

## **Aeroacoustic performance of high-lift airfoil with serrated slat cusp**

### **Abstract**

Experimental measurements to assess the aeroacoustic capabilities of 30P30N airfoil fitted with two different types of serrated slat cusps were carried out at the aeroacoustic wind tunnel at the University of Bristol. The results from the simultaneous surface pressure measurement within and close to the slat cove region and far-field noise measurements above the slat trailing edge are presented to gain a deeper understanding of the noise generation mechanism of the slat and other presented configurations. The far-field noise measurement results showed that significant noise reduction at the vortex shedding frequency can be achieved by the use of serration-2 and No-Cusp configuration. The coherence results for all the frequencies are almost zero for the No-Cusp configuration and the coherence was notably reduced for the Serration-2 configuration. Further higher order statistical and spectral analysis showed that even the serration-1 with small serrations reduces the energy within the narrowband peaks to some level.