

**FIRST/Planck Project**

date	reference	SCI-PT/	page	1/2
meeting date	3-11-2000	meeting place	LAL, Orsay	+ Attachments, total: 27 pages
chairman	S. Murray	Steph Turve		
participants	see below	copy	T.P., P.E., A.H., F.W. J. Dobsonworth.	
subject	5th Data Management WG meeting, FIRST/Planck			

description	action	due date
<u>Participants</u>		
Name	Institute / Company	
Albert Naber	SRON (HIFI)	analy
Luc DUBBELDAM	SRON HIFI	
Jacques CHARRA	IAS HFI	James Charra
CHRIS BUTLER	ITESRE/CNR LFI	C. Butler
JEAN-LUC BENEY	LAL HFI	[Signature]
PANCHI GÓMEZ	IAC LFI, PACS	
JOSE M. KELLERSJ	IAC LFI, PACS	
OTTO H. BAUER	MPE (PACS)	[Signature]
RENATO ORFÈ	IFSI-CNR DPU/IC FIRST	
Ken KING	RAL (SPIRE)	
DAVE PARKER	RAL Electronics Group (CDMS SW)	
MAURIZIO MICCOLI	LABEN LFI	
CARLO PONZONI	LABEN LFI	
PATRICK STASSI	ISN HFI	

description	action	due date
<u>Agenda</u> : see Attachment 1		
<u>Agenda items and conclusions</u> : see Attachment 2		
<u>Action Items</u>		
<u>A11</u> , LFI, IFSI, due: 13-11-00 LFI, IFSI to define the layout of the data bus/sync-connector.		
<u>A12</u> , PACS, due: 21-11-00 EGSE-WG (represented by PACS) to provide EGSE-Router-to-CDMS Simulator Requirements Spec.		
<u>A13</u> , LFI, HFI, due: 10-11-2000: LFI, HFI to provide new text for 4.1.4 (plus 4.3.x, if applicable), in order to specify the I/F of the CDMU-Sim. to external time (1 sec-"pulse"; 137 kHz-signal, time- information, etc.)		

description	action	due date
<p><u>A14</u>, all groups, due 10-11-00:            Define individual requirements on deliverable HW, SW, related to an ITT, incl. documentation, and (post delivery-) support and maintenance.</p>		
<p>ESA-comment to e-mail, D. Daniel, 29-10-00 (in Attachment 4):</p> <ul style="list-style-type: none"> <li>- ESA is starting the development of a 1553-testbed but it will not be available before mid-2007, and will not be used for a CDMU-Sim-acceptance test.</li> <li>- For the course of actions (point 1 to 6, 8), ESA has no further comments except stressing that the CDMU-Sim-development is entirely instrument team responsibility.</li> </ul>		
<p>Next meeting: Thur, 23-11-2000, at <u>RAU</u>.</p>		

**Definition of requirements****- Technical issues**

1. Ken King (25-10-00)
2. Renato Orfei (26-10-00)
3. Chris Butler (26-10-00)
4. Jean-Luc Béney (26-10-00, 31-10-00, 1-11-00)
5. Jose Herreros (30-10-00)
6. Stefan Thürey (1-11-00)

**- Planning issues**

Otto Bauer (29-10-00)

*Attach ment 4*



## 5th F/P Data Management WG Meeting

- **Agenda:**

- 1) Connector choice for the CDMS bus interface. (AI 2 closure last meeting).
- 2) EGSE configurations and EGSE-APID needs ( AI 1, last meeting , all instrument teams)
- 3) Redundancy scenario for the CDMS high stability clock.
- 4) Definition of requirements for the CDMS simulator.
- 5) Inventarisation of possible bidders.
- 6) Instrument switch-on scenario
- 7) Patching telecommand rate and command queuing (ASW and PROM SW implications)
- 8) A.O.B., next meeting.



**1) Connector choice for the CDMS bus interface. (AI 2 closure last meeting).**

ESA points out that the requirement on separation of redundant signals applies also for the data bus case, i.e. 2+2 connectors for a redundant DPU/ICU. ESA-recommendation: 4x D-sub, 9pin, or equivalent instrument groups to confirm. See also A11

**2) EGSE configurations and EGSE-APID needs (AI 1, last meeting, all instrument teams)**

The EGSE-range (2016 to 2046) is split up the following way:

HIFI	: 2016 - 2025	HFI	: 2016 - 2025	
PACS	: 2026 - 2035	LFI	: 2026 - 2035	
SPIRE	: 2036 - 2045	SCE	: 2036 - 2045	AI is closed

**3) Redundancy scenario for the CDMS high stability clock.**

LFI requires a primary and redundant 137 kHz clock signal to be delivered to each active unit (OR-ing inside box).

Conclusion: 4 D-sub-connectors, all with the same layout, for data bus and sync-signal, for all FIP instruments.

IFS1 (R.O.) to define connector layout.

Boxes: female-connectors (male for power, see Attachment 3)

A11

Attachment 2.1  
Page 5



**4) Definition of requirements for the CDMS simulator**

Summary of comments, compiled by SRON: Attachment 4,  
Attachment 4 is annotated, for AI's see page 2 ff.

