

ACOUSTICS2008/2795

The EU FP6 research project PROBAND - Objectives and first results

Lars Enhardt

DLR - German Aerospace Center, Mueller-Breslau-Str. 8, 10623 Berlin, Germany

Fan broadband noise is a major aircraft noise challenge now and in the future will be even more important. Novel low-noise engine architectures, such as ultra-high-bypass-ratio engines and lower-speed fans, can help address jet noise and fan tone noise, but previous EC-funded programmes have shown they are unlikely to reduce significantly fan broadband noise without improved understanding of the source mechanisms. PROBAND will accomplish a major technical leap in providing industry with an improved understanding of the broadband noise source mechanisms, with validated broadband noise prediction methods, and with low fan broadband noise concepts.

PROBAND will exploit the noise technology and methodology acquired in EC-funded projects and national programmes, to develop methods to allow the design of a fan system that will generate sufficiently low broadband noise to meet the EU noise level targets. This will be achieved by:

1. Developing a better understanding of broadband noise generation mechanisms using advanced experimental and computational techniques.
2. Developing and validating improved prediction methods using conventional computational fluid dynamics, and integrating them into industrial codes.
3. Exploring new prediction strategies using advanced computational techniques
4. Developing low broadband fan noise concepts.