

PROJECT

CONCERTO

Computation of cOmpouNd rotorCraft latEral RoTor nOise

Funding: European (Horizon 2020)

Duration: Mar 2018 - Sep 2021

Status: Complete

Total project cost: €634,936

EU contribution: €634,936



Call for proposal: H2020-CS2-CFP06-2017-01

[CORDIS RCN : 213806](#)

Objectives:

The main objective of the CONCERTO project is to provide the topic leader (Airbus Helicopters) of the Clean Sky 2 IADP Fast Rotorcraft with a new computational tool enabling the noise modelling and prediction of lateral rotors installed on the future LifeRCraft demonstrator. This tool, enabling both fast prediction and high-fidelity approaches, will include 3 modules: aerodynamics, free field acoustic and scattering effects. All three will be implemented in a chaining process, based on a seamless workflow and software environment that will be created during the project. While aerodynamics module relies on PUMA code (Free Wake) as Fast aerodynamic solver and TAU code (CFD) as High-fidelity solver, free field acoustic solver will use the KIM code (FW-H). KIM code will also be implemented for fast scattered acoustic prediction, while BEMUSE code (BEM) will be implemented for high fidelity scattered prediction.

The overall tool will be validated and applied to a subset of the LifeRCraft flight domain. The project will be implemented through 6 WPs: WP1 Workflow definition and implementation; WP2 Aerodynamics module; WP3 Free-field acoustic module; WP4 Scattered field acoustic module; WP5 Validation; WP6 Project Management, dissemination and exploitation. CONCERTO consortium, ONERA and DLR, will deliver and install the necessary tools at the topic leader location including documentation, support and possible updates during the 3 years of the project. With a total budget of about € 635,000, the project will go beyond the state of the art (investigating unsteady flight cases, capturing quadripole noise sources, solving efficiently the multi-frequency problem of combined main rotor and lateral rotors, etc.), and will fully address user needs, contribute to the maturation and future commercialization of a new aircraft vehicle satisfying new mobility roles, thus contributing to the competitiveness of the European aeronautics sector.

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-CFP06-FRC-02-20 Lateral rotor noise prediction dedicated to low noise footprint optimisation of a compound helicopter

Lead Organisation:

Office National D' Etudes Et De Recherches Aérospatiales

Address:

29, avenue de la Division Leclerc
BP72 CHÂTILLON CEDEX
France

Organisation Website:

<http://www.onera.fr>

EU Contribution: €382,193

Partner Organisations:

Deutsches Zentrum Fr Luft Und Raumfahrt E.v

Address:

Linder Hoehe
51147 KOELN
Germany

Organisation Website:

<http://www.dlr.de>

EU Contribution: €252,744

Technologies:

""""""Noise and vibration analysis model""""""

Development phase: Validation

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Environmental/Emissions aspects

Geo-spatial type: Other