Measuremnt X2
IMP A Gyro Measuremnt	IMP_A_GYRO	NACW0E02	IMP A Gyro Measuremnt X3
IMP B Gyro Measuremnt	IMP_B_GYRO	NACW0E0A	IMP B Gyro Meas. X
IMP B Gyro Measuremnt	IMP_B_GYRO	NACW0E0B	IMP B Gyro Meas. Y
IMP B Gyro Measuremnt	IMP_B_GYRO	NACW0E0C	IMP B Gyro Meas. Z
IMP C Gyro Measuremnt	IMP_C_GYRO	NACW0E0K	IMP C Gyro Measuremnt X1
IMP C Gyro Measuremnt	IMP_C_GYRO	NACW0E0L	IMP C Gyro Measuremnt X2
IMP C Gyro Measuremnt	IMP_C_GYRO	NACW0E0M	IMP C Gyro Measuremnt X3
Gyro consistency Error	GYRO_CONS_ERR	NACW0P0B	gyro consistencyerror



**Dataset name: ROSETTA SPACECRAFT RADIATION DATA CORRECTION
ENGINEERING DATA**

Dataset ID: RO-X-HK-3-EDAC-V1.0

/RO-X-HK-3-EDAC-V1.0
/DATA

/AOCS_AND_DMS_EDAC_CNTR
/NAVCAM_A_EDAC_CNTR
/NAVCAM_B_EDAC_CNTR
/STR_A_EDAC_CNTR
/STR_B_EDAC_CNTR
/STR_NB_SEU_FOUND

General	Directory name	Parameter ID	Description
AOCS and DMS EDAC Counters	AOCS_AND_DMS_EDAC_CNTR	NACW0DoA	BTSTP: EDAC Counter
AOCS and DMS EDAC Counters	AOCS_AND_DMS_EDAC_CNTR	NDMW0DoA	EDAC counter
NAVCAMA EDAC Counters	NAVCAM_A_EDAC_CNTR	NACP1801	CAM A DRAM EDAC Sec Cntr
NAVCAMA EDAC Counters	NAVCAM_A_EDAC_CNTR	NACW1RoR	CAM A Dt RAM EDAC Cntr
NAVCAMA EDAC Counters	NAVCAM_A_EDAC_CNTR	NACW1RoQ	CAM A Pr RAM EDAC Cntr
NAVCAMA EDAC Counters	NAVCAM_A_EDAC_CNTR	NACP1800	CAM A PRAM EDAC Sec Cntr
NAVCAMB EDAC Counters	NAVCAM_B_EDAC_CNTR	NACP2801	CAM B DRAM EDAC Sec Cntr
NAVCAMB EDAC Counters	NAVCAM_B_EDAC_CNTR	NACW1RiL	CAM B Dt RAM EDAC Cntr
NAVCAMB EDAC Counters	NAVCAM_B_EDAC_CNTR	NACW1RiK	CAM B Pr RAM EDAC Cntr
NAVCAMB EDAC Counters	NAVCAM_B_EDAC_CNTR	NACP2800	CAM B PRAM EDAC Sec Cntr
STR A EDAC Counters	STR_A_EDAC_CNTR	NACP1301	STR A DRAM EDAC Sec Cntr
STR A EDAC Counters	STR_A_EDAC_CNTR	NACW1LoQ	STR A Dt RAM EDAC Cntr
STR A EDAC	STR_A_EDAC_CNTR	NACW1LoP	STR A Pr RAM EDAC Cntr



Counters			
STR A EDAC Counters	STR_A_EDAC_CNTR	NACP1300	STR A PRAMEDACSec Cntr
STR B EDAC Counters	STR_B_EDAC_CNTR	NACP2301	STR B DRAM EDACSec Cntr
STR B EDAC Counters	STR_B_EDAC_CNTR	NACW1 L1J	STR B Dt RAM EDAC Cntr
STR B EDAC Counters	STR_B_EDAC_CNTR	NACW1 L1I	STR B Pr RAM EDAC Cntr
STR B EDAC Counters	STR_B_EDAC_CNTR	NACP2300	STR B PRAM EDACSec Cntr
STR Nb SEU found	STR_NB_SEU_FOUND	NACW1 KoH	STR A Nb SEU Found
STR Nb SEU found	STR_NB_SEU_FOUND	NACW1 K2X	STR B Nb SEU Found



