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# CUBESAT VERIFICATION CAMPAIGN: EXPERIENCE FROM THE FLY YOUR SATELLITE! PROGRAMME

**Abstract**

This paper outlines the verification activities performed on the CubeSats that are part of the "Fly Your Satellite!" programme of the ESA Education Office. Within "Fly Your Satellite!", the participating CubeSat student teams are supported for the design, development, assembly, verification, and for the launch opportunity of their CubeSats. The teams receive direct technical guidance from ESA professional specialists for the preparation and execution of the verification activities, and are offered sponsorship and access to state-of-the-art test facilities at ESA for the execution of the test campaigns.

The spacecraft verification activities encompass the typical verification methodologies, i.e. review of design, inspection, analysis, and test (in both ambient and space representative environmental conditions).

The primary goal of the programme is educational, and it intends to contribute to better prepare the next generation of space professionals for ESA and for the European space industry. Students from ESA member or ESA cooperating states are offered the possibility to interact with experienced ESA professionals, which facilitates a transfer of know-how and experience among different generations of engineers. Students are introduced to the engineering best practice for spacecraft development and verification, adopting and tailoring standardised methodologies used also for bigger satellite projects, and this is expected to increase the chances of mission success. Those CubeSat teams that by means of the verification performed under ESA's supervision demonstrate the good functionality and performance of their CubeSat, are finally offered a launch opportunity by the ESA Education Office.

The paper focuses on the activities undertaken for the CubeSats verification campaign, and provides insight into the functional tests, mission tests, vibration tests and thermal vacuum tests performed. The approach adopted by the Education Office is explained, and lessons learned presented.