

PROJECT

RYTHMS

Reliability of opto-Transceivers for Health Monitoring Systems

Funding: European (Horizon 2020)

Duration: Nov 2018 - Oct 2021

Status: Ongoing

Total project cost: €1,101,341

EU contribution: €1,101,341



Call for proposal: H2020-CS2-CFP07-2017-02

[CORDIS RCN : 218778](#)

Background & policy context:

For aeronautic applications, in-service Structural Health Monitoring (SHM) is now established as a key technique to assess the performance and the integrity of composite aircraft structures for real-time in situ monitoring. In space industry, the Assembly Integration and Test including Electrical Ground Support Equipment is an essential tool enabling a satellite or space launcher developer to integrate and validate the electrical functions of its spacecraft before the launching process. In addition, satellite operators and worldwide SatCom manufacturers are willing to improve the on-board processing capacity, functionality and flexibility. In this context, opto-transceiver technology becomes a major building block regarding the highlighted aeronautic, space and ground telecommunication needs.

Objectives:

The RYTHMS project aims to bring the benefits of optoelectronics to aircraft and satellite data communications supporting multiple payload networks and improving performance (connectivity, flexibility, bandwidth, and number of channels). Especially, the development of a multi-channel high data rate transceiver (25 Gb/s per channel) will be demonstrated thanks to a dedicated optical test bench in order to establish the probabilistic reliability model of such products.

Methodology:

To satisfy this very innovative challenge and to push back the frontiers of the current state-of-the-art, RYTHMS' consortium involves industrial partners and academics holding the adequate heritage to elaborate and validate reliability model of high data rate optoelectronic transceivers for use in Aeronautics and Space systems. RYTHMS will develop an advanced generation of optoelectronic transceiver modules, a generic test bench platform and tools and methodology to validate such modules in compliance with the general requirements of DO-160 Standard. A set of extensive electro-optical characterization tests and an accelerated tests DoE optimized program to predict the transceiver reliability will be carried out.

Parent Programmes:

[H2020-EU.3.4. - Horizon 2020: Smart, Green and Integrated Transport](#)

Institute type: Public institution

Institute name: European Commission

Funding type: Public (EU)

Other programmes: JTI-CS2-2017-CfP07-AIR-02-57 Tests and Modelling for reliability characterization and robustness of optoelectronic transceivers for optical SHM systems

Lead Organisation:

Cmt+

Address:

22 BOULEVARD DEODAT DE SEVERAC BAT OMEGA ZONE D'ACTIVITE DES RAMASSIERS
31770 COLOMIERS
France

EU Contribution: €125,500

Partner Organisations:**AdvEOTec SAS****Address:**

6-8 rue de la Closerie - Lisses
91052 EVRY
France

EU Contribution: €258,816

Alyotech France**Address:**

2/6 PLACE DU GENERAL DE GAULLE
92160 ANTONY
France

EU Contribution: €49,585

Universite De Bordeaux**Address:**

351 Cours De La Liberation
33405 Talence
France

EU Contribution: €182,459

Thales Alenia Space France**Address:**

26, AVENUE JF CHAMPOLLION
31037 TOULOUSE
France

Organisation Website:

<http://www.thalesaleniaspace.com>

EU Contribution: €209,634

Radiall**Address:**

Rue Philibert Hoffmann 101
93116 Rosny Sous Bois
France

EU Contribution: €275,348

Technologies:

Condition monitoring
Structural health monitoring based on modelling

Development phase: Validation

STRIA Roadmaps: Vehicle design and manufacturing, Infrastructure

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Safety/Security, Digitalisation

Geo-spatial type: Other