Test Experience in a Civil Transport Aircraft Engine Nacelle using a Solid Aerosol Fire Extinguishant

Douglas Ingerson

An industry initiative intermittently supported by the FAA Fire Safety Branch began in 2007 to replace halon 1301 with a particular solid aerosol fire extinguishant in a commercial aircraft engine fire zone, via the *Minimum Performance Standards for Halon 1301 Replacement in the Fire Extinguishing Agents/Systems of Civil Aircraft Engine and Auxiliary Power Unit Compartments* (MPSHRE). Given the differences between halon 1301 and a solid aerosol for the typical demands and proceedings in this application, notable challenges were expected and encountered. A revision change in the MPSHRE was one such challenge addressed. An additional challenge, from the resultant revision of the MPSHRE (revision 04), required the completion of high-fidelity demonstration testing to validate the outcome from the primary/generic MPSHRE testing as a reasonable concentration design value for this solid aerosol. This presentation provides pertinent high-level history, background, and data and observations from the demonstration test project for this particular solid aerosol. This testing occurred in the fire zone of the #2 aircraft engine on the FAA-owned Boeing 747SP resident at the FAA Technical Center. Information provided in this presentation is limited to that which currently is not proprietarily sensitive.