**5) Inventarisation of possible bidders.**

to be covered later

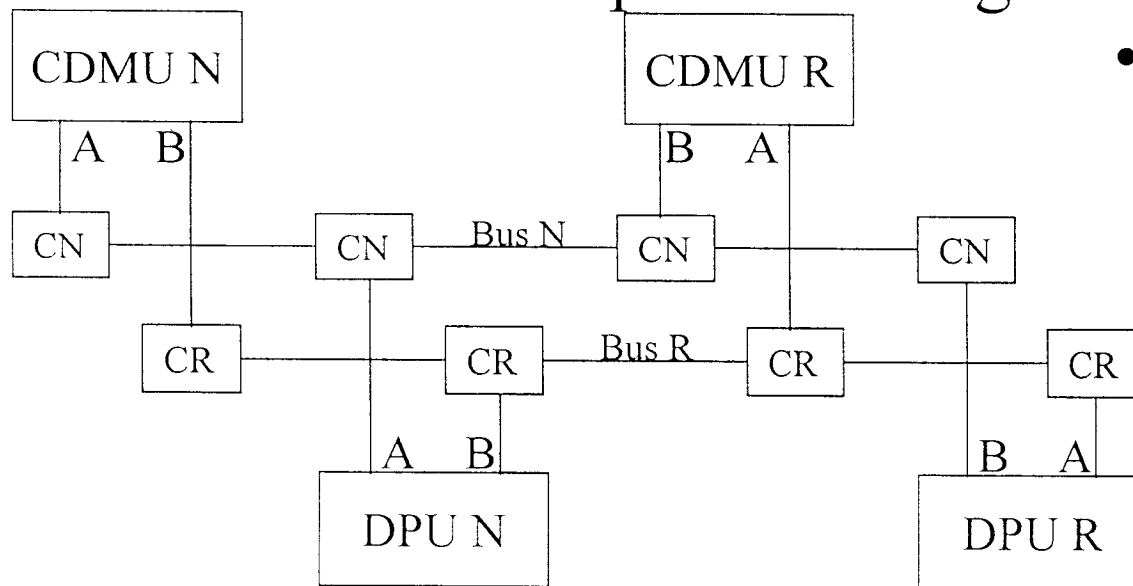
6), 7) to be covered later

8) AOB: next meeting 23-11-2000, RAL,  
Subjects: Procurement spec. update, bidders, ---

## Clock & Connector Interface

- Clock assumptions :
  - One nominal clock and one redundant clock @ 131072 Hz
  - Isolated interface through transformers (as 1553) ?
    - Used by LOBT and DC-DC converter synchronisation (shall be isolated)
  - Installed on the 1553 bus connector

- Connection assumptions : Long stub coupling



- <sup>9s (box)</sup> ~~DAM-15~~ <sub>F</sub> with
  - 1553 ~~A~~ bus
  - ~~1553 B bus~~
  - ~~1553 Address~~
  - 131 kHz clock
  - 75% shield coverage (MIL-STD-1553 B)

At Had men + 5 (pages)



## CDMS simulator requirements 1/2

- Section 4.1.3
  - time stamping the 1553 messages
    - ACE function : internal timer with resolution of 1 micro-second
- Section 4.1.4
  - OBT management (CDMS) from « Instrument point of view »
    - one counter of 6 bytes which count on a clock of  $(131072 \text{ Hz})/2$
    - the same clock is forwarded to the instruments in order to manage their own LOBT
    - LOBTs set right to the OBT through 1553 bus one time/second at the beginning of the next frame.
      - By S/W procedure integrated in the TLP; easy if the frame or the sub-frame is synchronised/trigged on the OBT clock sub-frequency (1 or  $2^6$  Hz).
  - TLP requirements
    - 4100 (PS-ICD p136) : SDBP synchronized with the central OBT

## CDMS simulator requirements 2/2

- CDMS simulator time requirements
    - to test/check/accept the DPU interface (clock of 131072 Hz)
    - to test/check/accept the setting right to the OBT
  - CDMS simulator time requirements (for HFI)
    - to synchronize calibration data with science data with an accuracy of 1ms
  - CDMS simulator time solution (*proposal*)
    - timing board :
      - which maintains a GPS time (automatic synchronisation with external GPS)
      - which provides a synchronous clock close to 131072 kHz
      - which provides interrupt at frame or sub-frame generation.
  - Section 4.2
    - As developper of the OBSW, we would rather specifiing the board type (BU-65549).
-

**From:** Albert Naber  
**To:** beney@lal.in2p3.fr; butler@tesre.bo.cnr.it; charra@ias.u-psud.fr; Dubbeldam, Luc; fgr@iac.es; jhl@iac.es; King, KJ (Ken); ohb@mpe.mpg.de; orfei@ifs.rm.cnr.it; Sidher, SD (Sunil); sthuerey@estec.esa.nl  
**Date:** 31-10-00 15:27:50  
**Subject:** RE: CDMS Simulator requirements (Ken)

Dear colleagues,

Below you find the response (*in italic*) to the comments from Ken King on the CDMS Simulator requirements spec.

Comments on FIRST/Planck CDMS Simulator Requirements, Issue 0.1 (DRAFT) 19 October 2000 by Ken King

### Section 3

I would prefer to refer to the 'router' software as the TM/TC Interface throughout the document. The EGSE Router is a possible implementation that we are evaluating, and may use.

→ AI 2

- OK see my e-mail from 25-10-00.

### Section 4.1.1

The PS-ICD Appendix 9 has a requirement for the protocol to be able to transfer at least 16 TC packets per second. This would be useful to upload memory patches. So this should be specified in table 4.1.1

- This is already in the document as a note below table 4.1.1.

The table will be extended with a third column called Memory load, including: 20 TC, 0 TM, 2 asynchr. short TC, TBD asynchr. short TM.

OK  
 Currently no need identified, TM-Events will be deleted TBC, 20-11-00

What are TC event packets? Does this refer to the Asynchronous short TC packets? If so, do we need these for the instrument operation?

- Tekst will be changed into: asynchr. packets.  
 If we are not sure, then they should be in the document.

### Section 4.1.2

I would like the additional functionality to generate a TC packet directly from the keyboard, as well as a file.

- Why? Edit the contents of a file and then send the file over the bus should be sufficient.

By 'reading application data from a file' do you wish to generate command packets from a list of mnemonics + parameters or would a text file containing a list of hex numbers to be embedded in a packet be adequate?

