

## Aerodynamic Analysis of Multiple Winglets for Aircrafts

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**Abstract :** This paper provides a practical design of a new concept of massive Induced Drag reductions of stream wise staggered multiple winglets. It is designed to provide an optimum performance of a winglet from conventional designs. In preparing for a mechanical design, aspects such as shape, dimensions are analyzed to yield a huge amount of reduction in fuel consumption and increased performance. Owing to its simplicity of application and effectiveness we believe that it will enable us to consider its enhanced version for the grid effect of the staggered multiple winglets on the deflected mass flow of the wing system. The objective of the analysis were to compare the aerodynamic characteristics of two winglet configuration and to investigate the performance of two winglets shape simulated at selected cant angle of 0,45,60 degree.

**Keywords :** multiple winglets, induced drag, aerodynamics analysis, low speed aircrafts

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