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Ref. : PT-06033

Date : 3 November, 1998

From : P. Estaria (SCI-PT)

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To : Commonality Steering Committee:

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M. von Hoegen

SCI-SA -- G. Pilbratt, J. Tauber, A. Heras, P. Claes

Subject : Commonality Working Group / Steering Committee

Dear members of the Commonality Steering Committee,

Please find below the proposed agenda for the 1st meeting of the Committee to be held at ESTEC (room Aj021) on 11th November starting 09:00 hrs. A full day is foreseen for the meeting.

Agenda

1. Introduction (ESA)
2. Steering Committee; agreement on:
 - composition
 - role
 - reporting
 - communication mechanism
3. Working Groups; for each WG agreement on:
 - tasks to be carried out
 - major milestones
 - chairs and secretaries
 - composition
4. Conclusions
5. A.O.B.

ESTEC

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<http://sci.esa.int/first>

Ref.: PT-06033

Date: 03/11/1998

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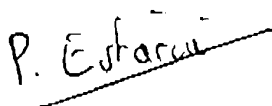
Currently seven Working Groups are defined. As preparation for the meeting each prospective (ESA) chairman has prepared a summary of the activities/milestones for his/her Working Group (attachments 1 to 7).

It should be noted that these - currently - present the chairman views only. They should be discussed under 3. It has also been suggested to merge some of the Working Groups (i.e. 1, 2, 7 and 4 and 5). This should also be discussed under 3.

Attachment 8 contains - based on the inputs from the various instrument groups and ESA's proposal - the current composition of the seven Working Groups as currently identified. Points 1 to 3 will be introduced by ESA.

We urge you to review these various inputs prior to the meeting.

Regards,



Pierre Estaria

Commonality Working Group #1

(Microprocessors and Components)

Before one can call a WG on parts commonality it is requested that all users define their needs in a format defined in ECSS-Q-60A, 19.04.1996.

Those lists will be reviewed by ESTEC and proposals for parts consolidation will be made within 4 weeks after arrival of all lists. From then onward we can plan possible WG meetings.

Commonality Working Group # 2

(Spacecraft interfaces and H/W simulators)

Objectives:

Define (pre-phase B) Instrument to S/C interfaces in order to allow instrument design to proceed. Define "common" H/W simulators. Coordinate procurement of H/W simulators. (TBC)

1. Start of WG activities

A K/O meeting asap with the aim to define further actions and milestones.

2. End date for WG activities

- For S/C interface definition, activities end at the time of instrument design freeze.
- For "common" H/W simulator definition, TBD after S/C interface definition.
- For coordinated procurement of H/W simulators, TBD. (ESA should not be involved in procurement)

3. Link of WG activities to satellite ITT

The WG will have to consult Industry on its anticipated use of more or less standardised approaches for both Power, OBDH and other TBD interfaces.

4. Liason with other WGs

Direct liason is required with WG # 1 (Componants) and WG # 4 (Instrument Operations)

5. List of tasks

- Identify interfaces to be handled by the WG.
- Identify possible interface approaches.
- Define selected interfaces in Project documentation. (IID-A; IID-B)

6. Tasks specifically excluded

Involvement in procurement of H/W.

7. Input required

- Range and availability of nowadays ESA-preferred/used circuits.
- Industry preferences for interface circuits.
- Maximum anticipated data rate for OBDH circuits.
- Maximum anticipated current rating for Power interfaces.
- Definition of any interface other than Power and OBDH.

8. Major milestones

- Kick-off meeting asap.
- Definition of further actions and milestones.
- Meeting schedule.

9. Expected deliveries of the WG

- Timely definition of Power and OBDH interfaces.
- Timely definition of any other interfaces.

10. Overall implementation plan

TBD

11. Any other useful information

TBD

Commonality Working Group # 3 (RTA/QLA)

Objectives:

The group should focus in finding a common concept for RTA(Real Time Assessment)/QLA(Quick Look Analysis) and a common approach for its development.

