Rosetta-HK-Review

## Root directory (common to all 11 datasets)

## aareadme.txt

*The data presented in this data set covers the entire Rosetta mission*

*from March* ***2014*** *through to September 2016.*

It should be 2004.

I found it at least strange, that **aareadme.txt** file at the very top of the dataset is a pure template. It has nothing to do with the specific dataset:

*This dataset contains key selected housekeeping parameters from the Rosetta spacecraft subsystems as specified in the DATASET.CAT.*

*The BROWSE data provided are overview plots of selected parameters from the DATA directory...*

It’s very convenient for the documentation but gives you NO CLUE what data to expect. And this is the first document that anybody will open in the dataset.

## index/:

checksum.lbl

checksum.tab

In the **indxinfo.txt** there is a brief mention:

*Other index files can be defined by the data set developer to list*

*products in their data set and to provide valuable information and*

*relate various parameters to their data products. These are*

*individual to each data set.*

It seems like checksum info is not “individual to each data set” but rather a common thing. It probably required a more detailed description in the “indxinfo.txt”: is it md5 or other, how it could be reproduced and compared...

Also in the **indxinfo.txt** there is a minor technical description inconsistency:

*Notes on Using the Index Tables*

*-------------------------------*

*Each index table contains one row (record) for each data product*

*on the volume. The table is formatted so that it can be read directly*

*into many data management systems. All fields are separated by commas*

*and character fields are enclosed in double quotation marks (").*

*Character fields are left justified and numeric fields are right*

*justified. Each record ends with ASCII carriage return and line feed*

*characters. This allows the table to be treated as a* ***fixed length***

***record file*** *on computers that support this file type and as a normal*

*text file on other computers.*

Technically, it’s a “delimited” data type. If you mark coma as a delimiter and quotation mark (“) as text qualifier - then you are OK. But if you try to open the file as a “fixed length record” - you will fail.

## Rummage through the data.

# ro-x-hk-3-tcs-v1.0

***Browse*** directory has a summary graphical files (\*.png) for the whole year of data. But the selection of parameters appeared to be very limited and the logic of their selection is not explained in the documentation.

For example, ro-x-hk-3-tcs-v1.0\browse\rpc\_boom\_temp\_2016.png

The whole *browse* directory has plots only for *rpc\_boom\_temp*. Any explanation why rpc\_boom\_temp? Why other parameters does not have plots? There are 13 other parameters besides rpc\_boom\_temp.

# ro-x-hk-3-antennastatus-v1.0

## browse/

Plots in the browse directory have no labels and units for the ordinate axis (y-axis).

[AntennaStatus dataset has a reasonable explanation in *browinfo.txt* why the selected parameter was chosen and why for only a couple years].

## data/

Data content seems to be too simple. For example, trsp\_1\_2\_rx\_bitrate\_selection was chosen to browse quarterly plots as

*carefully chosen as being of most interest to have as*

*thumbnails to help browse through the data sets and select data and periods*

*of interest.*

But, for example, for Quarter3-2016 for parameters nttd1020 and nttd1020a we have integer value 0 (zero) for ALL time slots; for nttd2020 - value 4 for ALL time slots, for nttd202a - value 1 for ALL time slots.

Two questions:

1. Why all zeros or all ones or all fours have the “most interest” in this dataset?
2. Why there is no explanation of what these 0,1 or 4 means in \*info.txt or \*.lbl files?

The only brief explanation is found at \*.LBL file:

.*"This table gives the time profile of the TRSP1 RX Bit Rate parameter "*

Does the 0 bit rate is normal for the extended time frame? In what units they report bit rate: bps, Mbps, other?

Other examples of data:

hga\_mga\_x\_band\_status: all 1 (ones) for all time slots. LBL explanation: *“This table gives the time profile of the X BAND High GA parameter "*

s\_band\_tx\_1\_2\_status: all 18 (eighteens) for all time slots. LBL explanation: *"This table gives the time profile of the TX 2 S BAND Antenna parameter "*

**More details would be recommended for the description of each data parameter (including units).** Probably the best place - dataset.cat.

# ro-x-hk-3-aocgen-v1.0

## browse/

Plots in the browse directory have no axis-titles and units (especially for the ordinate axis).

## data/

Current\_aoc\_mode, wol\_manager data or label files does not provide the unit of value and valuable description of the data.

# ro-x-hk-3-edac-v1.0

## Root directory.

## catalog/

*dataset.cat* has typo at “Dataset Overview” - “sudirectory”.

## browse/

Plots in the browse directory have no axis-titles and units (especially for the ordinate axis).

The same parameters have different color codes on plots for different quarters. For example, BTSTP: EDAC counter could be a red, green, or blue line on different plots.

# ro-x-hk-3-hgaapm-v1.0

## browse/

Plots in the browse directory have no axis-titles.

Plots for different time frames (years and quarters) but for the same parameters (like APME: Measured Elev, APME: Measured Azi) have different color codes.

## data/

Hga\_a\_disp\_err\_az\_el and hga\_b\_disp\_err\_az\_el used a technical jargon / shortcuts in the label files:

*"This table gives the time profile of the APME B Dispment Error Az parameter "*

The description field has enough space to use plain English full-size words: displacement, azimuth.

