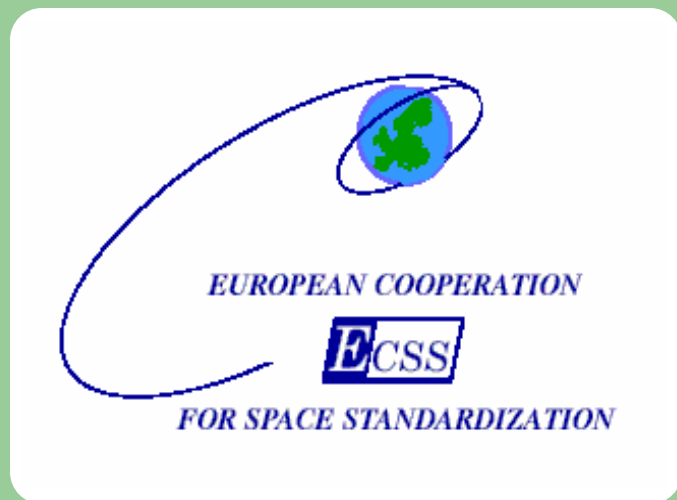


- ECSS -
A tool for space projects, at your disposal



F.Felici– ESA/ESTEC



Aim of the presentation is to:

- Present the ECSS system and the space standards,
- Provide practical information how to obtain and how to use the ECSS standards, and
- Establish how we can receive your comments and suggestions on ECSS standards



Content

1. Space project/business facts
2. What is ECSS exactly?
3. Which requirements on ECSS standards?
4. Some constraints
5. Who use them? Some examples
6. How to get hold of them?
7. How to use them in a project?
8. Comments and suggestions are welcome..
9. How to reach ECSS

Conclusions



1- Space Projects/Business Facts

- ECSS primary users are the projects and programmes of ESA ,of the other European space Agencies and of the main Prime Contractors.
- ECSS includes in its DNA all what is necessary to make it usable in a customer/client relationship for different types of projects
- A number of ECSS standards are already converted and published in the ISO and CEN (Comite Europeen de Normalisation) system .
- Electronic versions of ECSS standards are downloadable free of charge.



2 – What is ECSS exactly?

- Joint initiative of several partners: the European Space Agency, other European Space Agencies, and Eurospace (a grouping of about 50 european companies active in the space business)
- **Goal:**
 - To create a complete set of European standards developed jointly and consensually by the different European partners to the advantage of the whole European space community.
- An isolated system from other standardization organisations ? **NO**



2.1 - ECSS and standardization organizations

- Link with ISO (TC20/SC14 – Space systems and operations)
- Link with CEN (Comité Européen de Normalisation)
 - 46 ECSS standards converted et published in CEN
- Link with CCSDS, ESCC, IAQG and AECMA-STAN

