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AISAT, VENTA-1 AND MAXVALIER NANOSATELLITES BASED ON QUADSAT PLATFORM

Abstract

The QuadSat Platform is a modular approach for nano satellites and is developed by the University of Applied Sciences Bremen. The modularity of spacecraft bus subsystems and different payloads allows cost efficient and rapid mission development, deployment, spacecraft manufacturing and testing. The first missions based on this concept are the AISat, Venta-1 /QSPnP-1 and MaxValier spacecrafts. The AISat nano satellite project at the University of Applied Sciences Bremen is funded by the DLR Institute of Space Systems in Bremen and the mission goal is to test the new space based maritime automatic identification system (AIS) payload. The Venta-1 spacecraft is build under the contract with the University of Applied Sciences in Ventspils, Latvia and is supported by the High-Technology Park in Ventspils. The main payload is the above mentioned AIS receiver which will be provided by LuxSpace, a small company in Luxembourg which is working on professional space based AIS payloads and services. The first Latvian Venta-1 spacecraft will carry in addition the latest plug-and-play technology demonstrators and experiments from Sweden and the US, provided by the AAC Microtec company in Uppsala, Sweden. The MaxValier spacecraft is a project at the Max Valier technical school in South Tirol, Italy and is significantly supported by OHB-System AG in Bremen. This spacecraft's main payload will be an X-ray micro telescope (Rosi) from the MPE, Munich. It will be used for new technology testing and X-ray mapping of the universe by hobby astronomers. The secondary payload on MaxValier spacecraft is the same AIS receiver module as on Venta-1 provided by LuxSpace. The paper provides the main information about the three spacecrafts and mission designs and the potential of further similar low cost nano satellite missions based on proven and high reliable QuadSat modules.