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Integration of Structural Health Monitoring (SHM) Solutions onto Commercial Aircraft via the FAA SHM Research Program

Paul Swindell¹, Jonathon Doyle¹, Dennis Roach², ¹Federal Aviation Administration, William J Hughes Technical Center, Atlantic City, NJ 08405, USA ²Sandia National Laboratories, FAA Airworthiness Assurance Center, Albuquerque, NM, 87185 USA

The Federal Aviation Administration (FAA) started a research program in structural health monitoring (SHM) in 2011. The program's goal was to understand the technical gaps of implementing SHM on commercial aircraft and the potential effects on FAA regulations and guidance. The program evolved into a demonstration program consisting of a team from Sandia National Labs Airworthiness Assurance NDI Center (AANC), the Boeing Corporation, Delta Air Lines, Structural Monitoring Systems (SMS), Anodyne Electronics Manufacturing Corp (AEM) and the FAA. This paper will discuss the program from the selection of the inspection problem, the SHM system (Comparative Vacuum Monitoring-CVM) that was selected as the inspection solution and the testing completed to provide sufficient data to gain the first approved use of an SHM system for routine maintenance on commercial US aircraft.

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