Dataset name: ROSETTA SPACECRAFT REACTION WHEEL ENGINEERING DATA

Dataset ID: RO-X-HK-3-RWL-V1.0

/RO-X-HK-3-RWL-V1.0

 /DATA

 /RWL_FRICT_COEFF

 /RWL_EST_FRICT_TORQUE

 /RWL_MEAS_ANG_MOM

 /RWL_WHEEL_SPEED

 /RWL_WHEEL_DIRECTION

General	Directory name	Parameter ID	Description
RWL Friction Coefficient	RWL_FRICT_COEFF	NAAG0005	RW A fric coeff.
RWL Friction Coefficient	RWL_FRICT_COEFF	NAAG0006	RW B fric coeff.
RWL Friction Coefficient	RWL_FRICT_COEFF	NAAG0007	RW C fric coeff.
RWL Friction Coefficient	RWL_FRICT_COEFF	NAAG0008	RW D fric coeff.
RWL Est Friction Torque	RWL_EST_FRICT_TORQUE	NACWoGo5	RW A Est Friction Torque
RWL Est Friction Torque	RWL_EST_FRICT_TORQUE	NACWoGoH	RW B Est Friction Torque
RWL Est Friction Torque	RWL_EST_FRICT_TORQUE	NACWoGoT	RW C Est Friction Torque
RWL Est Friction Torque	RWL_EST_FRICT_TORQUE	NACWoG15	RW D Est Friction Torque
RWL Measured Ang Momentum	RWL_MEAS_ANG_MOM	NACG0010	RW A Real Measured Ang M
RWL Measured Ang Momentum	RWL_MEAS_ANG_MOM	NACG0011	RW B Real Measured Ang M
RWL Measured Ang Momentum	RWL_MEAS_ANG_MOM	NACG0012	RW C Real Measured Ang M
RWL Measured Ang Momentum	RWL_MEAS_ANG_MOM	NACG0013	RW D Real Measured Ang M
RWL Wheel Speed	RWL_WHEEL_SPEED	NACG0014	RW A Real Wheel Speed
RWL Wheel Speed	RWL_WHEEL_SPEED	NACG0015	RW B Real Wheel Speed
RWL Wheel Speed	RWL_WHEEL_SPEED	NACG0016	RW C Real Wheel Speed



RWL Wheel Speed	RWL_WHEEL_SPEED	NACG0017	RW D Real WheelSpeed
RWL Wheel Direction	RWL_WHEEL_DIRECTION	NAAD6011	RW A Wheel direction
RWL Wheel Direction	RWL_WHEEL_DIRECTION	NAAD6021	RW B Wheel direction
RWL Wheel Direction	RWL_WHEEL_DIRECTION	NAAD6031	RW C Wheel direction
RWL Wheel Direction	RWL_WHEEL_DIRECTION	NAAD6041	RW D Wheel direction



Dataset name: ROSETTA SPACECRAFT HIGH GAIN ANTENNA ENGINEERING DATA

Dataset ID: RO-X-HK-3-HGAAPM-V1.0

/RO-X-HK-3-HGAAPM-V1.0
/DATA

/HGA_EARTH_AZ_ELEV
/HGA_MEAS_AZ_ELEV
/HGA_A_ABSANG_ERR_AZ_EL
/HGA_A_DISP_ERR_AZ_EL
/HGA_B_ABSANG_ERR_AZ_EL
/HGA_B_DISP_ERR_AZ_EL

General	Directory name	Parameter ID	Description
HGA Earth Az and Elev	HGA_EARTH_AZ_ELEV	NACX0009	APME: Earth Azimuth
HGA Earth Az and Elev	HGA_EARTH_AZ_ELEV	NACX0008	APME: Earth Elev
HGA Measured Azimuth & Elevation	HGA_MEAS_AZ_ELEV	NACX0011	APME: Measured Azi
HGA Measured Azimuth & Elevation	HGA_MEAS_AZ_ELEV	NACX0010	APME: Measured Elev
HGA A Abs ang Error	HGA_A_ABSANG_ERR_AZ_EL	NACW1218	APME A Abs Ang Error Az
HGA A Abs ang Error	HGA_A_ABSANG_ERR_AZ_EL	NACW1217	APME A Abs Ang Error EI
HGA A Displacement Error	HGA_A_DISP_ERR_AZ_EL	NACW120B	APME A Dispment Error Az
HGA A Displacement Error	HGA_A_DISP_ERR_AZ_EL	NACW120A	APME A Dispment Error EI
HGA B Abs ang Error	HGA_B_ABSANG_ERR_AZ_EL	NACW121D	APME B Abs Ang Error Az
HGA B Abs ang Error	HGA_B_ABSANG_ERR_AZ_EL	NACW121C	APME B Abs Ang Error EI
HGA B Displacement Error	HGA_B_DISP_ERR_AZ_EL	NACW120V	APME B Dispment



			Error Az
HGA B Displacement Error	HGA_B_DISP_ERR_AZ_EL	NACW120U	APME B Dispmnt Error El



Dataset name: ROSETTA SPACECRAFT NAVIGATION CAMERA ENGINEERING DATA

Dataset ID: RO-X-HK-3-NAVCAM-V1.0

/RO-X-HK-3-NAVCAM-V1.0
 /DATA
 /NAVCAM_A_OP_MODE
 /NAVCAM_B_OP_MODE

General	Directory name	Parameter ID	Description
NAVCAM A Operation mode	NAVCAM_A_OP_MODE	NACX0502	CAM A Current Operative
NAVCAM B Operation mode	NAVCAM_A_OP_MODE	NACX0503	CAM B Operative Mode



