

184. HUMAN RATING OF COMMERCIALY OPERATED SPACECRAFT

PROJECT AT-A-GLANCE

- **AST RDAB POC:** Rey, René
- **AST RESEARCH AREA:** 3.4 Human Spaceflight - Human Rating
- **PRINCIPAL INVESTIGATOR:** Klaus, David
- **EXECUTION ENTITY:** CU
- **PERIOD OF PERFORMANCE:** Jan 3, 2011 - Jan 6, 2012
- **STATUS:** Ongoing

PROJECT DESCRIPTION

PURPOSE: Human Rating is a broad-reaching topic that brings together the process of integrating a human into a spacecraft system for safe and reliable operations. This process first requires ensuring that fundamental human physiological needs are satisfied, makes use of human capabilities as an integral element of design and operation of the vehicle, and controls hazards and manages safety risks intended to protect the public, the flight crew and passengers, and ground personnel to the maximum extent possible during all phases of the mission.

OBJECTIVES: The objective of this work is to define the criteria for human rating of a commercial spacecraft habitat and launch vehicle, either individually or as an integrated spacecraft system, as appropriate. NASA's current governing document (NPR 8705.2B) describes this process as it applies to the development and operation of crewed space systems developed by NASA and used to conduct NASA human spaceflight missions. The process of ensuring compliance and verification for commercially-designed space vehicles flying on independently operated (i.e., non-NASA) space missions has not yet been defined.

GOALS: Review, extension and/or modification of the requirements defined in NPR 8705.2B and in other relevant NASA and FAA documents as determined applicable for commercial spaceflight; definition of compliance and verification processes for commercial spacecraft developers and operators; definition of the human physiological parameters within which a commercial spacecraft must function; and determination of acceptance criteria to achieve human rating designation. Moving from mission with crew and space flight participants into the passenger carrying era will also be given consideration.

STATEMENT OF WORK

1. Extend and/or modify the requirements defined in NPR 8705.2B as determined applicable for commercial spaceflight,
2. Apply the definition of compliance and verification processes for commercial spacecraft developers and operators,
3. Define the human physiological parameters within which a commercial spacecraft must function, and

4. Determine acceptance criteria to achieve a human rating designation. The resulting deliverable will be a set of baseline Human Rating Guidelines and Recommended Requirements for Commercial Space Transportation, including validation and verification processes.