- Those files should contain a list of hex numbers.  
 All other features should be done via SCOS

reconsidered, for stand-alone operations sufficient?

I would like the additional functionality to:  
 display the contents of a TM packet, in hex  
 store TM packets to file  
 retrieve and send TM packets from file to the TM/TC interface

- Only the last point is new and will be implemented in 4.1.1,

the others are already in 4.1.3.

- The bulit text in 4.1.2 will be changed into:
  - . Store TC packets application data (hex format) into files
  - . Edit stored TC packets application data
  - . Generate TC packets by reading application data (in hex format) from a file and add relevant header and checksum fields.
  - . Display received TM packets (hex format) and analyse TLP requirements, at least length and checksum.

#### Section 4.1.3

Which 1553 messages are to be archived? As I understand it the transfer protocol will split a packet into a number of data messages to be sent over the 1553 bus. In order to achieve this the 1553 interface will handle many control messages as well as the data. Are these control messages to be archived also?

- For troubleshooting it is necessary to have all the information available and to see on the display all mesages (in both directions) in chronological order. ok

What is the reasoning for time stamping messages with a resolution of 1 second? I would have thought it necessary to time stamp message with a sufficiently high resolution to be able to identify the order in which the messages were send over the bus. This would be in the order of <1ms.

- You are right, the smallest messages are 150us long , so a time stamp resolution should be in that order . The most important for troubleshooting however is that the message transfer is chronologically presented on the display. ok

time resolution:  
recommendation:  
1ms

What do you mean by the EGSE system time? Is this the time format displayed by the computer on which the CDMS simulator software runs?

- The time mentioned 4.1.4. The source can be the PC time (should be sufficient for HIFI) LFI and HFI have to provide there requirements on this.  
What are the thoughts in the EGSE working group about time information during tests?

#### Section 4.1.4

The Central Time Reference is a time 6 byte time field incrementing at a fast rate (1MHz?). Do you want a pulse from the CDMS Simulator at this rate? or would a pulse once per second at the time of transition from 1 second to the next be adequate?

- For HIFI we do not need this pulse.  
I had a 1 Hz pulse in mind , issued at the beginning of every second.  
Other instrument teams (HFI and LFI?) should come with a proposal how to handle timing requirements between instrument and test equipment.

no 1sec-pulse  
from the  
CDMU-Sim.

How will the time information get to other applications? Do you envisage the CDMS simulator acting as a time server to the rest of the EGSE?

- Who has an idea for this?  
The time from the PC, reformatted for the CDMS, could be used.

↳ A13

#### Section 4.1.5

I think we may need at least Fault Detection for operating the instruments (we would then get an indication of the correct transfer of packets).

- Error reporting on bus failures as mentioned in 3.5.2.2 of the Packet Structure ICD, Appendix 9. But not the there mentioned automatic bus switch over. ✓

ok

If we intend the acceptance test of this simulator to be approved by ESA, then it should implement the whole protocol, irrespective of whether the function is used by during ILT. Discuss!!

Addition to 4.1.1:

CDMU-Sim. shall be capable to generate "Faulty, incorrect" Packets.

- OK., should be discussed

Section 4.2

~~~~~  
This hardware need to be further specified (possibly differently for each instrument?) e.g. is the PC in a desktop or 19" rack form? Is there additional, test, hardware needed to setup and test the simulator?

To be added:

- Desktop or rack-mount and the number of units can be in the ITT and need not to be implemented in this document.

Preferred bus I/F-board:

The hardware should include the 155B bus link hardware (long stub transformers etc)

BU-65549 M1-300

- Can be defined in the ITT.

A14

The Router software is not yet accepted.

- See my e-mail from 25-10-00

Additional Functions:

~~~~~  
The simulator will be used to test the CDMS-DPU/ICU interface at the PUS level. These tests will require the ability to send malformed TC packets to the instrument (to check if it rejects them). If SCOS2000 cannot do this, the simulator (or another piece of software) must be able to do it.

- What do you mean by malformed? (with errors) spec. to be updated. See also the next point.

Similarly, can SCOS2000 identify the problem with a malformed TM packet? If not the simulator (or another piece of software) should be able to display the PUS structure of the packet and analyse its conformity to the standard.

- I would like to reduce the functions of the simulator to what is defined in annex 9. All other functions should be done somewhere else.

Additional Specification

~~~~~  
Do we need to add sections describing/requesting the following?:

1. The number of units to be delivered, where to, and the dates required.
2. Each unit should be delivered with test equipment to allow its installation and test at the site of delivery
3. Each unit should be accompanied by documentation which should include as a minimum: design docs; test plan; test reports; programmers's guide; user manual.
4. Each unit should be delivered with all code (in source form) necessary to build and test the system
5. Execution of a full acceptance test (TBS by ESA) of the high -level protocol
6. Support to the installation and acceptance test of the system (at 5 European sites)

see A14

7. Support to maintenance of the software until the end of 2004

- *The above can be included in the ITT itself.*

*To my opinion the commercial bidders will not agree with point 4.*

*Another point: who pays when the specification of the Packet Structure ICD changes and we need an update in the Simulator s/w.*

*Kind regards,  
Albert Naber*

**CC:** Aarts, Henri; Jonge, Albrecht de; Leeuwen, Wim van; Linden, Rien van der;  
Luinge, Willem; Parker, DJ (Dave) ; Payne, J (Jeff) ; Wafelbakker, Kees

## EGSE router clients interface specification

This section gives the definition of the router interface that enables the clients to receive and/or send packets. The required C functions given below will have to be contained in a .dll (NT) or .so (Unix) library. Exchanging the library will result in a different implementation.

