



SUBLIME - Supporting Understanding of Boundary Layer Ingesting Model Experiment

The introduction of engines integrated with the rear fuselage (BLI engines) in large passenger aircrafts poses new challenges regarding accurate experimental assessment of their performance, especially in terms of power savings, over conventional propulsive architectures (e.g. podded engines) as the engine is fed with a distorted flow. The SUBLIME project will address this challenge, resulting in a flexible and robust experimental set-up to establish dependencies among the propulsor shape/position, the fan inlet distortion pattern and the corresponding power savings. A consortium of an R&D institute, an SME, and 2 Universities with complementary skills will produce this result in close coordination with the topic manager in 36 months, asking for a grant of € 3.612.500.

Coordinator ARA will provide a number of aircraft configurations equipped with BLI propulsors integrated in the rear fuselage, designed and optimized in cooperation with HIT09 (mainly responsible for CFD studies and fan design), Cranfield University (mainly responsible for theoretical and experimental force bookkeeping) and Chalmers University of Technology (mainly involved in engine cycle studies), to be subsequently manufactured and tested by ARA in their transonic wind tunnel.

The project will advance the state of the art in BLI studies by means of wind tunnel activities supported by high-fidelity CFD simulations to consistently predict full-scale behaviour of the aircraft architectures suitable for appropriate propulsor installation which minimizes inlet flow distortions and maximizes power saving. The results of installed wind-tunnel tested aircraft+propulsors will be delivered in full compliance with the call. SUBLIME will provide methodologies, tools and facilities to the European aviation industry, therefore contributing to releasing the full potential of power saving of BLI engines.

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Other Participants:

Hit09 Srl (Italy)

Chalmers Tekniska Hoegskola AB (Sweden)

Cranfield University (United Kingdom)

Aircraft Research Association Limited (United Kingdom)

Total EU Contribution: Euro 3.612.549,50

Call ID: H2020-CS2-CFP09-2018-02

Project Duration in months: 36

Start Date: 01/12/2019

End Date: 30/11/2022

Find out more: <https://cordis.europa.eu/project/id/864803>