

PROJECT

DEMONSTRATE

DEMonstration Of Novel fuSelage sTructuRAI inTEgrity

Funding: European (Horizon 2020)

Duration: Jan 2021 - Jun 2023

Status: Ongoing

Total project cost: €1,664,476

EU contribution: €1,299,571



Call for proposal: H2020-CS2-CFP11-2020-01

[CORDIS RCN : 232510](#)

Objectives:

DEMONSTRATE will realise an adaptable test rig, suitable for the full-scale testing of aircraft curved panels of variable geometry, at increased accuracy, reliability and cost-efficiency, through the advancement of innovative metrology technologies, simulation and optimisation, as well as application of innovative but cost-effective methodologies to reduce uncertainty, cost and time on aeronautical sub-components testing.

The objective of DEMONSTARTE, aligned to the 'Innovative light metallic and thermoplastic airframe section full scale testing' (JTI-CS2-2020-CFP11-AIR-03-10) topic is the full-scale testing of three airframe section demonstrators, two metallic and a thermoplastic fuselage panel with an integrated stiffening structure, to demonstrate their structural integrity, supported by advanced simulation methodologies correlated with experimental data.

Methodology:

A number of enabling technologies have been planned to be developed and matured within the duration of the project, which will result in the realisation of an efficient, reliable, and cost-effective test bench suitable for the full-scale testing of curved aeronautical panels, including:

- the development of a virtual testing methodology for the definition of the stiffened panels boundary and loading conditions;
- the further development of an innovative, cost-efficient, easily adaptable fuselage panel full-scale test bench concept;
- the development and/or adaptation of a wide range of novel measurement techniques; and
- the development and application of advanced simulation methodologies.

The developed test bench will be used for the execution of static tests on advanced metallic and thermoplastic curved integrally stiffened full-scale panels, representative of a business jet fuselage structure and the execution of an endurance test on an integrally stiffened 4th generation Al-Li curved panel.

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-CS2-2020-CFP11-AIR-03-10 Innovative light metallic and thermoplastic airframe section full scale testing

Lead Organisation:

Lgai Technological Center Sa

Address:

Campus Universitat Autònoma De Barcelona Facultat De Medicina
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Organisation Website:

<http://www.applus.com>

EU Contribution: €851,446

Partner Organisations:**Athina-Erevnitiko Kentro Kainotomias Stis Technologies Tis Pliroforias, Ton Epikoinonion Kai Tis Gnosis****Address:**

Artemedios 6 Kai Epidavrou 6
151 25 Maroussi
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Organisation Website:

<http://www.athena-innovation.gr>

EU Contribution: €448,125

Technologies:

Composite materials
Thermoplastic-based composite materials

Development phase: Demonstration/prototyping/Pilot Production

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport
Societal/Economic issues,

Transport policies: Safety/Security

Geo-spatial type: Other