

# **Manufacturing aspects of active acoustic lining panel**

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## **ABSTRACT**

The reduction of exhaust gases and fuel consumption forces a rethinking of propulsion concepts in the transport sector - which does not stop at aviation either. Unfortunately, some of these new engine concepts offer desired improvement but also unwanted side effects for consumers (or passengers).

One example for these new fuel saving propulsion concepts are counter rotating open rotors (CROR). A negative side effect of engines with this propulsion concept is that it generates unpleasant vibrations and noise for passengers. These vibrations for frequency bands below 500Hz are transmitted to the fuselage and thus also to the cabin, affecting the passengers.

The reduction of noise in the frequency band below 500 Hz can be achieved by active lining structures. Active structural acoustic control (ASAC) systems are capable to reduce this noise by installing actuators and sensors within the lining for example.

Within work package 3 of the EU project ACASIAS an aircraft lining with an integrated ASAC system is developed. The focus of the paper presented here is the structural integration, the repair possibilities and the production of such a lining. The design as well as the formfitting of already existing moulds is addressed. Various manufacturing processes are presented and the choice of material and structure is explained.