Dataset name: ROSETTA SPACECRAFT STARTRACKER ENGINEERING DATA

Dataset ID: RO-X-HK-3-STARTRACKER-V1.0

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/RO-X-HK-3-STARTRACKER-V1.0
  /DATA
    /STR_A_CURRENT_OP_MODE
    /STR_B_CURRENT_OP_MODE
    /STR_A_B_TRACKED_STARS
    /STR_A_ANG_VELOCITY
    /STR_B_ANG_VELOCITY
    /STR_A_B_MODE
    /STR_A_B_INTEGRATION_TIME
    /STR_A_B_MEAN_BACKGRND
    /STR_A_B_STD_DEV_BACKGRND
    /STR_A_B_NO_OF_STARS_FOUND
    /STR_A_B_NO_OF_LARGE_OBJECTS
    /STR_A_STARS_1_TO_9_SXYZ_COORD
    /STR_A_STARS_1_TO_9_XY_COORD
    /STR_B_STARS_1_TO_9_SXYZ_COORD
    /STR_B_STARS_1_TO_9_XY_COORD
    /STR_A_B_STAR_QUALITY_STAT
    /STR_A_STARS_1_TO_9_MAGNITUDE
    /STR_A_STARS_1_TO_9_MAGNITUDE
    /STR_B_STARS_1_TO_9_MAGNITUDE
    /STR_A_STARS_1_TO_9_ID_NO
    /STR_B_STARS_1_TO_9_ID_NO

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General	Directory name	Parameter ID	Description
STR A Current Operating mode	STR_A_CURRENT_OP_MODE	"NACX0500	STR A Current Operative
STR B Current Operating mode	STR_B_CURRENT_OP_MODE	"NACX0501	STR B Current Opern Mode
STR A and B - tracked stars	STR_A_B_TRACKED_STARS	"NACW1KoK	STR A Nb Tracked Stars
STR A and B - tracked stars	STR_A_B_TRACKED_STARS	"NACW1K30	STR B Nb Tracked Stars
STR A Angular Velocity	STR_A_ANG_VELOCITY	"NACW1KoD	STR A angular velocity X
STR A Angular Velocity	STR_A_ANG_VELOCITY	"NACW1KoE	STR A angular



			velocityY
STR A Angular Velocity	STR_A_ANG_VELOCITY	"NACW1 KoF	STR A angular velocityZ
STR B Angular Velocity	STR_B_ANG_VELOCITY	"NACW1 K2T	STR B angular velocityX
STR B Angular Velocity	STR_B_ANG_VELOCITY	"NACW1 K2U	STR B angular velocityY
STR B Angular Velocity	STR_B_ANG_VELOCITY	"NACW1 K2V	STR B angular velocityZ
STR A and B Mode	STR_A_B_MODE	"NACW1 Ko5	STR A Mode
STR A and B Mode	STR_A_B_MODE	"NACW1 K2L	STR B Mode
STR A and B Integration time	STR_A_B_INTEGRATION_TIME	"NACW1 Ko6	STR A Integration Time
STR A and B Integration time	STR_A_B_INTEGRATION_TIME	"NACW1 K2M	STR B Integration Time
STR A and B Mean Background	STR_A_B_MEAN_BACKGRND	"NACW1 KoL	STR A Mean Background
STR A and B Mean Background	STR_A_B_MEAN_BACKGRND	"NACW1 K31	STR B Mean Background
STR A and B Standard Deviation Background	STR_A_B_STD_DEV_BACKGRND	"NACW1 KoM	STR A Stdv Background
STR A and B Standard Deviation Background	STR_A_B_STD_DEV_BACKGRND	"NACW1 K32	STR B Stdv Background
STR A & B Number of Stars found	STR_A_B_NO_OF_STARS_FOUND	"NACW1 KoJ	STR A Nb Stars Found
STR A & B Number of Stars found	STR_A_B_NO_OF_STARS_FOUND	"NACW1 K2Z	STR B Nb Stars Found
STR A & B Number of Large Objects found	STR_A_B_NO_OF_LARGE_OBJECTS	"NACW1 KoI	STR A Nb Large Objects
STR A & B Number of Large Objects found	STR_A_B_NO_OF_LARGE_OBJECTS	"NACW1 K2Y	STR B Nb Large Objects
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1 KoQ	STR A Star 1 : SX coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1 KoR	STR A Star 1 : SY coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1 KoS	STR A Star 1 : SZ coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1 KoX	STR A Star 2 : SX coord



STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1KoY	STR A Star 2 : SY coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1KoZ	STR A Star 2 : SZ coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K14	STR A Star 3 : SX coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K15	STR A Star 3 : SY coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K16	STR A Star 3 : SZ coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1B	STR A Star 4 : SX coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1C	STR A Star 4 : SY coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1D	STR A Star 4 : SZ coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1I	STR A Star 5 : SX coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1J	STR A Star 5 : SY coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1K	STR A Star 5 : SZ coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1P	STR A Star 6 : SX coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1Q	STR A Star 6 : SY coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1R	STR A Star 6 : SZ coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1W	STR A Star 7 : SX coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1X	STR A Star 7 : SY coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K1Y	STR A Star 7 : SZ coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K23	STR A Star 8 : SX coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K24	STR A Star 8 : SY coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K25	STR A Star 8 : SZ coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K2A	STR A Star 9 : SX coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K2B	STR A Star 9 : SY coord
STR A - Star 1 to 9 - SXYZ Coordinates	STR_A_STARS_1_TO_9_SXYZ_COORD	"NACW1K2C	STR A Star 9 : SZ coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1KoT	STR A Star 1 : X coord
STR A - Star 1 to 9 - XY	STR_A_STARS_1_TO_9_XY_COORD	"NACW1KoU	STR A Star 1 : Y



Coordinates	D		coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K10	STR A Star 2 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K11	STR A Star 2 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K17	STR A Star 3 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K18	STR A Star 3 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K1E	STR A Star 4 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K1F	STR A Star 4 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K1L	STR A Star 5 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K1M	STR A Star 5 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K1S	STR A Star 6 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K1T	STR A Star 6 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K1Z	STR A Star 7 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K20	STR A Star 7 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K26	STR A Star 8 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K27	STR A Star 8 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K2D	STR A Star 9 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_A_STARS_1_TO_9_XY_COORD	"NACW1K2E	STR A Star 9 : Y coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K36	STR B Star 1 : SX coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K37	STR B Star 1 : SY coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K38	STR B Star 1 : SZ coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K3D	STR B Star 2 : SX coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K3E	STR B Star 2 : SY coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K3F	STR B Star 2 : SZ coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K3K	STR B Star 3 : SX coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K3L	STR B Star 3 : SY coord



STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K3M	STR B Star 3 : SZ coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K3R	STR B Star 4 : SX coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K3S	STR B Star 4 : SY coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K3T	STR B Star 4 : SZ coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K3Y	STR B Star 5 : SX coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K3Z	STR B Star 5 : SY coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K40	STR B Star 5 : SZ coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K45	STR B Star 6 : SX coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K46	STR B Star 6 : SY coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K47	STR B Star 6 : SZ coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K4C	STR B Star 7 : SX coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K4D	STR B Star 7 : SY coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K4E	STR B Star 7 : SZ coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K4J	STR B Star 8 : SX coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K4K	STR B Star 8 : SY coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K4L	STR B Star 8 : SZ coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K4Q	STR B Star 9 : SX coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K4R	STR B Star 9 : SY coord
STR B - Star 1 to 9 - SXYZ Coordinates	STR_B_STARS_1_TO_9_SXYZ_COORD	"NACW1K4S	STR B Star 9 : SZ coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K39	STR B Star 1 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K3A	STR B Star 1 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K3G	STR B Star 2 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K3H	STR B Star 2 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K3N	STR B Star 3 : X coord



STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K3O	STR B Star 3 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K3U	STR B Star 4 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K3V	STR B Star 4 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K41	STR B Star 5 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K42	STR B Star 5 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K48	STR B Star 6 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K49	STR B Star 6 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K4F	STR B Star 7 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K4G	STR B Star 7 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K4M	STR B Star 8 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K4N	STR B Star 8 : Y coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K4T	STR B Star 9 : X coord
STR A - Star 1 to 9 - XY Coordinates	STR_B_STARS_1_TO_9_XY_COORD	"NACW1K4U	STR B Star 9 : Y coord
STR A and B - Star Quality Status	STR_A_B_STAR_QUALITY_STAT	"NAWD1Ko4	STR A Star Quality stat
STR A and B - Star Quality Status	STR_A_B_STAR_QUALITY_STAT	"NAWD1KoA	STR B Star Quality stat
STR A - Star 1 to 9 - magnitudes	STR_A_STARS_1_TO_9_MAGNITUDE	"NACW1KoV	STR A Star 1 : magnitude
STR A - Star 1 to 9 - magnitudes	STR_A_STARS_1_TO_9_MAGNITUDE	"NACW1K12	STR A Star 2 : magnitude
STR A - Star 1 to 9 - magnitudes	STR_A_STARS_1_TO_9_MAGNITUDE	"NACW1K19	STR A Star 3 : magnitude
STR A - Star 1 to 9 - magnitudes	STR_A_STARS_1_TO_9_MAGNITUDE	"NACW1K1G	STR A Star 4 : magnitude
STR A - Star 1 to 9 - magnitudes	STR_A_STARS_1_TO_9_MAGNITUDE	"NACW1K1N	STR A Star 5 : magnitude
STR A - Star 1 to 9 - magnitudes	STR_A_STARS_1_TO_9_MAGNITUDE	"NACW1K1U	STR A Star 6 : magnitude
STR A - Star 1 to 9 - magnitudes	STR_A_STARS_1_TO_9_MAGNITUDE	"NACW1K21	STR A Star 7 : magnitude
STR A - Star 1 to 9 - magnitudes	STR_A_STARS_1_TO_9_MAGNITUDE	"NACW1K28	STR A Star 8 : magnitude
STR A - Star 1 to 9 - magnitudes	STR_A_STARS_1_TO_9_MAGNITUDE	"NACW1K2F	STR A Star 9 : magnitude