```
typedef unsigned char byte ;
typedef void EGSEPRScallback ( byte * ) ;
```

```
int EGSEPRSregister ( char * name ) ;
    Register the client with the PRS.
    name          a unique string to identify the client in the PRS.
    return        a positive integer to indicate succes, to be used as a token to identify
                  the link to the PRS in subsequent calls to the PRS.
                  a negative value to indicate failure
```

```
int EGSEPRSUnregister ( int id ) ;
    Unregister the client.
    id            must be the return value from a succesfull EGSEPRSregister call
    returns      zero for success, negative error number for failure
```

```
int EGSEPRSreceive ( int id, int apid, int tm, EGSEPRScallback * callback ) ;
    Requests that the PRS call function callback() for the given packet type arriving at the
    PRS.
    id            must be the return value from a succesfull EGSEPRSregister call
    tm           nonzero means TM packets, zero means TC packets
    apid         The APID for packets to be forwarded
    callback     points to the fuction to be called. A zero pointer revokes an earlier
                  EGSEPRSreceive call for the packet type.
    returns      zero for success, negative error number for failure
```

Examples:

```
EGSEPRSreceive ( xxid, 77, 1, do_77 )
    Function do_77 will be called to handle all incoming TM packets with
    apid 77
```

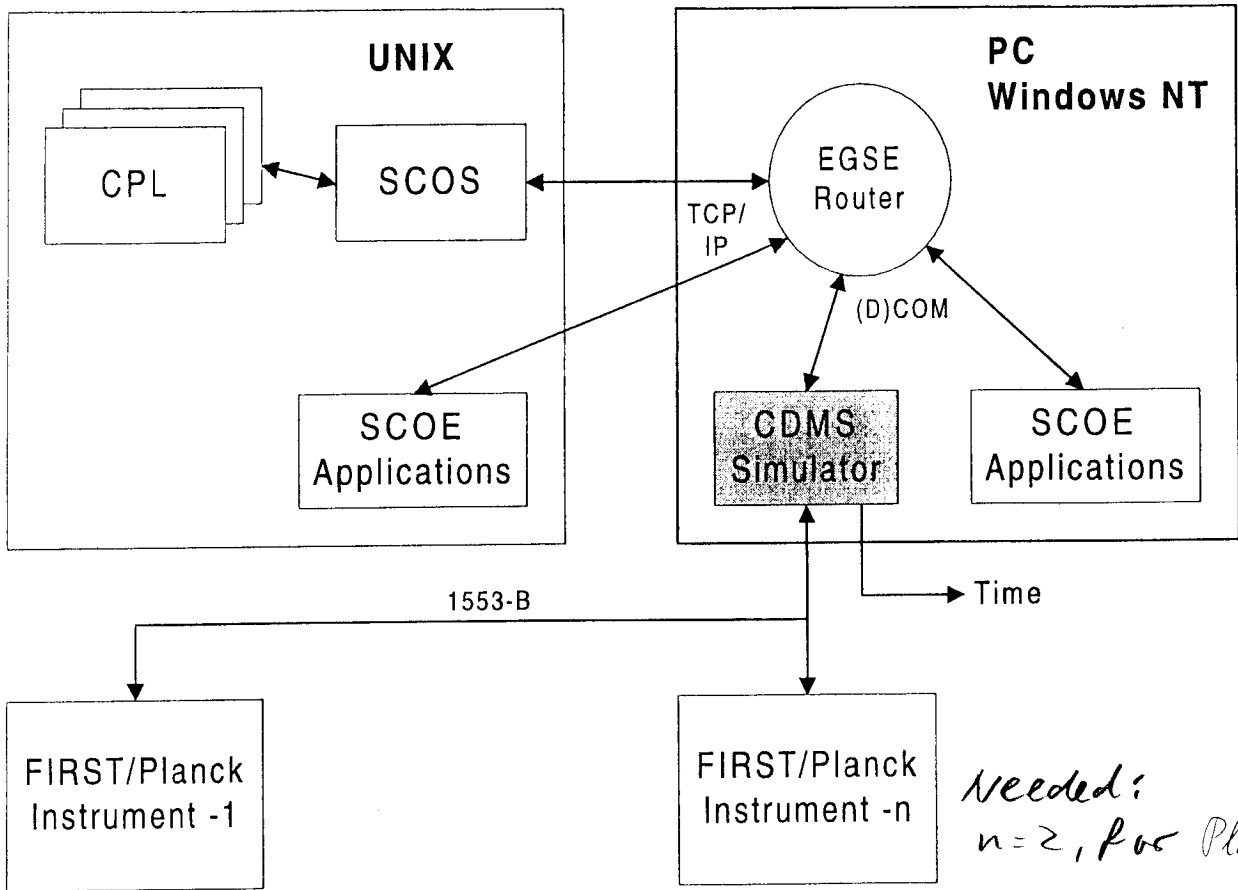
```
EGSEPRSreceive ( xxid, 22, 0, 0 )
    Request that TC packets with APID 77 will no longer be forwarded to
    this application through the link with id xxid
```

```
int EGSEPRScsend ( int id, byte * packet ) ;
    Send a packet through the PRS system. Packet will be forwarded to all clients having
    given a EGSEPRSreceive call for this TM/TC APID
    id            must be the return value from a succesfull EGSEPRSregister call
    packet       a packet according to PUS standard. Implicitly contains tm/tc flag and
                  APID.
    returns      zero for success, negative error number for failure
```

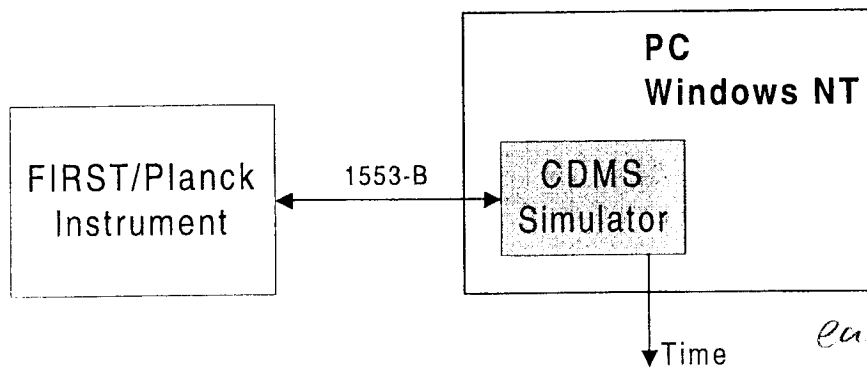
Failure numbers