Assumptions:

The RTA/QLA S/W will be used for monitoring the instrument status and performance during instrument tests, system tests, and in-flight operations. A common system implies that it must be designed such that it can accommodate different kinds of instruments, users and environments. The working group will take this into account when defining the user requirements and deciding on the software deliveries.

1. Start date for WG activities: January-February 1999
2. End date for WG activities: December 2006 (GS readiness review)
3. Link of WG activities with ITT: None
4. Liaison with other WGs:
 - WG #4: The input for RTA/QLA is the TM in a format TBD (e.g. packed or unpacked, pre-processed). TDATA (Transparent Data attached to the TM to transfer extra information uplink to downlink) and TM parameters may have to be specified to trigger RTA or QLA functionality or displays (flags?).
 - WG #6: RTA/QLA interfaces with FINDAS for the TM input and for the history files generated must be defined in agreement between both WGs.
5. List of tasks
 - Define common and instrument specific elements in RTA/QLA.
 - Define user requirements for RTA/QLA common elements.
 - Define interfaces between common and non-common part, and with external elements (e.g. FINDAS, uplink, Off-Line Processing).
 - Coordinate and supervise implementation and agree delivery dates.
 - Define and supervise Acceptance Tests and generate Test reports.
 - Define Instrument station H/W.
6. Tasks specifically excluded
 - Define user requirements for instrument specific QLA
 - Instrument specific QLA testing but for performance and interfaces

7. Inputs required

- Schedules and Test Plans (required for the Implementation Plan)
 - Overall GS schedule
 - Integration and Test Plans
- Interface documents
 - FINDAS interface documents (required before the URD V1 review)
 - TM, TC blocks definition (required before the URD V1 review)
 - TDATA definition (required before the URD V2 review)
 - MOC-to-FSC ICDs (draft required before URD V1 review)
 - FSC-to-ICCs ICDs (draft required before URD V1 review)
- Operations documents (required before the URD V2 review)
 - Instrument Operations procedures
 - Flight operations plan
- Scientific data quality control concept (required before the URD V2 review)

8. Major milestones

- | | |
|---|--|
| • Review and agreement of URD V1 and H/W configuration | Jan 2000 |
| • Implementation plan | Feb 2000 |
| • Delivery and Acceptance Test of RTA/QLA V1 | Jan 2002
(predelivery in Jan 2001 for AVM tests?) |
| • Review and agreement of URD V2 (operational requirements) | Dec 2004 |
| • Delivery and Acceptance Test of RTA/QLA V2 | Jan 2006
(ready for EE1) |

9. Expected deliveries

- RTA/QLA URD (for common parts), SRD and ADD/DDD
- Implementation plan
- Acceptance Test Plan and corresponding Test reports for each agreed version
- Instrument Stations H/W configuration document
- RTA/QLA S/W
- RTA/QLA history files descriptions
- Progress reports

Commonality Working Group # 4

(On-board S/W and Instrument Operations)

Objectives:

Provide a common framework which will allow to implement –regardless of the instruments specific features- a coherent mode of operations for all FIRST and Planck Instruments. Secondary objective is to provide a unique scheme for ground-to-instrument communications.

Assumptions

Most of the work will be carried out by IFSI, and IAC. The role of the WG is to define overall “common” schemes and structures, and to coordinate all common activities.