STR B - Star 1 to 9 - magnitudes	STR_B_STARS_1_TO_9_MAGNITUDE	"NACW1K3B	STR B Star 1 : magnitude
STR B - Star 1 to 9 - magnitudes	STR_B_STARS_1_TO_9_MAGNITUDE	"NACW1K3I	STR B Star 2 : magnitude
STR B - Star 1 to 9 - magnitudes	STR_B_STARS_1_TO_9_MAGNITUDE	"NACW1K3P	STR B Star 3 : magnitude
STR B - Star 1 to 9 - magnitudes	STR_B_STARS_1_TO_9_MAGNITUDE	"NACW1K3W	STR B Star 4 : magnitude
STR B - Star 1 to 9 - magnitudes	STR_B_STARS_1_TO_9_MAGNITUDE	"NACW1K43	STR B Star 5 : magnitude
STR B - Star 1 to 9 - magnitudes	STR_B_STARS_1_TO_9_MAGNITUDE	"NACW1K4A	STR B Star 6 : magnitude
STR B - Star 1 to 9 - magnitudes	STR_B_STARS_1_TO_9_MAGNITUDE	"NACW1K4H	STR B Star 7 : magnitude
STR B - Star 1 to 9 - magnitudes	STR_B_STARS_1_TO_9_MAGNITUDE	"NACW1K4O	STR B Star 8 : magnitude
STR B - Star 1 to 9 - magnitudes	STR_B_STARS_1_TO_9_MAGNITUDE	"NACW1K4V	STR B Star 9 : magnitude
STR A - Star 1 to 9 - ID number	STR_A_STARS_1_TO_9_ID_NO	"NACW1KoP	STR A Star 1 : id number
STR A - Star 1 to 9 - ID number	STR_A_STARS_1_TO_9_ID_NO	"NACW1KoW	STR A Star 2 : id number
STR A - Star 1 to 9 - ID number	STR_A_STARS_1_TO_9_ID_NO	"NACW1K13	STR A Star 3 : id number
STR A - Star 1 to 9 - ID number	STR_A_STARS_1_TO_9_ID_NO	"NACW1K1A	STR A Star 4 : id number
STR A - Star 1 to 9 - ID number	STR_A_STARS_1_TO_9_ID_NO	"NACW1K1H	STR A Star 5 : id number
STR A - Star 1 to 9 - ID number	STR_A_STARS_1_TO_9_ID_NO	"NACW1K1O	STR A Star 6 : id number
STR A - Star 1 to 9 - ID number	STR_A_STARS_1_TO_9_ID_NO	"NACW1K1V	STR A Star 7 : id number
STR A - Star 1 to 9 - ID number	STR_A_STARS_1_TO_9_ID_NO	"NACW1K22	STR A Star 8 : id number
STR A - Star 1 to 9 - ID number	STR_A_STARS_1_TO_9_ID_NO	"NACW1K29	STR A Star 9 : id number
STR B - Star 1 to 9 - ID number	STR_B_STARS_1_TO_9_ID_NO	"NACW1K35	STR B Star 1 : id number
STR B - Star 1 to 9 - ID number	STR_B_STARS_1_TO_9_ID_NO	"NACW1K3C	STR B Star 2 : id number
STR B - Star 1 to 9 - ID number	STR_B_STARS_1_TO_9_ID_NO	"NACW1K3J	STR B Star 3 : id number
STR B - Star 1 to 9 - ID number	STR_B_STARS_1_TO_9_ID_NO	"NACW1K3Q	STR B Star 4 : id number
STR B - Star 1 to 9 - ID number	STR_B_STARS_1_TO_9_ID_NO	"NACW1K3X	STR B Star 5 : id number



STR B - Star 1 to 9 - ID number	STR_B_STARS_1_TO_9_ID_NO	"NACW1K44	STR B Star 6 : id number
STR B - Star 1 to 9 - ID number	STR_B_STARS_1_TO_9_ID_NO	"NACW1K4B	STR B Star 7 : id number
STR B - Star 1 to 9 - ID number	STR_B_STARS_1_TO_9_ID_NO	"NACW1K4I	STR B Star 8 : id number
STR B - Star 1 to 9 - ID number	STR_B_STARS_1_TO_9_ID_NO	"NACW1K4P	STR B Star 9 : id number



Dataset name: ROSETTA SPACECRAFT SOLAR ARRAY & POWER ENGINEERING DATA

Dataset ID: RO-X-HK-3-SOLARARRAY-V1.0

/RO-X-HK-3-SOLARARRAY-V1.0

/DATA

/POWER_DIST_UNIT_PRIME_CURRENT
 /POWER_DIST_UNIT_SECONDARY_VOLTAGE
 /MASTER_BUS_VOLTAGE_CM_A_B
 /SOLAR_ARRAY_DISPL_ERROR
 /SOLAR_ARRAY_MEAS_ANG_POS_DEG
 /SOLAR_ARRAY_MEAS_ANG_POS_RAD
 /SOLAR_ARRAY_MISALIGNMENT
 /SOLAR_ARRAY_INCIDENCE_ANGLE
 /POWER_CONTROL_UNIT_CM_A_B
 /POWER_CONTROL_UNIT_CM_A_CURR