```
-1          Cannot reach PRS system
-2          Duplicate name in EGSEPRSregister
-3          Illegal link id
-4          Already callback requested -- use EGSEPRSreceive ( x, y, z, 0 ) first
```

# Instrument EGSE: ILT Configuration



*Needed:  
n=2, for Planck*



*Stand -  
alone  
configuration  
for  
early tests*

*updated diagram,  
as presented 2-11-2000*



**From:** Albert Naber  
**To:** beney@lal.in2p3.fr; butler@tesre.bo.cnr.it; charra@ias.u-psud.fr; Dubbeldam, Luc; fgr@iac.es; jhl@iac.es; k.j.king@rl.ac.uk; ohb@mpe.mpg.de; Orfei, Renato; S.D.Sidher@rl.ac.uk; sthuerey@estec.esa.nl  
**Date:** 31-10-00 11:33:43  
**Subject:** Re: R: CDMS Simulator requirements (Renato)

Hi Renato,

For the additional specification I refer to my answer to Ken, which will come later to-day.

For the other comments the following.

I agree with your points 1, 2 and 5. This will be changed in the document.

Point 3 is more an action for ESA and should be discussed during the meeting.

Point 5:

The first part, "To implement the bus controller function according to MIL-STD-1553B", will be included in the document.

The second part about the table should be discussed, as Ken asked to have it changed.

See my comments to him.

Kind regards,  
 Albert Naber

>>> "Renato Orfei" <orfei@ifs.rm.cnr.it> 26-10-00 12:40:06 >>>

Hi All,

please find in the following our comments to the draft of the CDMS requirements.

To begin with I strongly support the needed additional requirements introduced by Ken and here copied for everybody convenience:

#### Additional Specification

~~~~~  
 Do we need to add sections describing/requesting the following?:

1. The number of units to be delivered, where to, and the dates required.
2. Each unit should be delivered with test equipment to allow its installation and test at the site of delivery
3. Each unit should be accompanied by documentation which should include as a minimum: design docs; test plan; test reports; programmers's guide; user manual.
4. Each unit should be delivered with all code (in source form) necessary to build and test the system
5. Execution of a full acceptance test (TBS by ESA) of the high -level protocol
6. Support to the installation and acceptance test of the system (at 5 European sites)
7. Support to maintenance of the software until the end of 2004

*ESA: acceptance test specified by instrument teams; procedure and test approved by ESA.*

.....

Other comments follow:

1. in page 4 the second sentence should be expanded "The CDMS Simulator shall be used for instrument level tests and DPU/ICU subsystem tests." This expansion is needed in the line of what was presented in the last FIRST On Board Software Common Working Group: i.e. we need the EGSE to test the

*ok (A.N.)*

transfer layer protocol and our instrument software.

2.

*ok (A.N.)*

in page 4 in the 3rd sentence I would rather put instead of "For low level testing.." "For the interface testing..".

3.

in page 5, the AD-01 document should be revised and the appropriate issue should be referred to, because the ASTRIUM document clearly shows that there are some inconsistencies to be solved (e.g. pag 15 where scenario C can not be met, etc.).

*ESA:  
No update of  
ASTRIUM TN foreseen  
(no's understanding,  
no problem)*

4.

in page 6 again I would rather put instead of "For low level testing.." "For the interface testing.." and we would prefer instead of "(like electrical interfaces.." "(the physical layer and the data link layer..)" as they are now called.

*ok*

5.

in page 7 section 4.1.1: The first function to be fulfilled by the CDMS is to implement the Bus Controller function according to MIL STD 1553B. Once in the last sentence of the paragraph the appendix 9 of AD-01 is quoted it is useless (and "dangerous") to put the table. The general requirements of the transfer layer are in page 134 chapter 4 of PS-ICD.

*ok (A.N.)*

Ciao

-----

Renato Orfei

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> -----Messaggio originale-----

> Da: Albert Naber [<mailto:A.P.Naber@sron.nl>]

> Inviato: 19 October 2000 16:28

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> Cc: Rien van der Linden

> Oggetto: CDMS Simulator requirements

>

>

> Dear all,

>

> Attached you find the draft version of the requirements

> specification for the CDMS simulator (which I promised in the

> e-mail from 12 October).

> Feel free to send comments before the next meeting, so that we

> can finish this part of the central procurement in Orsay.

>

> Kind regards,

> Albert Naber

>

>

>

>

**CC:** Aarts, Henri; Anna, Di\_Giorgio.; Claudio, Codella.; Erina, Pizzi.; Jonge, Albrecht de; Leeuwen, Wim van; Linden, Rien van der; Luinge, Willem; Milena, Benedettini.; Riccardo, Cerulli\_Irelli.; Sergio, Molinari.; Stefano, Pezzuto.; Wafelbakker, Kees

**From:** Albert Naber  
**To:** beney@lal.in2p3.fr; Butler, Chris; charra@ias.u-psud.fr; Dubbeldam, Luc; Gomez, Panchi; jhl@iac.es; k.j.king@rl.ac.uk; ohb@mpe.mpg.de; orfei@ifs.rm.cnr.it; S.D.Sidher@rl.ac.uk; sthuerey@estec.esa.nl  
**Date:** 31-10-00 10:23:14  
**Subject:** Re: FIRST/Planck CDMS Spec (Chris)

Hi Chris,

Below the comments to your remarks.

