HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
Enablers for the Future Human Missions (7)

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COMMON DOCKING NAVIGATION SYSTEMS

Abstract

The next generation of space transportation systems is being designed to enable humans to safely execute rendezvous, proximity operations and docking (RPOD) with various space systems, including the International Space Station, NASA space transportation systems, other international space systems, and commercial systems. As the number of countries and commercial entities executing these critical but potentially risky mission functions grows, one approach to ensuring safe, sustainable programs is to establish common RPOD standards and capabilities for implementation in all systems. By doing so, the risk of failure resulting in loss of mission or loss of crew can be substantially mitigated. Ball Aerospace is developing RPOD capabilities for cross-compatible, robust application of high reliability, fault tolerant relative navigation systems across transportation elements (commercial systems, crew exploration vehicle, heavy lift vehicles and robotic vehicles). Core methodology, standards and technologies are extensible for application to a broad range of relative navigation requirements, including surface navigation, landing and RPOD. This paper will provide a description of how this can be accomplished.