General	Directory name	Parameter ID	Description
Power Distribution unit - Primary Current	POWER_DIST_UNIT_PRIMAR Y_CURRENT	NPWD2260	SS-PDU PRIMARY CURRENT A
Power Distribution unit - Primary Current	POWER_DIST_UNIT_PRIMAR Y_CURRENT	NPWD2920	SS-PDU PRIMARY CURRENT B
Power Distribution unit - Secondary Voltage	POWER_DIST_UNIT_SECONDA RY_VOLTAGE	NPWD2268	SS-PDU SEC VOLTAGE A
Power Distribution unit - Secondary Voltage	POWER_DIST_UNIT_SECONDA RY_VOLTAGE	NPWD2928	SS-PDU SEC VOLTAGE B
Master Bus Voltage - Power Control Unit	MASTER_BUS_VOLTAGE_CM _A_B	NPWD1024	MBUS VOLTAGE - PCU CM-A
Master Bus Voltage - Power Control Unit	MASTER_BUS_VOLTAGE_CM _A_B	NPWD102B	MBUS VOLTAGE - PCU CM-B
Solar Array Displacement Error	SOLAR_ARRAY_DISPL_ERRO R	NACX0017	SADE: Displ Error Y+
Solar Array Displacement Error	SOLAR_ARRAY_DISPL_ERRO R	NACX0016	SADE: Displ Error Y-



Solar Array measured angular position - Degrees	SOLAR_ARRAY_MEAS_ANG_POS_DEG	NACX0021	SADE: Meas Ang Pos Y+
Solar Array measured angular position - Degrees	SOLAR_ARRAY_MEAS_ANG_POS_DEG	NACX0020	SADE: Meas Ang Pos Y-
Solar Array measured angular position	SOLAR_ARRAY_MEAS_ANG_POS_RAD	NACW1307	SADE Measured Ang Pos YM
Solar Array measured angular position	SOLAR_ARRAY_MEAS_ANG_POS_RAD	NACW1306	SADE Measured Ang Pos YP
Solar Array misalignment	SOLAR_ARRAY_MISALIGNMENT	NACX0022	SADE: SA Misalignment
Solar Incidence Angle	SOLAR_ARRAY_INCIDENCE_ANGLE	NAWG0026	YM Solar Incidence Angle
Solar Incidence Angle	SOLAR_ARRAY_INCIDENCE_ANGLE	NAWG0025	YP Solar Incidence Angle
Power Control Unit - Control Module - Voltage	POWER_CONTROL_UNIT_CM_A_B	NPWD1044	CM A AUX SUPP VOLT CM-A
Power Control Unit - Control Module - Voltage	POWER_CONTROL_UNIT_CM_A_B	NPWD104B	CM A AUX SUPP VOLT CM-B
Power Control Unit - Control Module - Current	POWER_CONTROL_UNIT_CM_A_CURR	NPWD1104	CM AUX SUPPLY CUR CM-A
Power Control Unit - Control Module - Volt	POWER_CONTROL_UNIT_CM_A_VOLT	NPWD1704	CM B AUX SUPP VOLT CM-A