Sec. 4.3.1

The question was one or more IT's. I don't think that there is a great difference between two or four, so *ok* we will ask for four.

The text will be changed as follows:

The CDMS simulator shall interface with a maximum of four RT's.

Sec. 4.1.5

We can monitor the traffic on the bus.

By sending test commands (type 17) a hang-up can be detected.

*ok, more monitoring is recommended.*

Sec. 4.1.4

Can you make a proposal for a specification of the interface and use of an external clock.

See also the e-mail from Jean-Luc.

I think that only HFI and LFI need this.

*see; A13*

Sec. 4.1.3

Agreed (also Ken King made this remark).

For the TMTC packet monitoring one second should be enough.

I will come back on this issue in my comments to Ken King.

*→ about 1ms*

Kind regards,  
 Albert Naber

>>> "Chris Butler" <[butler@tesre.bo.cnr.it](mailto:butler@tesre.bo.cnr.it)> 26-10-00 15:22:21 >>>

Dear Albert,

Thankyou for producing the spec!

These are my general comments:-

Sec. 4.3.1 Albert - The number of "live RT's" should be two - HFI may well (or LFI) need to operate also the sorption cooler. We need also to consider that including DPU Redundant and Sorption Cooler Redundant the number of physical connections could rise to four on the bus

Sec. 4.1.5 How do we recognise that the CDMS S/W Simulator S/W has hung up?

Sec. 4.21.4 We probably need to run using an external clock.

Sec. 4.1.3. I think we need a higher resolution than 1s. for time stamps as we need to be able to check basic instrument performance over the bus. We also need to have somewhere the functions for stressing the activity over the bus to demonstrate our margins and reliability.

Kind regards, Chris Butler

**From:** Albert Naber  
**To:** Béney, Jean-Luc; butler@tesre.bo.cnr.it; charra@ias.u-psud.fr; Dubbeldam, Luc; fgr@iac.es; jhl@iac.es; K.J.King@rl.ac.uk; ohb@mpe.mpg.de; orfei@ifsi.rm.cnr.it; S.D.Sidher@rl.ac.uk; sthuerey@estec.esa.nl  
**Date:** 31-10-00 10:45:54  
**Subject:** Re: CDMS Simulator requirements (Jean-Luc)

Hi Jean-Luc,

Can you present at the meeting a proposal for the interface and use of the high stability clock. It is my feeling that only LFI and HFI need this function. At least HIFI does not need such a clock.

Kind regards,  
 Albert Naber

>>> Jean-Luc Béney <beney@lal.in2p3.fr> 26-10-00 16:54:08 >>>  
 Hello Albert,

Thanks for the doc and find my comments about the last mails exchanged :

1- The CDMS meeting will take place at LAL not in the room number 166 (as foreseen) but in the "blue" room just near the "Amphiteatre Leymann".

2- I am agree with Chris to discuss the following points :

- 1). Patching telecommand rate and command queuing (ASW and PROM SW implications)
  - 2). Instrument switch-on scenario
  - 3). Redundancy scenario for the CDMS high stability clock
  - 4). Connector choice for the CDMS bus interface. (AI 2 closure last meeting).
- because from my point of view, the interface with the S/C is not still frozen.

3- The new agenda could be :

- 1) Connector choice for the CDMS bus interface. (AI 2 closure last meeting).
- 2) Redundancy scenario for the CDMS high stability clock
- 3) Definition of requirements for the CDMS simulator.
- 4) Inventarisation of possible bidders.
- 5) Instrument switch-on scenario
- 6) Patching telecommand rate and command queuing (ASW and PROM SW implications)

Point 1 and 2 seem to have an impact on point 3 which is the major issue.

I am agree with Albert : no bidder should attend this meeting.

4- Comments on the "CDMS Simulator Requirements":

I am agree with most of the comments made by Ken and underlined by Renato. I am adding the following ones:

- Do we foreseen a 1553 hardware which allows to stress the bus and therefore to stress the DPU I/F ?
- Section 4.1.3 : except for TC/TM packets, this section describes the use of a bus analyser which already exist as a standard equipment.
- Section 4.1.4 is an important point, we need of a time TBD inside the CDMS simulator to synchronize the frame (PS-ICD-p136-4100), to provide the time synchronisation (PS-ICD-p144) and to allow (for HFI) data synchronisation with external equipment during calibration. For this last item, we thought to a GPS board.
- Section 4.3.1
- The requirement for HFI is at least 2 RTs, may be more in function of the redundancy test.
- Test delivery to be foreseen (example of a RT).

*Recommended: SU-pack with DDC-117 board.*

Kind Regards. Jean-Luc.

**From:** Jean-Luc Béney <beney@lal.in2p3.fr>  
**To:** <Stefan.Thuerey@esa.int>  
**Date:** 1-11-00 14:28:09  
**Subject:** Re: Data Management WG Meeting / Re: R: CDMS Simulator requirements (Renato)

Hello Stephane,

Just a question about the possible transfert and maintenance of the CDMS simulator SW to the Prime :

Could you give us a realistic scenario ? Or do you think that the maintenance of the CDMS simulator SW should be separated from the Prime SW development (the upgrade of the requirement change would be taken in account in both side)?

Best regards.  
 Jean-Luc.

Stefan.Thuerey@esa.int a écrit :

> Stefan Thuerey@ESA  
 > 11/01/2000 11:30

>

> Dear All,

> This is to confirm that the 5th meeting of the F/P Data Management WG is  
 > going to take place at LAL, blue room next to Amphitheatre Leyman, on Friday,  
 > 3-11-2000, starting at 9:00 hrs.

