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BARTOLOMEO - COMMERCIAL EXTERNAL PAYLOAD HOSTING FACILITY ON ISS

Abstract

For the commercial use of low Earth orbits, access to space and the space segment hardware are major challenges in terms of the affiliated costs. Airbus DS and Teledyne Brown Engineering propose to provide, within the next two years, a quasi-autonomous platform, capable of hosting multiple external payloads on the ISS. This platform, called "Bartolomeo," is proposed to be installed, supplied and operated in a collaborative public-private utilization scheme with ESA, NASA, and other partners in the ISS program. The Bartolomeo platform is designed to host payloads up to the ISS FRAM-based standard size outside the European Columbus module and to give them access to the power and data resources of ISS. Bartolomeo will feature an active cooling system to provide cooling capability to payloads, if required. Based on the design of Teledyne's Multiple User System for Earth Sensing (MUSES), Bartolomeo gives pointing and stabilization capability to remote sensing payloads requiring zenith, nadir or limb views. The platform's avionics system is designed to operate multiple payloads installed on the platform, including communication and data handling with the ISS Columbus Module. Platform and payloads use standardized interfaces and are designed to be installed fully robotically using the ISS Robotic Manipulator System, as is the mode of operations for MUSES. The platform and payload operation will be available as end-to-end service to the customer, dedicated to providing fast, cost-efficient and reliable access to ISS. Bartolomeo provides satellite platform-like infrastructure, ready to be used by a variety of payloads, thereby providing utilization opportunities to customers very quickly and responsively to actual needs. This new payload hosting solution in Low Earth Orbit (LEO) will be beneficial for scientific, educational and commercial users worldwide. Derived from currently active US-based commercial ISS services the envisioned standard mission lead times are between 12 and 18 months. Together, with the turnkey mission prices enabled by the concept, these promote the use of ISS by making it available to new types of missions including: Earth remote sensing, helio- and astrophysics, astronomy, and in-orbit technology testing. Bartolomeo is part of Airbus DS's commercial ISS utilization initiative.