Dataset name: ROSETTA SPACECRAFT RF ANTENNA ENGINEERING DATA

Dataset ID: RO-X-HK-3-ANTENNASTATUS-V1.0

/RO-X-HK-3-ANTENNASTATUS-V1.0

/DATA

/TRSP_1_2_RX_BITRATE_SELECTION

/TRSP_1_X_S_BAND_TX_STATUS

/TRSP_2_X_S_BAND_TX_STATUS

/TRSP_1_2_LOCK_STATUS

/X_BAND_TWTA_1_2_STATUS

/S_BAND_TX_1_2_STATUS

/USO_STATUS

/HGA_MGA_X_BAND_STATUS

/TRSP_1_2_S_TX_ON_STATUS

/TRSP_1_2_X_TX_ON_STATUS

General	Directory name	Parameter ID	Description
Transponder 1 & 2 - Receiver Bit rate & selection	TRSP_1_2_RX_BITRATE_SELECTION	NTTD1020	TRSP1 RX Bit Rate
Transponder 1 & 2 - Receiver Bit rate & selection	TRSP_1_2_RX_BITRATE_SELECTION	NTTD102A	TRSP1 RX Selection
Transponder 1 & 2 - Receiver Bit rate & selection	TRSP_1_2_RX_BITRATE_SELECTION	NTTD2020	TRSP2 RX Bit Rate
Transponder 1 & 2 - Receiver Bit rate & selection	TRSP_1_2_RX_BITRATE_SELECTION	NTTD202A	TRSP2 RX Selection
Transponder 1 - X and S band transmitter status	TRSP_1_X_S_BAND_TX_STATUS	NTTD1069	TRSP1 X-TX Status
Transponder 1 - X and S band transmitter status	TRSP_1_X_S_BAND_TX_STATUS	NTTD106A	TRSP1 S-TX Status
Transponder 2 - X and S band transmitter status	TRSP_2_X_S_BAND_TX_STATUS	NTTD2069	TRSP2 X-TX Status
Transponder 2 - X and S band transmitter status	TRSP_2_X_S_BAND_TX_STATUS	NTTD206A	TRSP2 S-TX Status
Transponder 1 & 2 - Lock status	TRSP_1_2_LOCK_STATUS	NTTD1027	TRSP1 SC Lock Status



Transponder 1 & 2 - Lock status	TRSP_1_2_LOCK_STATUS	NTTD2027	TRSP2 SC Lock Status
X-band Antenna - TWTA 1 & 2	X_BAND_TWTA_1_2_STATUS	NTTX4023	TWTA 1 X BAND Antenna
X-band Antenna - TWTA 1 & 2	X_BAND_TWTA_1_2_STATUS	NTTX5023	TWTA 2 X BAND Antenna
S band Antenna - Transmitter 1 & 2	S_BAND_TX_1_2_STATUS	NTTX4011	TX 1 S BAND Antenna
S band Antenna - Transmitter 1 & 2	S_BAND_TX_1_2_STATUS	NTTX5011	TX 2 S BAND Antenna
Ultra Stable Oscillator Status	USO_STATUS	NDMWO20L	USO status
X-band - High Gain Antenna	HGA_MGA_X_BAND_STATUS	NTTX0023	X BAND High GA
X-band - Medium Gain Antenna	HGA_MGA_X_BAND_STATUS	NTTX0022	X BAND Medium GA
Transponder 1 & 2 - S band transmitter ON status	TRSP_1_2_S_TX_ON_STATUS	NTTDX101	TRSP1 S-TX ON/OFF STATUS
Transponder 1 & 2 - S band transmitter ON status	TRSP_1_2_S_TX_ON_STATUS	NTTDX201	TRSP2 S-TX ON/OFF STATUS
Transponder 1 & 2 - X band transmitter ON status	TRSP_1_2_X_TX_ON_STATUS	NTTDX102	TRSP1 X-TX ON/OFF STATUS
Transponder 1 & 2 - X band transmitter ON status	TRSP_1_2_X_TX_ON_STATUS	NTTDX202	TRSP2 X-TX ON/OFF STATUS



**Dataset name: ROSETTA SPACECRAFT THERMAL CONTROL SYSTEM
ENGINEERING DATA**

DatasetID: RO-X-HK-3-TCS-V1.0

/RO-X-HK-3-TCS-V1.0

/DATA

/CONCERT_ANT_TEMP
/GIADA_TEMP
/MIDAS_TEMP
/MIRO_TEMP
/OSIRIS_TEMP
/RF_ANTENNA_TEMP
/ROSINA_TEMP
/RPC_BOOM_TEMP
/RPC_ICA_TEMP
/RPC_IES_TEMP
/SAS_TEMP
/SREM_TEMP
/SSP_ANT_TEMP
/VIRTIS_TEMP

General	Directory Name	Parameter ID	Description
Consert Antenna Temperature	CONCERT_ANT_TEMP	NTSA0259	TCS006 CONAN STP-C36
Consert Antenna Temperature	CONCERT_ANT_TEMP	NTSA0064	TCS007_CONAN_TRP_P-C31
GIADA Temperature	GIADA_TEMP	NTSA0067	TCS012 GIADA TRP P-C34
GIADA Temperature	GIADA_TEMP	NTSA0193	TCS013 GIADA TRP R-C34
MIDAS Temperature	MIDAS_TEMP	NTSA0063	TCS014_MIDAS_TRP_P-C30
MIDAS Temperature	MIDAS_TEMP	NTSA0189	TCS090 MIDAS TRP R-C30
MIRO Temperature	MIRO_TEMP	NTSA0068	TCS015 MIRTE STP-C35
MIRO Temperature	MIRO_TEMP	NTSA0001	TCS016 MIRTE TRP_P-C37
MIRO Temperature	MIRO_TEMP	NTSA0127	TCS017 MIRTE TRP R-C37
MIRO Temperature	MIRO_TEMP	NTSA0194	TCS018 MIROB TRP-C35
OSIRIS Temperature	OSIRIS_TEMP	NTSA0007	TCS024_NAC_STP_P-C44
OSIRIS Temperature	OSIRIS_TEMP	NTSA0008	TCS027 WAC STP P-C45