>

> For the agenda I would also like to refer to J-L Beney's suggestion:

>

- > 1) Connector choice for the CDMS bus interface. (AI 2 closure last meeting).
- > 2) Redundancy scenario for the CDMS high stability clock.
- > 3) Definition of requirements for the CDMS simulator.
- > 4) Inventarisation of possible bidders.
- > 5) Instrument switch-on scenario.
- > 6) Patching telecommand rate and command queuing (ASW and PROM SW implications).

>

> I have meanwhile screened and reviewed all inputs related to A. Nabers CDMS simulator spec. and other issues, and I will comment on them during the meeting. Most of the work and the comments look very good and a consensus on the approach for the EGSE Data Bus I/F seems to be possible.

>

> Two points for the Data Bus I/F Unit -/ CDMS Simulator -specification right now in order to facilitate further preparation:

>

- > 1) para. 4.1.3: As the CDMU simulator is the only means / unit for testing and verifying, if the data bus I/F and all protocol layers are working properly, it is important to make related parameters visible in realtime. This is especially important during early phases of DPU or instrument integration and testing, and later in the ILT program to verify (immediately) that the data bus I/F on both sides (instrument, EGSE) has been set up correctly and is working nominally, or reacts in an expected way to test cases.

>

> The text of 4.1.3 can be interpreted as being related to post-facto display of packet and message traffic only. In my view that is not sufficient, RT and Data I/F Simulator status and traffic status should be displayed online.

>

- > 2) para. 4.3: A paragraph 4.3.3, User/Operator I/F, should be added. On top of requirements for displaying TMTC in hex format one should say how the

*ESA: No transfer of the CDMS simulator to the prime. The instrument-EGSE (incl. CDMS-sim.) is and remains instrument responsibility, ESA makes sure that the PS-ICD is stable.*

> CDMU Simulator can be configured and monitored "manually", and how its  
> display should look ( minimum requirements). This applies mainly for local/  
> stand-alone operations.  
>  
> If it is intended to control the CDMU Simulator from some higher functional  
> layer of the EGSE and if (im-)proper operation of the I/F shall be indicated  
> on some other terminal of an instrument EGSE, it is not sufficient to route  
> TM/TC packets or data fields across the EGSE Router I/F (para. 4.3.2). There  
> has to be additional configuration and monitoring traffic related to the CDMU  
> Simulator.  
>  
> Best regards,  
> Stefan Thuerey

--

\*\*\*\*\*

Jean-Luc Béney  
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**CC:** Albert Naber <A.P.Naber@sron.nl>, <fgr@iac.es>, <jhl@iac.es>, <charra@ias.u-psud.fr>, <orfei@ifsi.rm.cnr.it>, <ohb@mpe.mpg.de>, <k.j.king@rl.ac.uk>, <S.D.Sidher@rl.ac.uk>, Luc Dubbeldam <Lucd@sron.nl>, <butler@tesre.bo.cnr.it>, <annadg@ifsi.rm.cnr.it>, <cerulli@ifsi.rm.cnr.it>, <codella@ifsi.rm.cnr.it>, <erina@ifsi.rm.cnr.it>, <molinari@ifsi.rm.cnr.it>, <pezzuto@ifsi.rm.cnr.it>, <milena@sirius.ifsi.rm.cnr.it>, Albrecht de Jonge <Albrecht@sron.nl>, Henri Aarts <Henrya@sron.nl>, Kees Wafelbakker <Keesw@sron.nl>, Rien van der Linden <Rienl@sron.nl>, Willem Luinge <Willem@sron.nl>, Wim van Leeuwen <Wimvl@sron.nl>

**From:** "Jose M. Herreros" <jhl@ll.iac.es>  
**To:** <sthurey@estec.esa.nl>, <ohb@mpe.mpg.de>, <k.j.king@rl.ac.uk>, <butler@tesre.bo.cnr.it>, <charra@ias.u-psud.fr>, <l.dubbeldam@sron.nl>, <a.p.naber@sron.nl>, <jhl@chantada.ll.iac.es>, <Ponzoni.c@laben.it>, <orfei@ifsi.rm.cnr.it>, <beney@lal.in2p3.fr>, Panchi Gomez <fgr@chantada.ll.iac.es>  
**Date:** 30-10-00 17:09:18  
**Subject:** Re: Next meeting of Data I/F Working Group

Dear all,

As Jean-Luc, IAC has also already purchased two DDC PCI Interface cards BU-65549 M1-300 and one BU-65549 M2-300 including sw drivers and libraries for windows NT. So, IAC suggests to use to use this board.

*see A14*

The decision was taken as they are from the same manufacture of the BU-61582 (chip selected for the space hardware). Also take into account that these boards contain the BU-61586 Advanced Communication Engine (ACE) and a sw package of drivers and libraries for windows NT. As the manufacturer says in its "ACE Runtime Library Software Manual", the provided "runtime library is written such that low level access to the BU-6158x communication processor is performed through a set of functions in the interface and interrupt control modules. This allows the runtime library to be easily ported to any hardware and/or software platform by modifying these "low level" routines. The library includes a module specifically designed to allow portability among several existing ACE interface's and operating environments, an is easily modified to include a new hardware/software configurations".

From email received is not clear the scope of the procurement (hw, sw or both). What is our delivery unit?

*i*

In sw could be identified at least the following packages:

- 1553B sw drivers and libraries for windows NT.
- 1553B Transfer layer protocol (Satellite Data Bus Protocol).
- 1553B Application layer protocol.
- EGSE Router or TM/TC Interface. (this package must be clarified as we are not sure this meet our needs)
- CDMS Simulator Stand-alone functions: user Interface (TM displayer and TC editor). File manager (storage/retrieval), etc.
- TCP/IP software. (is this included in the EGSE Router or TM/TC Interface?)

