

# SpaceWire Working Group Meeting 13

## Agenda

Ph. Armbruster TEC-ED

Head of Data Systems Division

Technical and Quality Management Directorate

# ESA/ESTEC

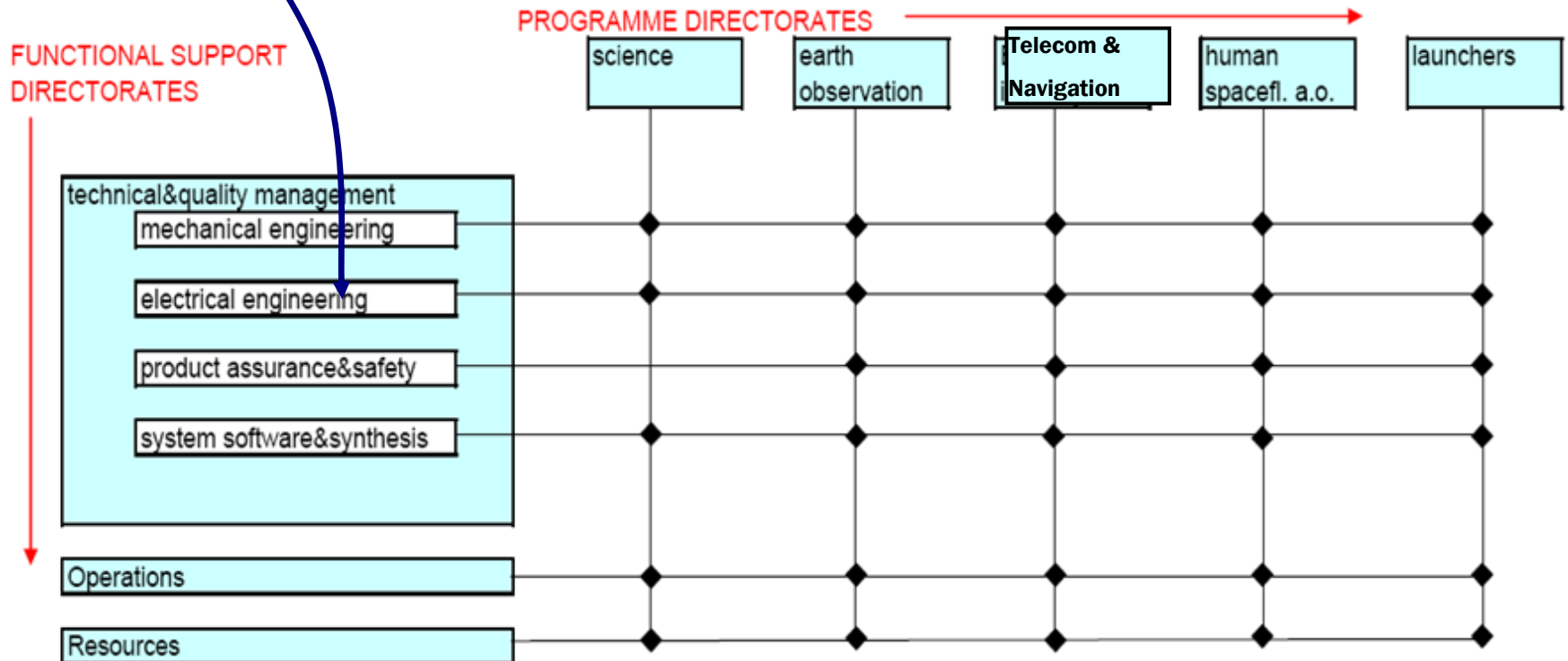
# Data Systems Division



# ESA/ESTEC Data Systems Division

## D/TEC Data Systems division (35+ Engineers)

- On-board Computer and Data Handling (**G. Magistrati**)
- Payload Data Processing (**M. Suess**)
- Microelectronics (**A. Fernandez-Leon**)
- On-board Communication (**Chris Taylor**)



## SpW WG : **ESA JAXA NASA ROSCOSMOS INDUSTRY**

*The SpaceWire Working Group is a forum aiming at promoting the usage of SpaceWire links, routers, nodes and networks. It has the additional mandate to steer new developments of devices, tools and protocols.*

Mandate of the WG is manifold:

- To share information related to the implementation of on-board networks based on the SpaceWire standard
- To prepare for the SpaceWire standard maintenance and evolution
- To review and discuss services supported by networks on-board spacecraft (e.g. SpW-RT)
- To define or register (via PID allocations) a set of Protocols (e.g RMAP, CPTP) for SpaceWire links, nodes and routers
- Information is exchanged openly in a collaborative spirit in full respect of intellectual property rights (responsibility of each participant).

# SpW WG : **ESA JAXA NASA ROSCOSMOS INDUSTRY**

## Working Group composition

- WG Mtg participants and people expressing interest in SpW Technology
- Fully open to Industry (worldwide)
- Agency members act as focal points for national industrial and intra-agencies activities
- Agency members and Convenors participate in the SpW WG Steering committee (InterAgency meeting)

## Tools and websites:

- <http://spacewire.esa.int> *plus 87300+ hits via Google*
- <http://conferences.esa.int/01C25/SpaceWire/>
  - **NEW:** Registration to the SpaceWire WG Mailing List can be done easily via: <http://spacewire.esa.int/contact.php>. By registering to the mailing list, you will be informed on WG events.
  - **NEW:** Registration to SpW WG meetings can be done via: <http://spacewire.esa.int/swirewg/>  
(Userid: SpWlink Password SpW4space).

