28th SpaceWire Working Group Meeting

Wednesday 7 March 2018 - Friday 9 March 2018

ESA/ESTEC

Scope & Topics

The SpaceWire Working Group is a forum aiming at promoting the usage of SpaceWire and SpaceFibre Links, Switches, Nodes and Networks and at developing the underlying technology. It has the additional mandate to steer new developments of devices, tools and protocols.

The following discussion topics are proposed for the coming SpW WG:

<u>SpW ECSS Rev 1 Standardization</u>

The DRR processing of the SpW ECSS standard Rev 1 has been finalized by the PHY and REST panel and the agreed solutions will be integrated by the editor. The WG will provide the chance for the community to provide feedback and raise comments.

<u>SpW Test Procedures</u>

Annex A has been removed from the standard and it is proposed to form a working group on defining the test procedure for SpW links. The topic has already been discussed in the SpW WG 27 and a process shall now be started to write a handbook on how SpW links shall be tested in the field. The composition and work content of this working group needs to be defined and volunteers to be found.

<u>SpW Transport Protocols</u>

Several transport protocols have been developed (e.g. SpW-R, SpW-D, STP-ISS) and the status of these developments needs to be analyzed with respect to

Independent validation of the protocols

Compliance against system level requirements, e.g. as defined in the ESA SAVOIR UNION working group or other agencies/ sources.

User needs for these protocols

Steps needed for ECSS standardization

<u>SpFi ECSS Standardization</u>

Space shall be provided to discuss topics around the latest SpFi draft standard. The current status will be shared with the community.

<u>SpFi Test Procedures</u>

It is proposed to form a working group on defining the test procedure for electrical and optical SpFi links. The topic has already been discussed in the SpW WG 27 and a process shall now be started to write a handbook on how SpFi links shall be tested in the field. The composition and work content of this working group needs to be defined and volunteers to be found.

<u>SpFi Transaction Layer</u>

Higher SpFi protocol layers, which have not been defined as part of the current ECSS SpFi standard, shall be discussed. It is proposed to start a working group to write a handbook to define these higher layer protocols. Open questions to be addressed are:

What are the end-2-end performance requirements in SpFi network applications and how to achieve them? How do these requirements brake down to building blocks like routers and end nodes?

The ESA SAVOIR UNIONS working group has defined system level requirements for on-board data handling networks. Are there different/ additional requirements from primes and agencies outside of Europe?

What needs to be defined to allow seamless integration of SpFi and SpW within the same network? How are SpW time codes, interrupts and broadcasts mapped to SpFi?

How to achieve unified network discovery and configuration of SpW and SpFi nodes and networks?

How to achieve FDIR in SpW/ SpFi networks? Which properties need to be provided by the network?

What needs to be done to achieve a standardized approach for FDIR in data networks?

The composition and work content of the SpFi transaction layer working group needs to be defined and volunteers to be found.

<u>Methodology and Tools for SpFi Networks</u>

The possibilities of SpW and SpFi networks can be difficult to understand from user side. The SpW/ SpFi community should provide methodologies and tools to configure and design the networks, including the physical and logical structure. Space shall be provided to discuss this topic and to identify potential approaches.

<u>SpW and SpFi Public Relation</u>

Mixed criticality data on-board data handling networks get more and more into the focus of the international space community and find their way into projects. Combining command and control traffic with science data on the same network has the potential to allow saving in multiple dimensions, e.g. power, mass, design simplification, etc. The benefits of SpW and SpFi for this application shall be discussed, as well as ideas on how spread them to the international space community.

<u>SpW Conferences and events</u>

The announcement and organization of SpW and SpFi recurring or ad-hoc events is tackled under this track, addressed traditionally at the end of SpaceWire Working Group meetings.