1. Start date for WG activities: (proposed) 2nd – 3rd week of January 1999
2. End date for WG activities: AVM delivery (Jan. '2003)
3. Link of WG activities with ITT
High level input from WG required to prepare the operations section, and update(s) to SOIRD and SGICD prior to ITT release.
4. Liaison with other WGs:
 - Links with WG # 1 (DPU and SPU micro-processors selection, S/W tools e.g. OS, compilers, debuggers, linker, librarian, etc.)
 - WG # 2 (S/C-to-instruments H/W and S/W interfaces e.g. OBDH, TM and TC interfaces, etc.)
 - WG # 3 (RTA/QLA will process TM packets defined by WG # 4)
5. List of tasks
 - specify allocation of tasks between DPU and SPU (when relevant)
 - specify DPU-SPU H/W and S/W interfaces (when relevant)
 - identify spacecraft-related services required by DPU and/or SPU S/W (e.g. OTF, pointing information, spacecraft status information, etc.)
 - specify DPU lower-level “common” S/W functions (e.g. TC handling, TM handling, interrupt handling, timing-timer handling, watchdog handling, I/Os, exception-error handling, buffer management, DMA management etc.) *Note: It is expected that these lower-level functions will be implemented as a set of “services” available to higher-level (application) tasks*
 - specify a “common” exception-error handling scheme
 - specify DPU high-level “common” S/W functions
 - identify DPU instrument-specific (non-common) S/W functions
 - specify SPU lower-level “common” S/W functions
 - specify SPU high-level “common” S/W functions
 - identify SPU instrument-specific (non-common) S/W functions
 - specify “common” H/W and S/W redundancy concept (DPU and SPU)
 - specify instrument “common” “autonomy” requirements
 - identify instrument-specific (non-common) “autonomy” requirements

- specify a “common” commanding scheme (low-level elementary command structure, dummy commands, ICSs, macro-commands, OBCPs-on-board control procedures-, etc.)
 - specify handling of time-tagged commands.
 - specify a “common” memory loading scheme (handling of memory loads/memory patches)
 - specify a “common” memory dump scheme
 - specify a “common” memory verification scheme (checksum?)
 - specify a “common” on-board memory allocation scheme (e.g. EEPROM, PROM, PROGRAM, DATA RAM, etc.)
 - refine/harmonise the common “standard” instrument modes (e.g. prime, stand-by, sleep, test, safe, off, serendipity, parallel, partner, etc.) –TBD/TBC-
 - specify a “common” scheme for the definition of the TM and TC packets (APIDs) based on the SOIRD (e.g. fixed-length versus variable length TM/TC packets, PUS services, etc.)
 - review the “common” DPU S/W URD
 - review the “common” SPU S/W URD
 - review the common “services” specification document
 - monitor the design and implementation of the “common” elements
 - generate an Acceptance Test Plan (ATP) for the Validation/Acceptance of the on-board S/W common elements.
 - supervise execution of the Acceptance Test.
 - generate the Acceptance Test Report (ATR)
6. Tasks specifically excluded
- specification of instrument-specific (non common) tasks
 - specification of specific instrument modes
 - detailed design and coding
 - documentation (except ATP and ATR)
 - AOT definition
 - ICSs and PCSs definition
 - Instrument Operations Procedures (IFOPs and ICRPs) definition
 - Instrument Data Base (IDBs) definition
 - provision of the “common” Instrument Command Translator (ICT)
7. Input required by the WG:
- Updated OIRD (feedback on draft 1 required!)
 - Space-to-Ground Interface Control Document (draft 0)
 - Status report IFSI
 - Status report IAC
8. Major milestones
- K-O meeting: Jan. '1999
 - Overall Implementation Plan: Jun. '1999
 - Overall schedule: Jun. '1999
 - Review/approval of DPU and SPU “common” URD: TBD
 - Other milestones: TBD

9. Expected deliveries

- Various TNs resulting from the specification/definition tasks described under 5.
- Implementation Plan
- Overall and detailed schedules (barchart) of WG activities –maintained continuously–
- Regular Progress Reports (every 3-4 months –TBC–) to Steering Committee
- ATP
- ATR

10. Additional information:

It is proposed to merge WG # 4 and WG # 5.

Activities of WG # 5 should not start before the major part of the definition work allocated to WG # 4 has been concluded (mid-2000 ?). It is expected that the activities of both groups (as defined now) will somehow overlap. Staff re-allocation might be required. It is assumed that the ILT schedule will drive the activities of WG # 5 (as currently defined).

Commonality Working Group # 5

(Operations and Test Language)

Objectives:

To define a common instruments test philosophy (and corresponding infrastructure) which –regardless of the instrument specific features- allows a seamless transition between the various test phases (ILT and System Tests) and the operations for all FIRST and Planck Instruments. Secondary objective is to provide –if practical- a unique Test and Operations Language for AIV and Operations.

