

IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)
Commercial Human Spaceflight Programs (2)

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MULTI-PURPOSE COMMERCIAL MODULES

Abstract

A careful consideration is given to the key characteristics of the modules designed to carry commercial space flight participants and to perform programs on near-Earth-orbit stations. It is being analyzed how to minimize resources, provided by the orbital station, and limitations imposed on onboard operation. Commercial modules can also share their resources (e.g., volumes to stow hardware) with the orbital station. Operation of the module in visiting mode is of great interest. When Space Flight Participants are onboard, the module is docked to the station, when the module is uncrewed it is in free flight mode (free flying). Combination of free flight and station-integrated crew flight modes allows intensifying commercial utilization program payback. Along with that, this demands that the module should have additional capabilities and resources (propellant, power, etc). The assessment is given to the expediency of utilization of a purely commercial module integrated into the station, a commercial module integrated into an Orbital Station governmental program, a multi-functional commercial module aimed at performing a complex program that comprises both autonomous unmanned flight phases (free flights) and station-integrated crew flight phases with a Space Flight Participant onboard. Keywords:(Multi-Purpose Commercial Module, ISS, LEO, Space Flight Participant)