General	Directory Name	Parameter ID	Description
OSIRIS Temperature	OSIRIS_TEMP	NTSA0009	TCS030_NACRB_TRP_P-C46
OSIRIS Temperature	OSIRIS_TEMP	NTSA0135	TCS031_NACRB_TRP_R-C46
OSIRIS Temperature	OSIRIS_TEMP	NTSA0010	TCS032_WACRB_TRP_P-C47
OSIRIS Temperature	OSIRIS_TEMP	NTSA0136	TCS033_WACRB_TRP_R-C47
OSIRIS Temperature	OSIRIS_TEMP	NTSA0011	TCS034_OSIEL_TRP_P-C48
OSIRIS Temperature	OSIRIS_TEMP	NTSA0137	TCS035_OSIEL_TRP_R-C48
OSIRIS Temperature	OSIRIS_TEMP	NTSA0133	TCS092_NAC_STP_R-C44
OSIRIS Temperature	OSIRIS_TEMP	NTSA0134	TCS093_WAC_STP_R-C45
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0087	TCS120_MGAS_STP-C89
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0030	TCS121_MGAS_TRP_P-C67
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0156	TCS122_MGAS_TRP_R-C67
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0213	TCS123_MGAX_STP-C89
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0031	TCS124_MGAX_TRP_P-C68
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0157	TCS125_MGAX_TRP_R-C68
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0088	TCS126_LGAPZ_STP-C90
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0032	TCS127_LGAPZ_TRP_P-C69
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0158	TCS128_LGAPZ_TRP_R-C69
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0214	TCS129_LGAMZ_STP-C90
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0033	TCS130_LGAMZ_TRP_P-C70
RF Antenna Temperature	RF_ANTENNA_TEMP	NTSA0159	TCS131_LGAMZ_TRP_R-C70
ROSINA Temperature	ROSINA_TEMP	NTSA0012	TCS036_DFMS_TRP_P-C49
ROSINA Temperature	ROSINA_TEMP	NTSA0138	TCS037_DFMS_TRP_R-C49
ROSINA Temperature	ROSINA_TEMP	NTSA0013	TCS039_COPS_TRP_P-C50
ROSINA Temperature	ROSINA_TEMP	NTSA0139	TCS040_COPS_TRP_R-C50

General	Directory Name	Parameter ID	Description
RPC Boom Temperature	RPC_BOOM_TEMP	NTSA0021	TCS058_LAP1_STP-C58
RPC Boom Temperature	RPC_BOOM_TEMP	NTSA0019	TCS059_MIP_STP-C56
RPC Boom Temperature	RPC_BOOM_TEMP	NTSA0020	TCS062_MAGIB_STP-C57
RPC Boom Temperature	RPC_BOOM_TEMP	NTSA0210	TCS096_LAP2_STP-C86
RPC ICA Temperature	RPC_ICA_TEMP	NTSA0084	TCS055_ICA_STP-C86
RPC ICA Temperature	RPC_ICA_TEMP	NTSA0018	TCS056_ICA_TRP_P-C55
RPC ICA Temperature	RPC_ICA_TEMP	NTSA0144	TCS057_ICA_TRP_R-C55
RPC IES Temperature	RPC_IES_TEMP	NTSA0017	TCS053_IES_TRP_P-C54
RPC IES Temperature	RPC_IES_TEMP	NTSA0143	TCS054_IES_TRP_R-C54
Solar Aspect Sensor Temperature	SAS_TEMP	NTSA0119	TCS337_SASPX_STP-C121
Solar Aspect Sensor Temperature	SAS_TEMP	NTSA0245	TCS338_SASPX_TRP-C121
Solar Aspect Sensor Temperature	SAS_TEMP	NTSA0120	TCS339_SASMX_STP-C122
Solar Aspect Sensor Temperature	SAS_TEMP	NTSA0246	TCS340_SASMX_TRP-C122
SREM Temperature	SREM_TEMP	NTSA0085	TCS064_SREM_STP-C87
SREM Temperature	SREM_TEMP	NTSA0022	TCS065_SREM_TRP_P-C59
Surface Science Package (Philae) Antenna Temperature	SSP_ANT_TEMP	NTSA0211	TCS069_ESSAA_STP-C87
Surface Science Package (Philae) Antenna Temperature	SSP_ANT_TEMP	NTSA0024	TCS070_ESSAA_TRP_P-C61
Surface Science Package (Philae) Antenna Temperature	SSP_ANT_TEMP	NTSA0150	TCS071_ESSAA_TRP_R-C61
Surface Science Package (Philae)	SSP_ANT_TEMP	NTSA0086	TCS072_ESSAB_STP-C88

General	Directory Name	Parameter ID	Description
Antenna Temperature			
Surface Science Package (Philae) Antenna Temperature	SSP_ANT_TEMP	NTSA0025	TCS073_ESSAB_TRP_P-C62
Surface Science Package (Philae) Antenna Temperature	SSP_ANT_TEMP	NTSA0151	TCS074_ESSAB_TRP_R-C62
VIRTIS Temperature	VIRTIS_TEMP	NTSA0004	TCS043_VIRTI_TRP_P-C40
VIRTIS Temperature	VIRTIS_TEMP	NTSA0130	TCS044_VIRTI_TRP_R-C40