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THE TET-1 ON-ORBIT VERIFICATION MISSION – STATUS AND FUTURE OPPORTUNITIES

Abstract

With the launch of the TET-1 spacecraft in July 2012 the German DLR Space Administration laid the foundation for the successful On-Orbit Verification (OOV) Program. TET-1 is the first satellite of a series of small satellites in the 100 kg class to serve the OOV program in order to support German and European industry and research institutes with the in-orbit demonstration or verification of new and innovative technologies.

TET-1 was developed by Kayser-Threde with its partner Astro- Feinwerktechnik in a time of only 2.5 years. After successful launch the LEOP was completed in one day and the commissioning phase commenced immediately thereafter. This was when the crucial Payload Supply System (PSS) was switched on and successfully tested. The different experiments were then tested consecutively. Since October 16, 2012 TET-1 is fully operational and is undergoing the routine mission operations. During this mission time of about one year the eleven experimental payloads on board are being tested in space.

All eleven payloads of the first On-orbit Verification mission are operated successfully and commanded by the German Space Operations Center (GSOC). With the payload data downloaded via ground stations Neustrelitz and Weilheim and provided via secure internet access to the payload provider, they can evaluate their experiments on TET-1.

The paper provides information on the status of each of the eleven payloads for the TET-1 mission and on the bus and the flexible, modular Payload Supply System (PSS) of the spacecraft. The paper also summarizes the success of the on-going TET-1 mission with results already available from this first OOV mission. The next OOV mission, TET-2, is currently studied in Phase B and also funded by the German Space Agency as a national program. A preliminary selection of the different payloads has already been conducted.

A description of further opportunities for the current and the follow-on OOV missions as well as of the TET small satellite series for different mission types will complete the paper.