A large role in the efficiency of the overall engine is played by the fan and bypass system. Lightweight, effective acoustic liners will be required to meet both the weight and noise emissions requirements. This presents an opportunity to develop the state of the art in intake liner acoustic and mechanical design and to test this liner in the engine environment.

This proposal is to partake in the acoustic optimization, mechanical design and manufacture of a novel aeroengine intake liner that aims to reduce the cost, weight, durability and improve acoustic attenuation performance.

Previous EU funded projects that Bombardier Aerospace Belfast (BAB) has been involved is such as FANPAC and SILENCE(R) have identified the potential for superior acoustic performance with acoustic treatments having a Non Linearity Factor (NLF) in the range 2.0 to 2.5. Considering this as a design objective, BAB has been developing zero splice micro-perforate composite acoustic liner facing sheets. This technology provides significant flexibility and benefits for acoustic liner design. These benefits include; NLF covering the complete target range, and more (2.0 to 5.0), uniform or varying impedance in any direction without hard-wall splices, single or double degree of freedom acoustic treatments and zero-splice intake acoustic liner designs.

The objective of this proposal is to elevate micro-perforate acoustic liner technology from TRL4 to TRL6. This will involve the manufacture of a full scale, zero-splice micro-perforate composite engine intake acoustic liner. This process will address challenges such as tooling design, component manipulation for
laser drilling and the application of the technology to large diameter nacelles.
[DoW Rev.1: Micro-perforate has been replaced with 1.2mm diameter mechanically drilled holes due to the results of the research showing that laser drilling was not currently feasible]
Complimentary studies will also be performed to optimise the design through testing to evaluate the degradation of composite material properties due to UV degradation and experiments to determine rain erosion properties of micro-perforate acoustic treatments.

Wissenschaftliches Gebiet

/natural sciences/physical sciences/optics/laser physics

Programm/Programme

FP7-JTI - Specific Programme "Cooperation": Joint Technology Initiatives

Thema/Themen

JTI-CS-2011-1-SAGE-03-009 - Large 3-shaft Demonstrator – Aeroengine intake acoustic liner technology development

Aufforderung zur Vorschlagseinreichung

SP1-JTI-CS-2011-01

Andere Projekte für diesen Aufruf anzeigen

Finanzierungsplan

JTI-CS - Joint Technology Initiatives - Clean Sky

Koordinator

SHORT BROTHERS PLC
Adresse
Airport Road, Queens Island
Bt3 9dz Belfast
Vereinigtes Königreich

Aktivitätstyp
Private for-profit entities (excluding Higher or Secondary Education Establishments)

EU-Beitrag
€ 1 747 751,50

Die Organisation kontaktieren

Kontakt Verwaltung
Gary Connery (Mr.)

Beteiligte (2)
UNIVERSITY OF SOUTHAMPTON

Adresse
Highfield
So17 1bj Southampton

Aktivitätstyp
Higher or Secondary Education Establishments

EU-Beitrag
€ 75 000

Adresse
National Technological Park, Plassey - Limerick

Aktivitätstyp
Higher or Secondary Education Establishments

EU-Beitrag
€ 112 576

Kontakt Verwaltung
Yan Qiao (Ms.)

Kontakt Verwaltung
Trevor Young (Dr.)

Permalink: https://cordis.europa.eu/project/id/296115/de

© European Union, 2019