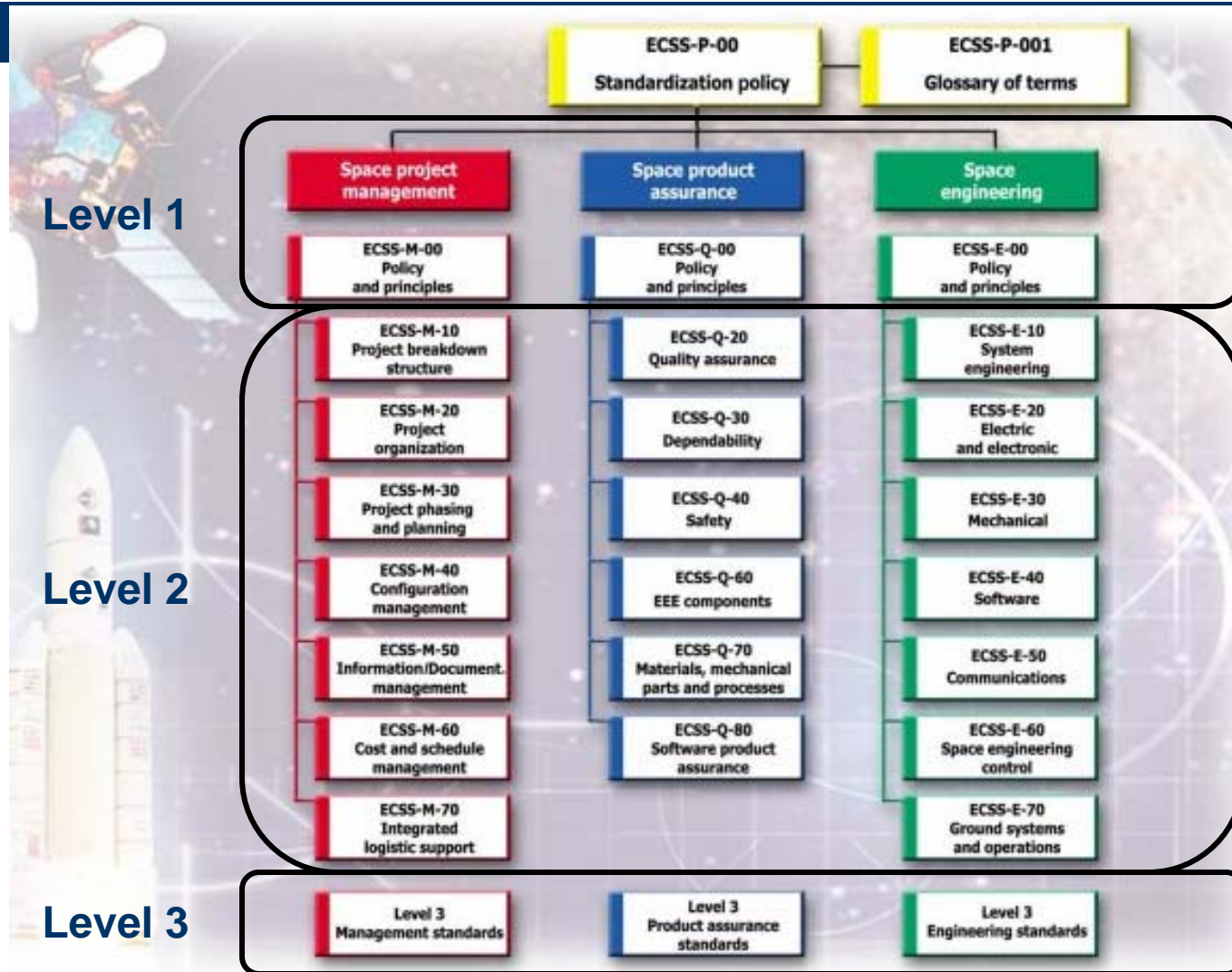


3 –Which are the requirements on ECSS standards?

- ECSS Standards are developed for use in space programs and projects:
 - To be applicable to all customer /supplier interfaces in the contractual structure of the project ,
 - To cover the whole life cycle of a project
 - To be usable on projects/programmes of different size
 - ⇒ To this purpose they foresee a process of adaptation (tailoring) to the needs of different projects in different phases
- ECSS standards are written by a pool of experts in response to well identified needs
- ECSS standards are structured



3.1 - The ECSS hierarchy of standards





3.2 – Three levels of ECSS standards

Level 1	Documents defining strategies specific to each branch. They contain the generic requirements of a branch .
Level 2	Documents defining requirements specific to each discipline within a branch (Requirements on What to do)
Level 3	Documents defining methods,procedures and solutions mandatory in certain areas (requirements on How to do it)

- Note: This level definition does not enter the contractual relationship, which calls standards applicability directly



3.3 – Some figures

- 96 standards were published, since 1996:
 - 11 in the Management branch,
 - 51 in the Product Assurance branch, and
 - 34 in the Engineering branch
 -
- 48 are in the review process before publication



3.4 Present ECSS activities

- In mid 2006 an assessment of the utilisation of the standards led all partners to agree to :
 - optimize standards for a more direct use in contracts ,minimizing the tailoring sometimes necessary and better separating standards from handbook-like information
 - Complete the set of standards ,particularly in the Engineering branch
- This activities are foreseen to last until end of 2007
- In the meantime published standards are in use



4 – Some constraints

- ECSS standards are interconnected and support one another. They cannot in general be used in isolation .
- They are not meant to influence or drive the internal organisation of the Suppliers or their quality systems (they offer the possibility to refer to existing structures and procedures)



5 – Who use them? Some examples

- An ESA internal directive make compulsory for all ESA ITTs/RFQ's the utilisation of the ECSS system .
- CNES,DLR ,ASI follow similar practices

Examples:

- **ESA & CNES:** Galiléo (European GPS), Alphabus (generic telecom platform)
- **DLR:** MEDIS-SAT & -ISS (ISS wideband communication system), Terra-SAR (laser communication), Rokviss (ISS robot)
- **ASI:** COSMO-SkyMed (constellation for earth observation), Agile (Gamma and X-ray astronomy)



6 – How to get hold of them?

