

## **Aeroacoustic Modelling in support of Low Noise Design**

### **– A Manufacturer's View –**

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Considerable progress in reducing aircraft noise has been achieved over the years. However further reduction is foreseen, in particular by means of innovative low noise component design practices, taking advantage of an improved understanding of noise generating mechanisms and of widespread implementation of advanced aeroacoustic simulations.

Following a description of the challenges and prospects associated with the integration of such techniques as part of multidisciplinary design processes, examples showing recent progress on several industrial applications are presented.

Advanced computational methods are first applied to aircraft engine noise prediction to evaluate fan [1] and jet noise [2] of conventional engine architecture as well as propeller noise of the fuel-consumption-efficient Open Rotor concept [3]. Specificities of helicopter engines are then addressed, namely the noise generated by the combustion chamber and the design of treated inlets and exhausts. Finally, the use of CFD-CAA to assess the effect of design and configuration changes on the aero-acoustic noise generated by Landing Gears is presented [4].

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