24th IAA SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)
Access to Space for Small Satellite Missions (5)

Author: Dr. Patrick Neumann
Space Industry Association of Australia, Australia

Dr. Christian Steimle
Airbus Defence and Space, Germany
Mr. Ian Whitchurch
Australian Space Industry Chamber of Commerce, Australia
Mrs. Katherine Pegg
Airbus Defence and Space (DS), Germany

FACILITY FOR AUSTRALIAN SPACE TESTING (FAST) ON THE INTERNATIONAL SPACE STATION - AN OPPORTUNITY FOR SMALL SCIENTIFIC AND EDUCATIONAL PROGRAMS

Abstract

Neumann Space's Facility for Australian Space Testing (FAST) aims at making space both accessible and affordable for small organisations. The initial FAST is a 100 kg payload, shared between various sub-payloads, for the Bartolomeo external payload facility on the outside of ESA's Columbus module on the International Space Station. The first FAST payload is due for launch in late 2018. FAST will benefit from all features provided by the new Bartolomeo payload hosting platform. Through its various payload interfaces Bartolomeo provides a versatile hosting solution for all payloads in a mass range of 50-599 kg. FAST, however, will accommodate smaller payloads of 1-50 kg by having them share a payload slot with other small size payloads, supporting this via providing standardised power, communication and cooling connections, as well as assistance with standards and safety qualification. Designed to meet user requirements from the commercial and institutional sector, Bartolomeo complements the space station with its unique mass allocation, power, and robotics capabilities and resupply logistics with unique features: access to best viewing angles in nadir, zenith and limb directions with minimal obstructions from other ISS elements, choice between unpressurized and pressurized launch of payloads to ISS, payload or sample return option, an enhanced data downlink capability of 3.75 Terabyte/day through optical communication, and easy access to space with standardized payload interfaces, integrated mission solution with pre-developed payload modules, and a simplified mission integration scheme. Payloads thereby benefit directly from the partnership with the ISS program providing frequent access to space with its resupply vehicles, meaning that any disruption to the schedule of a given vehicle might be countered by moving the FAST module to a different scheduled vehicle. Whereas Bartolomeo is a response to a demand for access to low Earth orbit at competitive market prices and short turnaround times for major commercial and institutional clients, Airbus and Neumann Space recognise that there is also a demand for bringing even smaller payloads onboard the International Space Station. FAST provides an opportunity for small scientific and educational programmes. An example of such a payload is that of Neumann Space's own Neumann Drive, where a pulsed cathodic arc electric thruster is to be space tested on FAST, and the educational payload built and operated by students from Rooty Hill High School in Sydney, NSW. The paper will describe the FAST facility and technical standards as well as concrete examples of scientific and educational utilisation.