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Example of an optimized SUAS propeller

Aurora Awarded Contract by DoD to Develop Aero-acoustic Optimized Small Unmanned Aerial Vehicle Propellers

Cambridge, MA, May 11, 2010 – The Air Force Research Laboratory (AFRL) has selected Aurora Flight Sciences to develop an innovative propeller design software code that combines existing acoustic, aerodynamic, and stress codes into a single executable unit. The code will be capable of adapting an open, ducted, or some other propeller geometry or performance variable until an optimum aero-acoustic design is achieved. Such a system would have potential for designing SUAVs that are significantly harder to detect, along with improved aerodynamic performance, thereby providing much greater protection and safety for valuable SUAVs.

The acoustics of propellers has long been a factor of their design in their most common aviation applications - general aviation and regional transport design - driven by both passenger comfort and community noise regulations. Only recently has there been significant interest in the acoustics of propellers for small UAVs. Typically, the propellers of such vehicles have been derived from model aircraft propellers and little work has been done on the optimization of their design with regards to acoustics or performance.

According to the project's principal investigator, Paul Dahlstrand, "Typically propeller design had been done sequentially, alternating back and forth between aerodynamic and acoustic codes until a solution was found, which was almost certainly not optimal. Our approach will provide the propeller designer with a truly aeroacoustic-optimized solution." This technology will allow creation of a new technology-based tool to serve not only the US military market but also the commercial ultralight aircraft and radio-controlled aircraft markets as well.

About Aurora Flight Sciences

Aurora Flight Sciences designs and builds robotic aircraft and other advanced aerospace vehicles for scientific and military applications. Aurora is headquartered in Manassas, VA and operates production plants in Bridgeport, WV and Columbus, MS and a Research and Development Center in Cambridge, MA. To view recent press releases and more about Aurora please visit our web site at www.aurora.aero.

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