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SYMPOSIUM ON COMMERCIAL SPACEFLIGHT SAFETY ISSUES (D6)
Commercial Space Flight Safety and Emerging Issues (1)

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UPDATES TO THE FAA PUBLIC RISK CRITERIA AND EVALUATION FOR MISSIONS LIKE ORION'S FIRST ENTRY FLIGHT TEST

Abstract

On December 5, 2014, a Delta IV Heavy rocket launched from Cape Canaveral Air Force Station with the Orion Multi-Purpose Crew Vehicle (MPCV) as the payload for the first Entry Flight Test (EFT-1) mission: a two-orbit, four-hour flight that tested many of the systems most critical to safety. The EFT-1 mission was a complete success, and a major stepping stone to the eventual crew-capable MPCV that will enable human exploration missions by NASA to go Beyond Earth Orbit (BEO).

The FAA granted two separate licenses to authorize the EFT-1 mission: (1) for launch of the Delta IV Heavy conducted by the United Launch Alliance (ULA), and (2) for the reentry of Orion for its first orbital flight test mission conducted by Lockheed Martin (LM). At the 2014 IAC, the FAA presented a paper to explain some of the technical and regulatory complexities involved in the license evaluation conducted by the FAA for this mission, which involved the purposeful re-entry of the Centaur upper-stage as well as the Orion re-entry vehicle. This paper will explain subsequent updates and clarifications relevant to the launch and re-entry risk criteria applicable to EFT-1 and any other commercial mission that involves planned re-entry of an upper-stage after the vehicle achieves orbital insertion, whether related to human spaceflight or of an entirely robotic nature. Specifically, this paper will explain how the updates and clarifications would be consistent with collective public risks estimated for the EFT-1 mission, and thus would have relieved the need for the waivers issued.