**HiLamBiz — Result In Brief**

Project ID: 338517  
Funded under: FP7-JTI  
Coordinated in: Germany

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**Natural laminar flow technology becomes more mature**

*In their quest for more efficient future aircraft, aircraft designers have developed some elegant concepts such as that of laminar flow wings that can significantly reduce drag, fuel consumption, pollutants and noise. Building on the success of previous relevant European projects, EU researchers moved to the next step by measuring laminar flow and assessing drag improvements on a model business jet.*

Researchers who worked on the now-completed EU-funded project TELFONA successfully developed an aircraft configuration with laminar flow control and tested it in the European Transonic Windtunnel (ETW). As the most advanced aerodynamic test facility, the ETW featured a pressurised tunnel at cryogenic temperatures that provides real-flight Reynolds numbers by virtue of both increased pressure and decreased temperature.

The HILAMBIZ (Hilambiz) project continued where TELFONA left off. By assessing the technology benefits on a test bed, the project aimed to bring laminar flow technology to a higher level of maturity (technology readiness level 6).

Researchers placed focus on visualising the extent of laminar flow on the wings, quantifying drag improvements and assessing the buffet boundary of an innovative business jet configuration incorporating two sets of natural laminar flow wings.

Key to the investigation of laminar flow was the use of a temperature-sensitive paint to detect the position of the transition from laminar to turbulent flow.

The tests helped to considerably enhance knowledge about the sensitivity of laminar flow over wings at high lift coefficients. The experimental data obtained will be used as a unique platform for validating modern industrial computational fluid dynamic codes that incorporate prediction of the laminar/turbulent boundary layer transition.

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**Related information**

- Report Summary
- Final Report Summary - HILAMBIZ (HiLamBiz)

**Keywords**

Laminar flow, aircraft, drag reduction, business jet, European Transonic Windtunnel, flight Reynold number, HILAMBIZ

**Last updated on** 2016-10-12