Clearance of flight control laws using optimisation

From 2007-02-01 to 2010-01-31

**Objective**

Before an aircraft can be tested in flight, it has to be proven to the authorities that the flight control system is safe and reliable, i.e. it has to go through a certification and qualification process. Currently significant time and money is spent by the aeronautical industry on this task. An important part of the certification and qualification process is the clearance of flight control laws (CFCL). The overall objective of this project is to develop and apply optimisation techniques to CFCL in order to improve efficiency and reliability of the certification and qualification process. The application of an optimisation-based approach relies on clearance criteria derived from the certification and qualification requirements. To evaluate these criteria different types of models of the aircraft are employed, which usually both serve for clearance as well as for control law design purposes. The development of different models and of suitable clearance criteria are therefore also objectives of the project. Because of wider applicability optimisation-based CFCL will open up the possibility to design innovative aircraft that today are out of the application field of classical clearance tools. Optimisation-based CFCL will not only increase safety but it will also simplify the whole certification and qualification process, thus reduce costs. The speedup achieved by using the new optimisation-based approach will also support rapid modelling and prototyping and reduce “time to market”. It is therefore believed that the project is addressing the two top-level objectives of the Work Program, i.e. "To meet society’s needs for a more efficient, safer and environmentally friendly air transport." to win global leadership for European aeronautics, with a competitive supply chain, including small and medium size enterprises. Specifically the project targets Research Area 1: "Strengthening Competitiveness" and its first objective.

**Related information**

**Result In Brief**

A boost for aircraft safety

**Report Summaries**

Final Report Summary - COFCLUO (Clearance of flight control laws using optimisation)
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