

# SpaceWire Working Group Meeting 9

## Introduction and Agenda

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## Introduction and objectives

### **Ninth SpW WG Meeting, 26th and 27th of April 2007**

Eighth SpW WG Meeting, 17th (PM), 18th and 19th(AM) of January 2007

Seventh SpW WG Meeting, limited to Inter-Agency meeting during MAPLD 06, Sept 2006

Sixth SpW WG Meeting, 18th and 19th of May 2006

Fifth SpW WG Meeting, 15th (PM), 16th and 17th of November 2005 ⇒ RMAP Draft E

Fourth SpW WG Meeting, 19th (PM), 20th and 21st (AM) of July 2005 ⇒ RMAP Draft D

Third SpW WG Meeting, 15th , 16th , 17th (AM) of February 2005 ⇒ RMAP Draft C

Second SpW WG Meeting, 10th PM, 11th , 12th (AM) of November 2004 ⇒ RMAP Draft B

First SpW WG Meeting, 15<sup>th</sup> and 16<sup>th</sup> (AM) of September 2004

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

- Mandate of the WG is manifold:
  - To share information related to the implementation of on-board networks based on the SpaceWire standard
  - To review and discuss services supported by networks on-board spacecraft
  - To define or register (via PID allocations) a set of Networking Protocols (e.g RMAP) for SpaceWire links, nodes and routers (SpW-SnP).
  - Cooperation is framed if required by Inter-Agencies agreements – (c.f. BepiColombo, JWST), in the spirit of the CCSDS.
  - Information is exchanged openly in a collaborative spirit in full respect of intellectual property rights (responsibility of each participant).
- Working Group composition – Open to Industry - Agency members shall act as focal points for national industrial and intra-agencies activities.

## Scope of the meeting

This meeting will be focusing on CCSDS SOIS services as defined by the corresponding draft Books and on their implementation on SpaceWire Network based Data Systems.

The main objectives of the meeting are essentially to:

- Provide feedback to the CCSDS SOIS Working Group on services definition and their adequacy in particular for SpW based on-board data systems
- Review and discuss how SpW networks can be mapped on CCSDS SOIS Sub-Network Layer services – and the reciprocal –
- Discuss Network Management and Plug&Play related topics

## Agenda Day 1: Thursday 26th of April

### 09:00 Introduction

- Scope of the meeting, logistics, Agenda, ESA/ESTEC Ph. Armbruster
- Introductory presentation on Data Systems, ESA/ESTEC Ph. Armbruster
  - Data Systems – Reference Architectures
  - Data Systems families and Embedded Systems – Development Methodologies
  - FDIR, Availability, Reliability and QoS Requirements
  - Plug and Play, Plug and Confirm or Connect on Demand?
- Case study: PaDaPAr Study and demonstrator, Astrium Satellites, O. Notebaert
- Other presentations and discussion

## Agenda Day 1: Thursday 26th of April

### 10:00 Overview on SOIS Services

- Introduction on SOIS, ESA/ESTEC, C. Taylor
  - SOIS architecture – Green Book
  - Context and Development Status
  - Objectives of the meeting

### *10:30 Coffee Break*

- Overview on Subnetwork services, Keltik, D. Stanton
  - Overview of each service
- Overview on Application layers support Services, Scisys, S. Fowell
  - Overview of each service
- Analysis of the CCSDS, SOIS services, JAXA, Takahiro Yamada

### *13:00 Lunch Break*

## Agenda Day 1: Thursday 26th of April

### 14:00 Detailed review of SOIS Services

#### Sub-Network layer

- Specific Topics – SubNetwork Services, Keltik, D. Stanton
  - Addressing, Management architecture, QOS, Open issues
- Inputs from other participants and discussion
- SOIS Services prototyping activities

#### Application layer

- Specific topics Application layer, Scisys, S. Fowell
  - Device identifiers, Plug and play, Requirements: use cases
  - Architecture: Device Discovery, Enumeration and management of Device Virtualisation & Access Services, Comparisons with USB 2.0
  - open issues
- Inputs from other participants and discussion
- SOIS Services prototyping activities

*16:00 Coffee Break*

## **Agenda Day 1: Thursday 26th of April**

### **16:15 Mapping of SpaceWire Networks on CCSDS SOIS**

- SpW and SOIS services – Overview, UoD S. Parkes
  - Synthesis and applicability of previous activities (e.g. TCONS and OBL)
  - SpW Networks specific features
  
- SpW Implementation of SOIS SubNet Services assessment, ESA/ESTEC, D. Jameux
  
- SOIS Services and SpaceWire Features, UoStPb Y Sheynin
  - PnP
  - Configuration space standardization for SpaceWire Nodes and Switches
  - Low-latency real-time signals and interrupts in the Services at the Application Support Layer and at the SOIS Sub-Network Layer (a problem statement)
  - CCSDS SOIS Services Prototyping, Plans in SOIS Services Prototyping and Analysis:
    - Time Distribution Services
    - QoS Packet Services
  
- Other presentations/contributions and discussion

### **18:00 Adjourn day 1**



## **Agenda Day 2: Friday 27th of April**

### **09:00 – 10:30 Cont'd presentations and Wrap-up Day 1**

- Cont'd Day 1 presentations
- Major outcomes
- Similar mapping exercises on other busses (e.g. Ethernet, Mil1553, CAN, 1394, ..)
- Way forward

*10:30 Coffee Break*

### **10:30 SpaceWire Working Group – other issues**

- "Embedded network architectures for mobile devices", Nokia, M. Gillet and Sergey Balandin
- "Different uses of logical addresses: Implementation of bandwidth allocation schemes", ESA/ESTEC, A. Ferrer Florit
- RMAP implementation issues, Gaisler Research, S. Habinc
- Co-ordination of some further SpaceWire development activities, UoStPg, Y. Sheynin
  - Simplex SpaceWire links operation mode, SpaceFibre activities and plans
  - SpaceWire backplanes, Cables and Connectors – investigation and measurement methodologies, unified procedures and a set of indexes

*12:30/13:00 End of Meeting*

## **Agenda Day 2: Friday 27th of April, Room Cf106**

### **14:00 – 17:00 InterAgency Meeting**

Limited to Agency representatives

Teleconf with NASA (G. Rakow)

## Next Event

### International SpaceWire Conference 2007

17-19 September 2007 West Park Conference Centre •  
319 Perth Road • Dundee • DD2 1NN • Scotland • UK

[www.spacewire.computing.dundee.ac.uk](http://www.spacewire.computing.dundee.ac.uk)