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Topic:

Crash Dynamics – Computer Modeling

Title:

SAE ARP 5765: Analytical Methods for Aircraft Seat Design and Evaluation - Update

Abstract:

SAE ARP 5765: Analytical Methods for Aircraft Seat Design and Evaluation is an industry document presenting the recommended practices for using simulation in the design and certification of aircraft seats. Along with the FAA and academia, the aviation community, through the SAE SEAT committee, has been developing this document since mid-2007. This presentation will provide an update that describes the current progress of the document, including the procedures suggested to show that a seat model is an accurate representation of its physical counterpart. The document has three main sections: calibration of a virtual anthropomorphic test device (v-ATD), validation of a full seat system, and best practices. The development of procedures for v-ATD calibration was supported by numerous sled tests conducted at NIAR. The best practices section includes suggestions for both modeling and testing, since typical development/certification tests usually do not provide sufficient data to support modeling efforts. The system validation section will expand on the concepts previously introduced in the FAA Advisory Circular 20-146. The document also contains a recommended procedure for comparing the results of sled tests to the output from a computer model.