

Model V&V for Commercial Aircraft Passenger Seat Certification by Analysis

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Abstract: Passenger safety is the number one priority for Boeing commercial airplanes, and seat installations are key aspect of passenger safety. While seat structural integrity and occupant safety of seat installation have been ensured through certification testing, the same level of passenger safety can be achieved by analytical methods due to the advancement of modern computer modeling and simulation technology. Boeing is working with suppliers and regulatory agencies on developing consistent methodology and process to use dynamic simulation toward seat certification per AC20-146. The process emphasizing on building block approach, ensuring that analyses and tests are verified and validated (V&V) from coupon level to the assembly level. Best practices in analysis tasks such as of material characterization, finite element modeling, contact modeling, and post processing are documented and used to ensure consistent and reliable simulation.