

Abstract

Amr A. Mohamed Mohamed Hassan

An Assessment of Vehicle Side-Window Defrosting and Demisting Process

The thermal comfort of passengers within a vehicle is often the main objective for the climate control engineer; however, the need to maintain adequate visibility through the front and side windows of a vehicle is a critical aspect of safe driving. This paper compares the performance of the side window defrosting and demisting mechanism of several current model vehicles. The study highlights the drawbacks of current designs and points the way to improved passive defrosting mechanisms. The investigation is experimental and computational. The experiments are carried out using full-scale current vehicle models. The computational study, which is validated by the experiments, is used to perform parametric investigation into the side window defrosters performance. The results show that the current designs of the side-defroster nozzles give maximum airflow rates in the vicinity of the lower part of the window, which yields unsatisfactory visibility.