

Space Stations (9)

Space Stations (1)

Author: Mr. Yannick JEGO

Airbus Defence & Space, Germany, yannick.jego@airbus.com

Dr. Christian Steimle

Airbus Defence and Space, Germany, per-christian.steimle@airbus.com

Mr. Andreas Lindenthal

Airbus DS GmbH, Germany, andreas.lindenthal@airbus.com

Mr. Pierre-Alexis Joumel

Airbus Defence and Space, Germany, pierre-alexis.joumel@airbus.com

BARTOLOMEO: EXTERNAL PAYLOAD MISSION HOSTING ON THE ISS AS A SERVICE

Abstract

Bartolomeo is the brand-new commercial external payload mission hosting platform on the International Space Station's Columbus module. With 12 new external payload sites, most of them with excellent nadir, zenith and limb viewing Bartolomeo provides a well-required extension of ISS external utilization capabilities. Payloads are accommodated using the General-purpose Oceaneering Latching Device 2 (GOLD-2) which enables full robotic servicing of the facility. As a standard Bartolomeo offers to host payloads in a range of 3 Cubesat units up to 800 x 1,500 x 1,000 mm, with a mass of up to 450 kg. Smaller payloads are combined in the ArgUS multi-payload frame installed on one standard slot. Bartolomeo introduces a new operational concept to external payloads on the space station: all payloads can be operated by the customer from ground through a cloud-based console using the functionality of the Columbus Multi-Purpose Computer Communication (MPCC) system. With this new operations scenario, Bartolomeo introduces a new, payload operator-oriented service of conducting a space mission in LEO in a low effort and cost-efficient way. Through its new design and versatility Bartolomeo will enable new or simplify existing mission scenarios. The payload volume range and the accommodation through the GOLD-2 interface is compatible with both the Kibo module and NanoRacks payload airlocks, enabling the return of external payloads or samples. With a lead time of 18 months the All-in-one Space Mission Service offers end-to-end mission integration with standardized interfaces definition at standard prices. The Bartolomeo platform was launched and robotically installed on the outside of the ISS Columbus Module in March 2020. The final cable connections were performed during EVAs in early 2021 and by the time GLEX takes place the platform should be well advanced in its commissioning phase. The low cost payload to platform interfaces, the integrated mission service and the simplified operations scenario will enable cost-efficient mission in LEO which are attractive for agency, institutional and commercial customers. First customers include ESA and DLR as well as up-and-coming New Space Companies and Start-Ups with a wide range of applications, from space-testing an innovative camera to researching our Planet's ionosphere. Bartolomeo is an investment of Airbus into a partnership with the European Space Agency (ESA) in the context of ISS commercialization. Payload sites on the new facility are accessible to customers world-wide through commercial contracting with Airbus. Payloads are launched and operated by the Bartolomeo All-in-one Space Mission Service in cooperation with ESA and the Center for the Advancement of Science in Space (CASIS). Airbus has also an IDIQ in place for the hosting of Payloads from NASA and US Government.