*see A14*

In Hw:

- 1553B Interface card.
- PC platform including windows NT.
- Ethernet card.
- Common HW support equipment (power supply + 131 KHz clock)
- Specific HW support equipment for each instrument need.

*in general ok,  
details: A14*

Other question:

What does (D)COM mean?

We also agree with Jean Luc that sw development and acceptance should be done in two parts: BC and RT each on a PC target.

Looking forward to see you on Friday,  
Panchi and Jose.

--

-----  
 Jose Miguel Herreros Linares

fax:

+(34)-922.605.210

**From:** <Stefan.Thuerey@esa.int>  
**To:** "Albert Naber" <A.P.Naber@sron.nl>, <fgr@iac.es>, <jhl@iac.es>, <charra@ias.u-psud.fr>, <orfei@ifsi.rm.cnr.it>, <beney@lal.in2p3.fr>, <ohb@mpe.mpg.de>, <k.j.king@rl.ac.uk>, <S.D.Sidher@rl.ac.uk>, "Luc Dubbeldam" <Lucd@sron.nl>, <butler@tesre.bo.cnr.it>  
**Date:** 1-11-00 11:31:59  
**Subject:** Data Management WG Meeting / Re: R: CDMS Simulator requirements (Renato)

Stefan Thuerey@ESA  
 11/01/2000 11:30

Dear All,

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*Spec. to be updated.*

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*Spec. to be updated.*

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layer of the EGSE and if (im-)proper operation of the I/F shall be indicated on some other terminal of an instrument EGSE, it is not sufficient to route TMTC packets or data fields across the EGSE Router I/F (para. 4.3.2). There has to be additional configuration and monitoring traffic related to the CDMU Simulator.

*Spec. to be updated.*

Best regards,  
Stefan Thuerey

**CC:** <annadg@ifsi.rm.cnr.it>, <cerulli@ifsi.rm.cnr.it>, <codella@ifsi.rm.cnr.it>, <erina@ifsi.rm.cnr.it>, <molinari@ifsi.rm.cnr.it>, <pezzuto@ifsi.rm.cnr.it>, <milena@sirius.ifsi.rm.cnr.it>, "Albrecht de Jonge" <Albrecht@sron.nl>, "Henri Aarts" <Henrya@sron.nl>, "Kees Wafelbakker" <Keesw@sron.nl>, "Rien van der Linden" <Rienl@sron.nl>, "Willem Luinge" <Willem@sron.nl>, "Wim van Leeuwen" <Wimvl@sron.nl>

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**From:** Otto Bauer <ohb@mpe.mpg.de>  
**To:** <sthurey@estec.esa.nl>, "charra@ias.u-psud.fr" <charra@ias.u-psud.fr>, <beney@lal.in2p3.fr>, "butler@tesre.bo.cnr.it" <butler@tesre.bo.cnr.it>, <jhl@iac.es>, "K.J.King@rl.ac.uk" <K.J.King@rl.ac.uk>, <D.J.Parker@rl.ac.uk>, <J.Payne@rl.ac.uk>, orfei <orfei@ifsi.rm.cnr.it>, <A.P.Naber@sron.nl>, <Lucd@sron.nl>, <Albrecht@sron.nl>, <Wimvl@sron.nl>  
**Date:** 29-10-00 11:40:33  
**Subject:** CDMS

Dear Colleagues,

Last week I sent this E-mail to T. Passvogel and discussed it with him on the phone.

I didn't get any final answer yet as nearly everybody in the Netherlands is on holidays.

In any case I hope to know more before our next meeting in Orsay.

Best regards, Otto

From: IN%"ohb@mpe.mpg.de" 19-OCT-2000 16:58:36.71  
 To: IN%"tpassvog@estec.esa.nl", IN%"ohb@mpe.mpg.de"  
 CC:  
 Subj: 1553B + Transfer Layer Protocol

Dear Thomas,

During the last FIRST On-board S/W Meeting at IFSI, Oct 13, the three FIRST Instrument Teams agreed on a course of action concerning the implementation of the Transfer Layer Protocol.

The main assumption is that Project is willing to help us in preparing the specifications, preparing the ITT (if necessary), accompanying the development and to participate in the acceptance test and finally sign off the whole development. *(i.e. confirm compliance with ESA-spec.)*

In addition we would like to come back to Stephan's idea of a test bed provided by Project.

The course of actions could be:

- (1) Review and agree on the specifications (draft available from HIFI) during the next CDMS meeting in Orsay, Nov 3.
- (2) RAL as one of the potential bidders -in this case we would not need an ITT- should check the specifications and come back we a proposal on costs and schedule.
- (3) If RAL will no accept, we intend to have a meeting with the other bidders (CRISA, Gavazzi, Laben, Astrium, Satellite Services) mid November.
- (4) We then will issue an ITT (Statement of work + specifications) by

*ESA: too much delay if contact to other bidders start only after negotiations with RAL.*

end

November, in agreement with Project!

(5) By end of November we should agree on an Acceptance Test Plan. *OK*

(6) The selection of the company could take place before Christmas. *OK*  
Selection criteria will also be schedule and costs.

(7) Before mid April 2001 Project should provide a test bed. — *not feasible,*  
*~ mid 2001*

(8) The Acceptance test should take place mid May 2001. *OK*

We would like to ask you if Project could agree to such a procedure and if we could formulate all that in a Letter of Agreement, signed by the five instrument teams and Project.

We still don't want to exclude that Project provides the TLP which from our point of view would be the preferred solution.

*not foreseen*

Best regards, Otto

CC: Otto Bauer <ohb@mpe.mpg.de>