

# Efficient position of two long-range passenger aircraft in formation flight

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## Abstract:

In today's world, every airline is forced to look for new savings opportunities. One of the methods may be the use of formation flights in daily flight operations, which may allow a reduction in fuel consumption of several percent. The paper will present the genesis of starting the consideration of such flights and the possibility of their implementation in an airline.

The leader's plane generates vortices which, with the proper alignment of the planes to each other, can reduce drag in a wingman. However, the wrong position may not only have no positive effect, but may also be a threat to stable wingman flight. The article will present a method of using these vortices in such a way as to have a positive impact on the aerodynamics of the wingman.

A favourable position in the vertical and horizontal axis will be determined in relation to the vortex generated by the leader's plane in such a way as to obtain the greatest benefit in reducing fuel consumption. The determination of the appropriate position of the longitudinal separation cannot be done only with the greatest economic benefit in mind. The paper presents an operational analysis of the possibility of maintaining such a distance to obtain profit on fuel, but also to ensure the highest level of safety of the flight.