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Title Radomes for JAGUAR aircraft: Closure Report

Author(s) K. Dhanalakshmi, J.S. Mathur, S.K. Chakrabartty

Division Computational & Theoretical  
Fluid Dynamics Division

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### Abstract

This report describes the use of Computational Fluid Dynamics (CFD) to determine the aerodynamic loads on the nose radome of the Jaguar aircraft. This data is used in the structural analysis and design of the radome using composite materials. Inviscid transonic flow past the nose radome has been analyzed for the specified flight conditions. A single block C-O type grid is generated using JUMGRID code and the solutions of the three-dimensional Euler equations are obtained using JUDEL3D code. For the transonic flow cases considered here the downstream conditions affect the upstream region, and hence the extension of the computational domain downstream of the radome is required. The body is extended in a simple conical way and an approximate canopy is added at the top of the downstream end. It has been observed that there is a significant effect on the nose radome due to the downstream extension of the body, i.e. the extension of the computational domain, but no significant effects are observed due to the presence of canopy whose distance is sufficient enough not to induce any disturbances at the nose region. The surface grid and pressure coefficient data have been used to get the interpolated values of the ratio of static pressure,  $P$ , to the free-stream static pressure,  $P_\infty$ , at the grid points of the finite element grid on the surface as required for further structural analysis.