## Abstract

Four otherwise identical sedans had an infrared-reflective (IRR) film applied to differing sections of the vehicles’ glazing. An experiment was performed using two independent variables: air conditioning output (two different settings) and IRR film placement (windshield and front side windows, windshield only, front side windows only, and no IRR film applied). Dependent variables included subjective assessments of thermal comfort as well as objective measures of skin temperature and cabin air temperature.

Presence of the film significantly decreased skin temperature and cabin air temperature. Not surprisingly, the magnitude of this effect was larger in those conditions where larger surface areas of film were applied. Presence of the film was also associated with a significant increase in subjective assessments of thermal comfort, an increase that appeared to be at least partly independent of the air temperature inside the vehicle. That is, for any given air temperature subjective ratings of thermal comfort were better in those conditions in which the IRR film was applied.

The data from this study support the conclusion that IRR treatment can reduce the time required to reach comfort during vehicle cool-down. Further research should examine the relationship between subjective ratings of thermal comfort and the reduction in radiant heat that is associated with IRR treatment.