Why the absolute angle error and displacement in azimuth elevation measured in radiance, but the actual value of azimuth elevation measured in degree? Should it be in the same unit? For example, label files of hga\_a\_absang\_err\_az\_el and hga\_earth\_az\_elev.

# ro-x-hk-3-imp-v1.0

## browse/

Plots in the browse directory have no axis-titles. The best place for units would be one time in the axis title, rather than in legend for each parameter. For gyro\_cons\_err there are no units at all.

Unit in imp\_rate that happens in /browse plots and original ASCII (/data) and binary (/extras) data [label files] is **Dg/S**. Most likely it’s deg/s (degree per second). It would be appropriate to use a proper spelling of units.

## data/

gyro\_cons\_err label files have no units.

There is a discrepancy in imp\_a/b/c\_gyro and imp\_rate. The imp\_a/b/c\_gyro using **rd/s** unit, but imp\_rate using **Dg/S**. The order of magnitude for imp\_a/b/c\_gyro is 1E-4(rd/s). The order of magnitude for imp\_rate also 1E-4 (Dg/S). There is a big question is it a simple error in one of the units or it’s a bigger question in the improper measurements. Other questions:

1. Why similar physical parameters use different units?
2. Why the spelling of units is inappropriate? [rd/s <-> rad/s and Dg/S <-> deg/s]

# ro-x-hk-3-navcam-v1.0

## data/

Modes of the camera should be explained either in the /catalog/dataset.cat or in label files (description of the table). 1,4,5 has no sense. The explanation should be along with data (but not in the UserGuide only).

# ro-x-hk-3-ocmrcs-v1.0

voldesc.cat

*DESCRIPTION = "This volume contains key parameters*

*from Rosetta's Orbit Control*

*Manouevres and the thruster based*

*Reaction Control Subsystem for*

*for the entire mission, from*

*March 2004 until September 2016."*

## browse/

Plots in the browse directory have no axis-titles. The best place for units would be one time in the axis title, rather than in legend for each parameter.

In rcs\_cum\_thrust\_1\_8, rcs\_cum\_thrust\_9\_12 /browse plots, /data and /extras label files there is unknown unit “**gr**”. Probably should be used “**g**” (gram).

# ro-x-hk-3-rwl-v1.0

## browse/

Plots in the browse directory have no axis-titles. The best place for units would be one time in the axis title, rather than in legend for each parameter.

rwl\_wheel\_direction has no units at all.

## data/

Description of the rwl\_wheel\_direction either in label files or dataset.cat should be more detailed. Even UserGuide does not provide enough information to cope with that parameter. All values from rwl\_wheel\_direction tables have no sense.

# ro-x-hk-3-solararray-v1.0

## browse/

Plots in the browse directory have no axis-titles. The best place for units would be one time in the axis title, rather than in legend for each parameter.

power\_unit\_pri\_curr and power\_unit\_sec\_volt plots are too overlapping. The alternative should be considered.

# ro-x-hk-3-startracker-v1.0

## browse/

Plots in the browse directory have no axis-titles. The best place for units would be one time in the axis title, rather than in legend for each parameter.

Wrong units for angular velocity in /browse plots and original ASCII (/data) and binary (/extras) label files: “**dg/s**”. Should be “**deg/s**”.

Plots in str\_a/b\_ang\_velocity for different time frames (years and quarters) but for the same parameters (like STR A angular velocity X, STR A angular velocity Y, STR A angular velocity Z) have different color codes.

STR A mean background and standard deviation have no units and explanation either in /browse nor /data nor /extras.

Plots str\_a\_b\_track\_stars should not have labels like 1.25 or 2.75 or 3.5 (number of stars). Labels should be reconsidered for integer only numbers.

STR A op modes (description) ??

## data/

Inappropriate unit in str\_a\_b\_integration\_time: “**sec**”. Should be “**s**”.

There is no appropriate explanation for “mean background” and “std dev background” along with the data and no units in the label files for str\_a\_b\_mean\_backgrnd and str\_a\_b\_std\_dev\_backgrnd.

It would be nice to have a table of stars tracker operation modes (str\_a\_b\_mode, str\_a\_current\_op\_mode, str\_b\_current\_op\_mode) along with the data (probably in dataset.cat) rather than UserGuide only. Especially when there are a handful number of such modes.

str\_a\_b\_star\_quality\_star: usage of terms shortcuts should be careful. For example, “STR A/B Star Quality stat parameter” could be considered as “quality status” or “quality statistics”. Description of quality status in the UserGuide:

2264 0 0 MAXSTARS

2264 1 1 LESSMAXGUIDE

2264 2 2 LESSMAXSTARS

does not make any sense.

Description of str\_a\_b\_std\_dev\_backgrnd in label files has error:

*"This table gives the time profile of the STR B BackGrn Stats Dev parameter "*

Should be “**Std**” (Dev).

There is no reasonable explanation for str\_a\_stars\_1\_to\_9\_id\_no or str\_b\_stars\_1\_to\_9\_id\_no could be found anywhere (in /data or /documents).

Label file of str\_a\_stars\_1\_to\_9\_magnitude and str\_b\_stars\_1\_to\_9\_magnitude have an ambiguous unit: “**Mi**”. Is it “apparent magnitude **m**” or is it “absolute magnitude **M**”. The unit should be corrected.