PROJECT

ORBIT

Aerodynamic rigs for VHBR IP turbine

Funding: European (Horizon 2020)

Duration: Jan 2017 - May 2022

Status: Ongoing

Total project cost: €2,498,216

EU contribution: €2,498,216

Call for proposal: H2020-CS2-CFP03-2016-01

CORDIS RCN : 206849

Objectives:

The ORBIT project targets the environmental and competitiveness challenge of the European aeronautics sector, by addressing the topic of experimental validation rig testing to develop aerodynamic technologies for the multi-stage IP turbine of the Very High Bypass Ratio engine (VHBR).

The advancement of multi-stage IP Turbine technologies, as an important contributor to the VHBR engine concept, will participate significantly to the global objectives from Clean Sky2, which aim towards achievement of ACARE flight-path 2050 ambitious goals about CO2, NOx and Noise emissions.

The global objectives of this proposal are therefore aligned with the targets marked by Rolls-Royce for the Middle of Market Technology configuration. This proposal will deliver individual improvements in sub-system technology developments, to support the overall development of system level technologies capable of delivering substantial reductions in emissions.

Methodology:

The specific objectives of CTA as applicant partner, include all the tasks to permit the experimental validation of relevant aerodynamic technologies (i.e. design, manufacture, assembly and finally testing and post-processing). First four work packages propose the test of innovative geometries to assess the improved losses and reduction in the generated noise. The fifth work package is committed for the comparison of the former results with relevant reference rig tests, as an opportunity to integrate the new knowledge and enable the application of the innovations.

To guarantee the success of this proposal, it is required to develop European world-class test capability that includes the acquisition of testing and measurement. Experience from the participation in previous R&T European programmes is key to minimize program risks and deliver successfully aerodynamic rig test programmes in the required time scales.

Finally, the ORBIT project considers activities for the dissemination and exploitation of the results to maximize the expected impact on competitiveness.

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)

Lead Organisation:

Fundacion Centro De Tecnologias Aeronauticas

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Organisation Website:
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EU Contribution: €2,498,216

Technologies:

Aircraft propulsion
Ultra-high bypass ratio jet engine

Development phase: Research/Invention

STRIA Roadmaps: Vehicle design and manufacturing

Transport mode: Air transport

Transport sectors: Passenger transport, Freight transport

Transport policies: Societal/Economic issues, Environmental/Emissions aspects

Geo-spatial type: Other