

COMPUTATIONAL EVALUATION OF ROTOR ALONE NOISE

Rahul Venkatesan
Assistant Professor
School of Aeronautical Sciences
Hindustan Institute of Technology and Sciences
Rajiv Gandhi Salai (OMR), Padur
Chennai-603 103, India
Email : rahulv@hindustanuniv.ac.in

Abstract

Transonic 2-Dimensional flow past the rotor was simulated to predict the pressure variation past the rotor through the CFD software ANSYS-Fluent. The mesh generated was found to have a direct impact on capturing the shock and effect of change in the angle of attack through the flow past the rotating blades were found to vary the strength of the passage shock between the blades. The effect of blade geometry on the fan noise radiated near field and far field were investigated. Through the effect of grid refinement, change of chord length and thickness the noise generated by the rotor was found to reduce considerably to an extent. The effect of blade geometry on the fan noise was also studied. The results were in good agreement with the available data from the literature which was evident from the N-waveform.