

Design and Validation of the A350 Flexible Structure Control Law

By Stéphane Delannoy - Airbus

The Airbus A350 is the most modern long range civil aircraft, and sets the standards in the domain of efficiency and comfort. Even though it has been designed to be naturally very comfortable, its flexible structure can be excited by turbulence, generating some vibrations along the fuselage. Then, in order to reach the highest possible level of comfort, a specific function to dampen the flexible modes has been designed.

The result is a particularly comfortable aircraft, even in turbulent air. This presentation will explore the different tasks that have been conducted to design and certify this function in the very challenging period of flight tests. We will present the mathematical models of the aircraft that have been used, how they are identified in flight, what the control law consists of, and how it has been validated.