Assumptions

None.

1. Start date for WG activities: mid-2000 (TBC)
2. End date for WG activities: Dec. '2006 (GS Readiness Review)
3. Link of WG activities with ITT: None
4. Liaison with other WGs:
 - Links with WG # 4 (It is proposed that WG # 4 and WG # 5 be merged)
 - WG # 2 (S/C-to-instruments H/W and S/W interfaces)
 - And WG # 6 (FINDAS and/or IDIS services will be used)
5. List of tasks
 - Review existing developments (e.g. ROSETTA)
 - Review status of COES work (e.g. PLUTO language)
 - Define a “common” overall testing philosophy.
 - Define a common structure for a symbolic Instrument Control Language (e.g. mnemonics, parameters, keywords, comments, etc.)
 - Specify the corresponding Control Language Translator
 - Define a common format for ICSs and PCSs
 - Define (FIRST only?) a common AOT structure.
 - Specify the corresponding AOT to ICS Translator (TBD)
 - Monitor design and implementation of the Translators listed above.
 - Define (propose) “common” interfaces (H/W and S/W) between instrument testing facilities and EGSE –to be negotiated with EGSE contractor via FIRST/Planck Project-
 - Define (propose) “common” interfaces between instrument testing facilities and FINDAS/IDIS
 - Define (adopt an existing –e.g. ROSETTA) Test and Operations Language. *Note: The Test Language will in principle be prescribed by the Prime/EGSE Contractor. Definition by WG # 5 only if imposed by schedule constraints*
 - Specify –if necessary- the Translator between the commonly defined Test and Operations Language and the EGSE Language.
 - Define and supervise Acceptance Tests for the various Translators.
 - Define a common format for the Instrument Operations Procedures (IFOP) and Instrument Contingency Recovery Procedures (ICRPs)

6. Tasks specifically excluded
 - Design and coding
 - AOT definition and generation
 - ICSs and PCSs definition and generation
 - Generation of Instrument Operations Procedures (IFOPs and ICRPs)
7. Input required by the WG:
 - FINDAS interface documents
 - MOC-to-FSC ICD
 - FSC-to-ICCs ICD
8. Major milestones
 - K-O meeting: mid- 2000
 - Overall Implementation Plan: 3rd quarter 2000
 - Overall schedule: 3rd quarter 2000
 - Start ILTs: Jan. '2001 (TBC)
 - Start AVM tests: Jan. '2002 (TBC)
 - FM delivery: Jun. '2004
 - Other milestones: TBD. *Note: definition of Instrument Control Language, ICS/PCS format and AOT structure could start earlier than mid-2000*
9. Expected deliveries
 - Various TNs resulting from the specification/definition tasks described under 5.
 - Implementation Plan
 - Overall and detailed schedules (barchart) of WG activities –maintained continuously-
 - Regular Progress Reports (every 3-4 months –TBC-) to Steering Committee.
 - Acceptance Test Plans (ATP) for the various Translators.
 - Acceptance Test Reports (ATR) for the various Translators.
 -
10. Additional information:

It is proposed to merge WG # 5 with WG # 4.

WG #6



"G. Pilbratt, ESA Astrophysics Division" <gpilbrat@astro.estec.esa.nl> on
03-11-98 10:26:11

To: Pierre Estaria/estec/ESA
cc: jtauber@ests2.estec.esa.nl (Jan Tauber), kbennett@ests2.estec.esa.nl (Kevin Bennett),
pclaes@ests2.estec.esa.nl (Peter Claes), gpilbratt@ests2.estec.esa.nl
Subject: Input for FP-CWG#6

Dear Pierre,

We (= the recipients of copies of this note) have discussed the matter of WG#6 FINDAS and IDIS. We propose Peter Claes as chairman of this group, he will also be representing FINDAS, Kevin Bennett will represent IDIS. The FIRST and Planck project scientists will also be part of this WG.

Below find our input for the meeting of 11 November - note, however, that Peter Claes will be unavailable on this date (due to an OO course).

