

Abstract Submitted
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Thermal Properties of Flashed Aircraft Skin ERIC NAGAMINE, USAF ACADEMY — The Air Force's Nuclear Hardness Database System (NHDBS) contains information on safe escape distances and vulnerability of aircraft exposed to nuclear detonations gathered from testing in the 1980s and 1990s. Since the 1990s, the Air Force has introduced new airframes and has made upgrades to existing airframes, so updating the NHDBS is of great importance. Funded by the Air Force Nuclear Weapons Center research has been done at the Air Force Institute of Technology (AFIT) since 2012 testing thermal effects on simulate aircraft skin samples beginning with aluminum coated with F16 paint. Research has shifted from simply gathering data in the testing apparatus to creating a model that can predict the survivability of aircraft exposed to nuclear flashes. Preliminary attempts at creating a model have given mixed results, mainly due to the physical properties of the samples being unknown. Our current research is exploring some of those physical properties, namely thermal conductivity and emissivity. Unflashed and flashed samples will be tested and thermal conductivity and emissivity will be measured at varying temperatures by utilizing a setup containing an IR camera, thermistor and thermocouple probes.

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