

## **THALASSIM – Modelling Standardisation of the Electrical Interfaces**

*Bratulic H.<sup>(1)</sup>, Maingam F.<sup>(2)</sup>*

*<sup>(1)</sup> Thales Alenia Space*

*Email: herve.bratulic@thalesaleniaspace.com*

*<sup>(2)</sup> Thales Alenia Space*

*Email: franck.maingam@thalesaleniaspace.com*

THALASSIM is a simulator product line used at THALES ALENIA SPACE France to support a large range of facilities:

- High Fidelity Simulator: equivalent to a Functional Engineering Simulator,
- Software Verification Facility (SVF),
- Platform Simulator (SimPF): equivalent to a Functional Validation Test bench,
- Avionic Test Bench (ATB and SimATB): equivalent to a Spacecraft AIV Simulator,
- Dynamics Spacecraft Simulator (DSS): equivalent to a Training, Operation and Maintenance Simulator.

THALASSIM is based on the K2 simulation infrastructure which provides all the services needed to make and to exploit a simulator. These services allow the assembly of a simulator from instances of models and the definition of the communication links between the instances. The communication mechanisms used in the K2 infrastructure are data flow and event based.

In order to increase reusability and efficiency while reducing cost and scheduling time, and thereby increase competitiveness in the development of our simulators, THALES ALENIA SPACE chose to:

- raise the level of standardisation in the modelling of electrical unit interfaces,
- define a software interface control document applicable to all equipment/unit models,
- have a high level of fidelity with regard to the electrical interfaces of real equipment/unit.

This presentation is intended to emphasise the standardisation of electrical interfaces for the equipment/unit required for the Constellations, Telecommunication and Observation & Science Spacecraft product lines.

These lines include:

- Spacebus 4000 and Alphabus product lines
- Global-Star 2 Constellation
- Sentinel-3

This standardisation covers all the main electrical interface types (telecommand , telemetry data, OBDH bus, B1553 bus, Spacewire link, system alarm, digital relay acquisition, clock signal, Low / High Level command, power supply, digital serial, analog , ...) of THALES ALENIA SPACE spacecrafts.