**SpW WG : ESTEC News – Change in SpW Secretariat:  
spacewire.secretariat@esa.int**

Esmeralda Barbi leaving  
TEC-ED



Maria Brestanska, TEC-ED  
administrative assistant now in charge



**Room Ch213 ext: 58559**

# Scope

**The meeting will address the following miscellaneous topics**

- SpaceWire Evolution (Convenor, M.Suess, ESTEC)
- SpW Deployment and Handbook (Convenor, B. Cook, 4Links)
- SpW Test, Verification and “Certification” (Convenor Y. Sheynin, UoStPg)
- SpW Backplanes (Convenors A. Senior SEA and M. Nomachi, UoO)

**And then focus on the following main topics:**

- SpaceWire-RT (Convenors Ph. Armbruster ESA and S. Parkes)
- SpaceWire-PnP (Convenor G.Rakow, NASA/GSFC)

**Before addressing the following items**

- SpaceFibre MLAS demonstration goals and recommendations
- SpaceWire International Conference 2010 – St Petersburg RU – June 2010 - (Pr. Sheynin)

## Day 1: Monday 14<sup>th</sup> of September PM – Room: Newton 1

14:00 **Welcome and Introduction**, ESA/Ph. Armbruster, ESA

14:30 **Session 1: miscellaneous topics**

- **SpaceWire Evolution** (Convenor, M.Suess, ESTEC)
  - Introduction and ECSS standardisation status, ESA/M.Suess
  - Half duplex SpW, 4links/B. Cook
  - Problem on Time-Counter and FCT credit counter, NEC/H. Hihara
  - Galvanic Isolation of SpW links, ESA/M. Suess
- **Return on experience while implementing SpW links and networks in Japan**
  - SpW Hardware implementation for Astro-H (implementation of SpW for Astro-H in Jaxa - considerations about DC offsets in the ground level), JAXA/M. Ozaki
  - Common communication scheme using common memory mapping over RMAP, UoO/M. Nomachi
  - Use case of redundant CODEC for single RMAP logic, UoO/M. Nomachi



## Day 1: Monday 14th of September PM – Room: Newton 1

- **SpW Deployment and Handbook** (Convenor, B. Cook, 4Links)
- **SpW Test, Verification and “Certification”** (Convenor Y. Sheynin, UoStPg)
  - SpaceWire InterFace Tester (SWIFT): first glance, NASA GSFC/ A. Kisin
  - Introducing SKYLAB Industries SpaceWire products: test solutions from low-cost to smart and high performance devices, Skylab/S. Davy
- **SpW Backplanes** (Convenors A. Senior SEA and M.Nomachi, UoO)
  - SpW Active Backplane developments SEA/A. Senior
  - Report on the prototype back plane and Possible implementation for the flight model, Mitsubishi Electric
  - Card Slice Approach to SpaceWire Backplane – discussion on some advantages of card slice approach and basic proposal for study NASA/G. Rakow

17:30/18:00 End session 1

## Day 2: Tuesday 15<sup>th</sup> of September (AM) – Room: Newton 1

9:15 *Opening Day 2, ESA*

### 9:30 **Session 2: SpaceWire RT**

- Presentations – options
  - Introduction ESA
  - To ACK or not to ACK *that is the question*, ESA/C.Taylor
  - SpaceNet SpW-(R)T UoD/S. Parkes
  - (SpaceWire RT - NASA perspective NASA/G. Rakow)
  - SpaceWire RT - NASA perspective JAXA/T. Yamada
  - Virtual Networks 4links/B. Cook
  - SOIS Synchronization Service and SpW-RT, ESA/F. Torelli
  - SpaceWire-RT case study ISAE/T. Fernandez for TAS-F/ A. Provost-Grellier
- Discussion on orientations to be taken (all)

13:00 *Lunch break*

## Day 2: Tuesday 15<sup>th</sup> of September (PM) – Room: Newton 1

- 14:00 **Session 2: SpaceWire RT cont'd**
- Progress of the PVS (Protocol Validation System), ASTRIUM (F)/C. Honvault and Teletel (V. Kollias)
  - Feedback from UoStPg about SpW-RT, Y. Sheynin
  - Roscosmos view on SpaceWire applications, Roscosmos/V. Grishin
  - Discussion on orientations to be taken (all)
  - Wrap-up and conclusions ESA
- 15:00 **Session 3: SpaceWire PnP**
- SpW PnP/XTEDS & CCSDS – discussion on NASA perspective for direction of SpW PnP and roadmap proposal for device description for CCSDS, NASA/G. Rakow
  - Synthesis of work on PnP in UoD, P. Mendham
  - Discussion on orientations to be given
- 16:30 **Session 4: Last but not least topics**
- SpaceFibre – Description of MLAS SpaceFibre demonstration goals and accomplishments and some recommendations, NASA G. Rakow
  - SpaceWire International Conference 2010 – St Petersburg (RU) – June 2010 (W25) Status
- 17:15 **Wrap-Up**, ESA/Ph. Armbruster

## **Day 2: Tuesday 15th of September (PM) – Room: Newton 1**

**Day 3 AM: Wednesday the 16<sup>th</sup> of September – room Df304**

9:30 to 12:30      Inter-Agency Meeting

### **Support Documents**

SpW-T Initial Protocol Definition V3.1

Virtual Networks

SpaceWire-RT case study

SpaceWire Handbook V2.2

**Registration** Registered external participants (F)

*Complementary slides*

Many Thanks to all of you, SpaceWire is beautiful