

## Optimization of the Aerodynamic Performances of an Unmanned Aerial Vehicle

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**Abstract :** This document provides numerical and experimental optimization of the aerodynamic performance of a drone equipped with three types of horizontal stabilizer. To build this optimal configuration, an experimental and numerical study was conducted on three parameters: the geometry of the stabilizer (horizontal form or reverse V form), the position of the horizontal stabilizer (up or down), and the landing gear position (closed or open). The results show that up-stabilizer position with respect to the horizontal plane of the fuselage provides better aerodynamic performance, and that the landing gear increases the lift in the zone of stability, that is to say where the flow is not separated.

**Keywords :** aerodynamics, drag, lift, turbulence model, wind tunnel

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