Regards, G"oran

FINDAS WG # 6: FINDAS and IDIS

Objectives:

This WG should identify common/similar requirements and necessary developments in FINDAS and IDIS. It should set up a mechanism to foster the exchange of experience and/or software as appropriate, with the objective to maximise cross-fertilisation between the FINDAS and IDIS developers to minimise cost and effort to both.

Assumptions:

FINDAS is an undertaking of ESA as part of FIRST, IDIS is an undertaking of the Planck PIs.

FINDAS and IDIS both consist of a core infrastructure and a set of specific applications. Commonalities could be found in both, though most probably in the core infrastructures.

There are at least two points of interface between FINDAS and IDIS, at (IDIS) Level 1 and Level 4. Level 1 is a "raw" telemetry interface from FINDAS to IDIS, Level 4 is storage of "final" data products from IDIS in FINDAS for the purpose of making them available to the wide community after the proprietary period of time has elapsed.

It is further assumed that the composition of the WG consists of actual FINDAS and IDIS developers, and that its composition is periodically reviewed to suit the particular current issues at all times.

Start Date of Formal WG Activities:

Summer 1999 - after FINDAS-prototype evaluation. (It has been recognised that most FINDAS and IDIS development is taking place in, or is being coordinated by, SA post FINDAS-prototype delivery, thus internal SA meetings will take place before the formal start of the WG activities.)

End Date of Formal CWG Activities:

Ground Segment readiness review - however, the bulk of the activities are foreseen to take place during development of the "full" systems, with a peak in the period late 1999 to 2001/2.

List of Tasks that the WG Should Cover:

- description and comparison of user requirements for both FINDAS and IDIS.
- mutual exchange of FINDAS- and IDIS- "lessons learned and problems encountered", resulting from prototype activities of both groups.
- (re-)assessment of FINDAS- and IDIS- architectures in order to identify areas of commonality.
- (re-)assessment of communication- and network needs of both FINDAS and IDIS, especially with regard to the interfaces between the two.
- definition of a set of requirements for potential FINDAS-IDIS (sub)system commonalities.
- set-up of a suitable mechanism, procedures, and methodology to achieve the desired cross-fertilisation and/or exchange of top-level software definition.
- definition of Planck user community FINDAS interface.
- mutual usage/communication between FINDAS and IDIS-databases: requirements, purpose, practical implementation, etc.

Tasks That Should be Excluded:

- TBD

Possible Interfaces with CWG #1, #2, #3, #4, #5

- only related to standards, interfaces and methodology for software development for FINDAS and IDIS

Major Milestones:

(Depending on overall development scheme - TBC)

- Start date of Working Group (WG)
- 1/10/1999: FINDAS and IDIS User Requirements Documents (URD) review/comparison
- 1/02/2000: FINDAS and IDIS Architecture Review Documents (ARD) review/comparison
- 1/09/2000: Inputs to FINDAS-IDIS Interface Specifications Document (ICD) (including network/hardware etc. requirements)
- 2001/2: "Mid-term" WG report

Commonality Working Group #7

Objectives:

Identify and handle various h/w related common issues not yet addressed in WG #1 (microprocessors and components). Examples of these common issues are Common Test Facilities (e.g. Cryo Vibration), straylight, Contamination, common choppers, common inter-instrument lower level h/w elements.

1. Start date for WG activities

An initial WG meeting should be held asap with the objectives as given in the list of tasks below.

Further schedule for meetings is an outcome of the first meeting.

2. End date for WG activities

TBD. For h/w related activities it is expected that the WG ends with the freezing of instrument design, latest with delivery of the CQM, resp. AVM.

3. Link of WG activities to the satellite ITT

Since the WG handles completely different issues there are some activities with direct link to satellite ITT, resp. satellite development and others without. A first list for the tasks identified is given below.

4. Liason with other WGs

No direct liason. However, it is deemed important to receive consistently the information on the activities carried out in the other WG. In the same way it is proposed to provide in regular intervals "information status notes" to the steering committee.

