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Experimental Investigation on Noise from Rod-Airfoil with Leading Edge Serrations

Authors : Siti Ruhliah Lizarose Samion, Mohamed Sukri Mat Ali, Con Doolan

Abstract : The present work is an experimental investigation of adapting a passive treatment leading edge serrations over a rod-airfoil flow-induced noise generation. The leading edge serrations are bio-inspired from a barn-owl silent flight. The rod-airfoil configuration is a benchmark configuration taken to investigate airfoil-turbulence interaction noise (ATIN). Location of serrations placed and the wideness of serrations are the two parameters taken in this study. The ATIN is reduced up to 3.5 dB for a wide leading serrations case. A correlation is found between the wideness of serrations and the noise reduction mechanism of the airfoil.

Keywords : aerodynamic noise, leading edge serrations, rod-airfoil, experiment
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