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JISFA3#5 - Processing and analysis of flight test internal / external microphone measurements

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The identification and ranking of sound sources contributing to aircraft interior noise is not an easy task, due to the complexity of the involved physical phenomena. The turbulent boundary layer developed on the fuselage is recognized as one of the dominant sources, but there is also engine noise, airframe noise and noise from the air-conditioning system. When implementing flight tests, microphones can be installed on the fuselage outside the cabin to characterize external sources (jet and fan noise), but these suffer from heavy contamination by pressure fluctuations induced by the boundary layer. In this presentation, we'll look at how to take advantage of synchronous internal-external microphone measurements, whether for denoising external microphones, or assessing the contributions of different sources of internal noise.

Presenter(s): QUENTIN LECLÈRE (Laboratoire Vibration Acoustique, INSA Lyon); JÉRÔME ANTONI (Laboratoire Vibration Acoustique, INSA Lyon); E. JULLIARD (Acoustics Department, Airbus Operations S.A.S)

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