IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)
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BOEING STARLINER ORBITAL FLIGHT TEST RESULTS AND LESSONS LEARNED

Abstract

The Starliner Orbital Flight Test (OFT) in December 2019 was a key event in Boeing's development program in preparation to transport NASA crew to and from the International Space Station (ISS). The uncrewed flight test was the culmination of a robust test program that built systematically from component-level testing, to subsystem testing, to integrated vehicle system level testing. Due to an issue related to the Mission Elapsed Timer setting, Starliner did not achieve an orbit that allowed docking with the ISS as planned, and due to unanticipated cycles on thrusters, the decision was made to bring the Starliner home for a land landing early. OFT post-flight data review has shown the performance of most phases of the mission and most subsystems performed within or better than pre-flight predictions, including launch, separation events, environmental control, thermal protection, power, propulsion and landing systems. Operational teams also performed incredibly well during all phases of the flight. A joint NASA-Boeing team conducted a detailed investigation and root cause analysis of the anomalies experienced on OFT, and has provided a detailed set of actions that are being completed by the program team. Boeing is communicating flight test results and lessons learned to the spaceflight community so that the Starliner flight test experience might benefit all who share our objectives for safe and successful human spaceflight.