

PROJECT

ATTILA

Advanced Testbed for Tiltrotor Aeroelastics

Funding: European (Horizon 2020)

Duration: Nov 2019 - Dec 2023

Status: Ongoing

Total project cost: €5,614,014

EU contribution: €5,614,014



Call for proposal: H2020-CS2-CFP09-2018-02

[CORDIS RCN : 225266](#)

Objectives:

The ATTILA project is aimed at the design, manufacture and testing of an advanced testbed for aeroelastic wind tunnel testing of tiltrotor aircraft.

The testbed will consist of a suitably instrumented aeroelastically scaled cantilevered half-wing with powered nacelle-proprotor system representative of the full-scale NGCTR-TD design. Advanced fibre optic sensor and contactless rotating power and data transfer techniques will be used. The design process, coupled with test iterations, is supported by detailed structural and aeroelastic simulations using a range of complementary codes. The ATTILA testbed will first be subjected to a wind-on shakedown test in the DNW LLF 6x6m test section in Froude scaled conditions. After the system functionality and structural dynamic characteristics have been verified, a second data gathering test will be performed in the NASA TDT heavy-gas transonic dynamics wind tunnel in simultaneous Froude and Mach scaled conditions, selected as subcontractor to NLR for its unique worldwide capability of meeting the full test requirements in terms of aeroelastic scaling capability, test Mach number, and model size. Testing will be performed in three mass/stiffness configurations covering 3x25 test points with test speeds up to the NGCTR-TD whirl flutter speed (at least $M = 0.56$). The proposed test campaign provides the highest possible fidelity experimental demonstration of the whirl flutter characteristics of the NGCTR-TD prior to high-speed flight testing in 2024-2025. Its productivity and safety will be ensured through the introduction of real-time modal damping analysis. The post-test data analysis phase includes a test-to-code correlation study in which the analytical models derived by the consortium are validated against the test results. Engaging a significant subcontractor (NASA), this 54-months €6,525,261 valued action is composed of 2 research centres (NLR, DLR), 1 non-profit foundation (DNW), 1 university (POLIMI) and 1 SME (Technobis).

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-CS2-2018-CFP09-FRC-01-27 - Tilt Rotor Whirl Flutter experimental investigation and assessment

Lead Organisation:

Stichting Nationaal Lucht En-Ruimtevaartlaboratorium

Address:

Anthony Fokkerweg 2
1059CM AMSTERDAM
Netherlands

Organisation Website:

<http://www.nlr.nl>

EU Contribution: €3,752,813

Partner Organisations:

Stichting Duits-Nederlandse Windtunnels

Address:

VOORSTERWEG 31
8316 PR Marknesse
Netherlands

Organisation Website:

<http://www.dnw.aero>

EU Contribution: €381,950

Technobis Fibre Technologies Bv

Address:

Pyrietstraat 2
1812 SC Alkmaar
Netherlands

EU Contribution: €166,500

Deutsches Zentrum Fr Luft Und Raumfahrt E.v

Address:

Linder Hoehe
51147 KOELN
Germany

Organisation Website:

<http://www.dlr.de>

EU Contribution: €1,132,751

Politecnico Di Milano

Address:

Piazza Leonardo Da Vinci 32
20133 Milano
Italy

Organisation Website:

<http://www.polimi.it>

EU Contribution: €180,000

Technologies:

Aircraft design and manufacturing
Aircraft design model

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Other specified

Geo-spatial type: Other