- The electronic version in English:
 - From the ECSS website (www.ecss.nl)
 - And this is free of charge
- Paper Versions
 - In English: ESA Publications Division (*)
 - In French: CNES (*)
 - In German : DLR (*)

(*) Full addresses can be found in the Website ECSS



6.1 - The ECSS Website (www.ecss.nl)

The screenshot shows the ECSS website homepage. At the top is the ECSS logo. Below it is a navigation bar with links: HOME, ORGANIZATION, STANDARDS, PUBLICATIONS, DISCUSSION FORUM, and ECSS HELPDESK. On the left side, there are three main menu sections: [Home] with links to Agenda 2002, Background, Contact Details, and News Archive; [My Settings] with links to My Questions, My Profile, My Teams, and Logout; and [Search] with a search input field and links to Advanced search and Help on Searching. The main content area features a large banner with the ECSS logo and the text: "EUROPEAN COOPERATION FOR SPACE STANDARDIZATION" and "The European Cooperation for Space Standardization is an initiative established to develop a coherent, single set of user-friendly standards for use in all European space activities." Below the banner is a "What's new" section with a list of recent updates, each preceded by a calendar icon. At the bottom right, there is a copyright notice: "Copyright 2002 © by the European Space Agency for the members of ECSS".

HOME ORGANIZATION STANDARDS PUBLICATIONS DISCUSSION FORUM ECSS HELPDESK

Commands...

[Home]
Agenda 2002
Background
Contact Details
News Archive

[My Settings]
My Questions
My Profile
My Teams
Logout

[Search]

Advanced search
Help on Searching

EUROPEAN COOPERATION
FOR SPACE STANDARDIZATION

The European Cooperation for Space Standardization is an initiative established to develop a coherent, single set of user-friendly standards for use in all European space activities.

What's new

- 5 September 2002 - ECSS Website training sessions – 1st or 8th October in ESA/Estec
- 2 August 2002: ECSS-E-30 Part 5.1A published
- Extension of Deadline for public review
- 26 July 2002: Start of public review of ECSS-M-20B Draft 1
- 22 July 2002: Start of public review of ECSS-E-10 Part 1-1B Draft 2
- 18 July 2002: ECSS-Q-30B published

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7 – How to use them in a project?

- The Customer needs to adapt the ECSS standard to a specific project's characteristics e.g. type ,complexity, acceptable risks, financial constraints .
- A typical adaptation process (tailoring) includes:
 - Selection of a subset of ECSS standards directly applicable to the project
 - Identification and elimination in this subset of those requirements which are not applicable to the project
 - Modification or addition of specific requirements



Training in ECSS (1)

- Since several year 1-2 days courses have been from time to time given by ESA experts in the area of Software engineering and Software PA .
- These courses addressed several target audiences (in 2002 also SME's) and included examples of tailoring.
- Material for these courses was developed by an industrial contractor
- Once the new issue of both E-40 and Q-80 will be published ,other courses may ,on request ,be foreseen .



Training in ECSS (2)

- Another area where courses are being offered is the Q-70 on Materials and processes .
- ESA endorsed contractors offer courses focused on electronic assembly, soldering ,Inspector training . Instructor training .
- Other ad-hoc courses on ECSS have been offered in the frame of the SME initiatives .



Certification in ECSS

- No certification has been in the past awarded or is foreseen in the future in the application of standards and other ECSS documents .



8- Comments and suggestions are welcome...

- ...because
 - standardisation is a continuous improvement process
 - it is necessary to have feedbacks to check that the ECSS product meets the needs of its users
- ...and you can send comments and suggestions about e.g.:
 - Problems you identify in any of the standards
 - Lack of one or more standards in a certain field
 - Proposals to participate to the development of a standard
 - Request for training



9 – How to reach ECSS

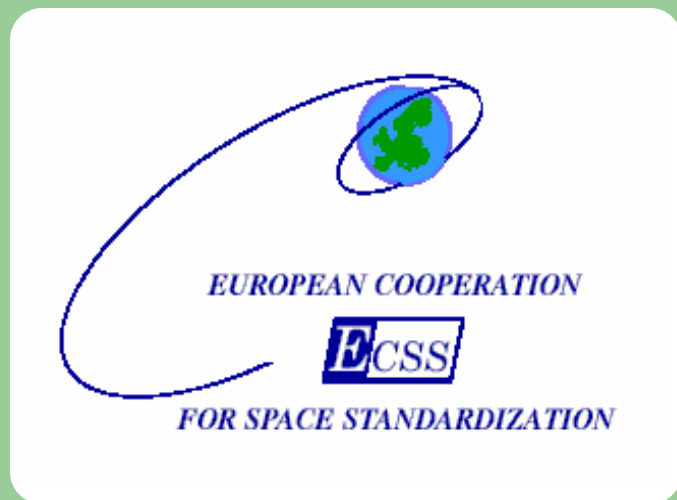
- Pretty easy to contact ECSS, either:
 - Adding to our ECSS website a message in the discussion forum or a question to the helpdesk.
 - Sending a mail at:
 - TEC-QR
 - Keplerlaan, 1
 - P.O. Box 299
 - 2200AG Noordwijk ZH
 - The Netherlands



Conclusion

- The ECSS system is a reality: not only the existence of the standards but also their use in European Space projects widely.
- They work for our projects, feel free to use this tool for your own benefit, and communicate your suggestions and comments

Thank you for your attention



Any question?