5. List of the tasks

- Identification of common activities/items
- Definition and agreement how to approach commonality (FIRST/Planck, FIRST or Planck alone, Bi-instrument level,...)
- Already identified common issues are listed below with indication on the approach:
 - Common Test Facilities (e.g. Cryo Vibration) – all FIRST instruments – link to s/c ITT (tbc)
 - Straylight – all FIRST instruments; both Planck instruments – link to s/c ITT (tbc)
 - Contamination – all instruments – link to s/c ITT (tbc)
 - common choppers – PACS and SPIRE – no link to s/c ITT
 - common inter-instrument lower level h/w elements – tbd, on case by case basis

6. Tasks specifically excluded

TBD

7. Input required

The instrument design is considered a basic input for identification of the common elements. Further the development approach, e.g. for use of common test facilities. This should be available as draft already now.

8. Major milestones

- Kick off meeting of WG: asap
- Definition of activities and milestones for the identified areas: started at KO, available within one month after KO
- Regular WG meetings: e.g. 3 times a year
- Commonality meetings on selected items in tbd sequence

- It is proposed to review the progress and efficiency of the WG 6 months after the KO

9. Expected deliveries of WG

Co-ordination of common issues/developments/facilities between instrument teams

10. Any other useful information

tbd

FIRST/Planck Commonality Working Groups**Attachment #8**

WG #1 : ***Microprocessors and Components***
 Chair : M. von Hoegen
 Secretary : H. Schaap
 HIFI : H. Goulooze (SRON), R. Orfei (IFSI)
 SPIRE : R. Orfei (IFSI), J. M. Herreros (IACS), H. Dzitko or V. Mauguen (CEA)
 PACS : E. Renotte (CSL)
 HFI : R. Pons (CESR)
 LFI : J.H. Herreros (IAC)

WG #2 : ***Spacecraft Interfaces and H/W Simulators***
 Chair : F. Vandenbussche
 Secretary : H. Schaap
 HIFI : D. Beintema (SRON), R. Cerulli (IFSI)
 SPIRE : R. Orfei (IFSI), M. Carter (RAL)
 PACS : H. Feuchtgruber (MPE)
 HFI : J.L. Beney (LAL)
 LFI : J.H. Herreros (IAC)

WG #3 : ***RTA/QLA***
 Chair : A. Heras
 Secretary : P. Estaria
 HFI : P. Roelfsema (SRON), A. di Giorgio (IFSI)
 SPIRE : R. Warren-Smith (RAL), R. Gastaud (CEA)
 PACS : O.H. Bauer (MPE), E. Wiezorrek (MPE)
 HFI : B.G. Cougrand (IAS)
 LFI : C. Butler (ASI)

WG #4 : ***Instrument Operations***
 Chair : F. Vandenbussche
 Secretary : P. Estaria
 HIFI : P. Roelfsema (SRON), R. Cerulli (IFSI)
 SPIRE : D. Pike (RAL)
 PACS : H. Feuchtgruber (MPE)
 HFI : J. Charra (IAS)
 LFI : TBD (Laben)

WG #5 : ***Operations and Test Language***
 Chair : P. Estaria
 Secretary : H. Schaap
 HIFI : P. Roelfsema (SRON), S. Pezzuto (IFSI)
 SPIRE : NN
 PACS : H. Feuchtgruber (MPE)
 HFI : F. Pajot (IAS)
 LFI : TBD (Laben)

WG #6 : ***FINDAS and IDIS***
Chair : P. Claes
Secretary : NN
ESA : G. Pilbratt, J. Tauber, K. Bennet, P. Estaria
HIFI : P. Roelfsema (SRON), P. Andreani (IFSI)
SPIRE : A. Harwood (RAL), M. Sauvage (CEA)
PACS : O.H. Bauer (MPE), R. Huygen (KUL)
HFI : R. Gispert (IAS)
LFI : F. Pasian (IAS)

WG #7 : ***Other H/W Common Elements***
Chair : T. Passvogel
Secretary : H. Schaap
HIFI : D. Beintema (SRON)
SPIRE : NN
PACS : R. Katterloher (MPE)
HFI : NN
LFI : J.H. Herreros (IAC)