Review report of the Experiment to Archive Interface Control Document (EAICD)

EAICD: XXXXX (e.g. ACP)

Preamble

As an independent reviewer of the Huygens archive, you are asked to read first the Data Archive Plan. This document provides you with an overview of the archiving activities within the Huygens project. It also summarizes the products that will be archived (see the appendixes C to K). Those products have been negotiated with the teams and are listed in the table:

Experiment	**Raw data**	**Calibration information**	**Reduction algorithm**	**Calibrated data**	**High level data**
HASI	X	X		X	X (TBD)
SSP	X	X	X	TBD	
ACP	X	X		X	
GCMS	X	X		X	X (TBD)
DISR	X	X	X		
DWE	X	X	X	X	
DTWG			X		X
HouseKeeping	X	X		X	

TBD: To be defined

Then, you are asked to read the individual Experiment to Archive Interface Control Documents. You are only assigned to review some of these documents, depending on your field of expertise.

The EAICD provides users of each experiment with a detailed description of the product and a description of how it was generated, including data sources and destinations. Also, it is the official interface control document between each team and the archiving authority.

As the EAICD itself will be part of the documentation of each data set, it is one of the entry points for scientists interested in the Huygens data. It is therefore very important that such a document must be clearly written.

The Huygens Data Archive Team (Olivier Witasse, Joe Zender for ESA; Lyle Huber for PDS) has been working with the teams and helped them generating this document, which contains three important parts:

1 Section 2: Overview of process and product generation
2 Section 3: Archive format and content

3 Section 4: Detailed interface specifications

We ask you to answer to the following questions:

Main Comments

The data products that will be archived are not defined, but the basic structure is very clear and coherent.

First topic: Structure and completeness of the EAICD.

Question #1: In your point of view, is each section understandable? Do you miss some important information?

Everything is understandable. A list of subsystems from which HK data MIGHT be archived is given in 2.3.5, but the user is not told what measurements are made by HK instruments within each subsystem.

Question #2: Is the EAICD itself understandable with respect to potential future users (taking into account the long-term preservation of the data - overall coherence of the document)?

Yes. The language and structure are very clear.

Question #3: Is the EAICD coherent with the Data Archive Plan? Check in particular the conformance to the standards (section 6.6) and to the appendixes.

The catalog filenames are not standard (see Fig 19.4 of the PDS standards). Everything else seems fine.

Second topic: Scientific and technical content.

Question #1: Are the scientific objectives clearly and concisely described (in section 2)?

There is a brief mention in Section 1.5 (not 2). It should be clearly stated that the HK data are essential for calibrating the science data and monitoring probe performance. This should be expanded.

Question #2: The processes involved in the data flow from the Huygens probe to the ESA Planetary Science Archive are very important, in order to understand how the data are processed and transformed.

Is it clearly described in the document (section 2)?

Yes, in Table 1. This is the only description of its kind that I have seen in the EAICDs. The steps from the HK instruments to the main Huygens computer to Cassini to JPL-SPOC are not described.

Has the team committed to provide to providing algorithms that will allow long-term use of the data and comparison to future datasets?

These algorithms are the calibration data, so I address it later.

Question #3: Taking into account the reference papers (e.g. the space science review paper), do you think that the data products are clearly identified?

Are they clearly described?
Will these products support the scientific goals?

No. I do not know what actual measurements are made by the HK sensors in each subsystem.

Question #4: Do you think the calibration information is carefully addressed (sections 2 and 3)?

It is briefly discussed in 2.3.3. The EAICD promises to archive calibration information for each data product archived, but doesn't say much about that information.

Question #5: Do you think that the validation of the data is carefully addressed in this document (section 3)?

It is briefly addressed in 3.3

Question #6: Is the geometrical information addressed?

N/A

Question #7: Is the set of documentation (intended to be delivered with the dataset) is complete and sufficient for data calibration and processing, data visualization and analysis?

The documentation listed in 2.3.7 looks good. Can you add a mission timeline that highlights every event that occurs during entry (eg, chute deploy starts, chute deploy completed, jettison of covers, etc). These events may introduce

spurious signals into the science data, so it would be good to have a list of these. Individual instruments may plan to provide a subset of these, but a probe-wide list would be much more useful.

Third topic: Long-term access to the data.

The data will be archived under the directory /DATA. Each team is free to organize the content of this directory. For each data product (e.g. a table, an image, etc..), a label file is provided.

Question #1: Are the selected data structure clear and useful (section 3)?

Yes.

Question #2: The filenaming convention is explained in section 3. Please comment on the specific choices that have been made.

It is logical and clear.

Fourth topic: Data Product Labels

PDS data products labels are required for describing the content and format of each individual data products within a data set. Examples of label are given in section 4 of the EAICD.

Question #1: From the proposed labels (see section 4), is the list of keywords clear and understandable?

The <parameter name> part of this filename is not clear. There is no list of all the parameter names that will be archived.

Question #2: In the proposed table objects, is the description of the columns clear enough? (Column name, text description, unit…)

Units are missing.

Please list here the additional comments you may have on this document, if any.

XXX EAICD	[Minor] List of editorial comment

XXX EAICD	[Major] Comment in section xx

Please list here the additional comments you may have on the Data Archive Plan (D.A.P.), if any.

D.A.P.	Comment in section xx

D.A.P.	Comment in section yy