

## Long, JA (Judy)

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**Subject:** FW: Comments on Packet Structure ICD

-----Original Message-----

**From:** King, KJ (Ken)  
**Sent:** 17 March 2000 15:13  
**To:** Stephan Thuerey (E-mail)  
**Subject:** Comments on Packet Structure ICD

Hi Stephan,

Here are my comments on the draft 0 Packet Structure ICD. I will not point out the missing sections - I assume they will be filled in later, though some of them are relevant to the instruments and therefore this needs to be done soon.

Ken

Page 9 - reference documents  
~~~~~

Can you ensure that any referenced documents are available on DMS. Some of these have been passed out at working group meetings, but this is not the way to distribute documentation.

Section 2 Packet Services:  
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What does S/S stand for?

The FOIRD does not specify the Time Management Service (9) as mandatory for the instruments, instead it identifies the Time Synchronisation Service (10) as used to fulfill the time synchronisation activities. Please clarify which document is correct and update the other.

With the services provided in this table I see no method of executing an instrument function! I see tasks as independent processes in the instrument performing tasks such as housekeeping collection, autonomy monitoring etc. To make a change to the actions of, for example, the housekeeping task we would not expect to stop and restart the task with new parameters, as is implied by the Task Management service, but would send a command to change some parameter used by this task. We had thought to use the Function Management Service(8) to do this. We (the instruments) have produced a note about this, based on the FOIRD, which identifies the Function Management Service as optional for the instruments - see the joint note on instrument commanding concepts - attached.

The FOIRD identifies the Science Data Transfer Service as number 21. This document uses number 20. Which is it?

The FOIRD says the instrument may use the Context Saving Service(22). Is this now excluded or just missed from this document?

Section 3.1  
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The telecommand source packet structure is shown in fig 3.1-1

Section 3.1.1.1  
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If I read appendix 3 correctly, telecommands always have PCAT=1. If so this section should say so.

Section 3.1.1.2  
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It is not clear to me how the Source part of the packet Sequence Count should be used. For example, a command to the AOCS issued from the Mission Time Line could use 001 or 011 couldn't it?

The Mission Time Line is not defined in appendix 5.2

Does the Sequence part have to start from 0 after switch on of the unit?

Section 3.1.2.1  
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The Spare bits are missing from the diagram

Several methods of indicating the contents of a field are used: 'this bit shall be set to zero', (VALUE=0), '000bin'. Please standardise on one method throughout the document.

#### Section 4.1

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Add the PID and PCAT divisions to Figure 4.1-1 to be consistent with figure 3.1-1

Remove the  $0 < N < 255$  from figure 4.1-1 - it is not correct - the maximum length is defined elsewhere.

Why not call the category part of the APID the PCAT field, to be consistent with the TC section?

#### Section 4.1.1.2

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The description of the Source Sequence Count implies that a separate count is kept for each category of packet from the instrument (i.e. TC verification, HSK, Science, memory dumps etc. Is this true?

#### Section 5.1

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This statement implies that the PCAT of a telecommand must be set to 1, as pointed out earlier, or the APID would be different between TC and TC verification packets.

#### Section 5.1.2.1

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You should copy the sections on Telecommand Packet ID: and Packet Sequence Control for Report (1,1) into the part on report (1,2) to be clear what should be included.

I would think that you would want to define the format of the parameters field for each of the possible error codes (apart from number 5). In this way all TC verification error reports would be in a known format.

#### Sections 5.1.2.2 and 5.1.2.3

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These sections need to be provided, as in section 3.1.2.1 we are allowed to request these reports.

#### Section 5.1.2.4

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I would expect that the error codes for TC execution would be different from those for TC Verification.

#### Section 5.3.2.1

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Is the term 'array of records' defined anywhere?

#### Section 5.5.2

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A further definition of the RID ought to be provided. For example it would be useful for each unit to provide the anomaly level in the same place in the parameter field of an anomaly report (5,4). Otherwise is it intended for the instruments to define their own RIDs in their instrument's User Manual?

#### Section 5.6.1.2

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Given the maximum size of a TC packet, it may be worthwhile restricting these commands to act on only one memory area at a time. Unless there are large numbers of small memory areas to be loaded/checked the overhead would not be great and the complexity of dealing with multiple blocks of memory would be avoided.

In the diagram some fields are repeated N times - N is not defined.

Can the Memory ID be omitted if only one memory block is defined, as in section 5.6.1.5?

#### Section 5.6.1.4

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Is a Memory Dump(6,6) report packet generated for each of the N areas defined in the command?

What happens if the area to be dumped is > maximum TM packet size? Is there any convention for how the data should be split between several packets?

The field 'Length' should be defined.

#### Section 5.6.1.5

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The fields 'Start Address' and 'Length' should be defined.

#### Section 5.6.2.1

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The fields 'Start Address', 'Length' and 'Data' should be defined.

#### Section 5.6.2.2

~~~~~  
The fields 'Start Address' and 'Length' should be defined.

#### Section 5.7.1.1

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The first para says a task can be started with or without parameters. The Task ID section says that the presence of parameters are defined by Task ID , Function ID and APID. These two statements are in contradiction.

As explained above, I think the Function ID is a misnomer.

The last sentence says the request will be ignored if the task is 'running'. The first paragraph says that the task will accept the parameters if it is running. These two statements are contradictory.

#### Section 5.7.1.2

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Why is a Function ID required to stop a task. Which function ID should be used?

#### Section 5.9.1.2

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Where is the 'synchronisation function' defined?

#### Section 2.8.4

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should be section 5.9.1.4

replace CDMU by CDMS

where is the 'time verification procedure' defined?

#### Section 2.8.5

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should be section 5.9.1.5

#### Sections 5.9.2.1 and 5.9.2.2

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The time code format is specified in appendix 6, not 5.

#### Section 5.14

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As the instrument needs to implement this service, it should be defined as soon as possible.

#### Section 5.17

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How do we implement the 'are you alive' watchdog function. Should a TC packet be defined in this section for this function?

#### Appendix 3

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In the User ID table:

1. Is DMS the same as CDMS?
2. What is OBCP?
3. Is EPS the same as PCS (See IID-part A)?
4. What is TCS?
5. What is TTC?
6. What is OCC?

We need more APIDs defined for ground testing purposes (e.g. for test equipment)

User ID 127 must be reserved for idle packets and packet category 15 is also used for idle packets.

#### Appendix 4

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I note that the algorithm given has no guarantee of performance for blocks of data longer than 4096 bits. Given the maximum TM packet length shouldn't we have an algorithm that operates up to this length?

#### Appendix 5

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AOCS is called the ACMS in the IID -Part A  
PCAT should be defined  
SSMM is called SSR in the IID -Part A



Commanding Concepts  
draft 1.pd...

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