

52nd IAF STUDENT CONFERENCE (E2)
Educational Pico and Nano Satellites (4)

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ASSEMBLY, INTEGRATION AND TESTING PROCESS FOR THE OIRTHIRSAT STUDENT
NANOSATELLITE**Abstract**

The increasing capability of nanosatellite components, combined with the reductions in cost and wider availability have seen the number of student-built nanosatellites increase over recent years. These programmes are often part of skills development initiatives such as the Launch UK Nanosatellite Design Competition which aims to improve the skills of young engineers and scientists in higher education. OirthirSAT is a scottish student-led project with funding from the UK Space Agency to demonstrate in-orbit processing of coastal habitats using machine learning algorithms while encouraging careers in space and promoting space systems engineering and climate science as areas of research. A key enabler for improving the skills of young engineers in the space sector is access to hardware and assembly, integration and testing (AIT) procedures. Most student projects will feature the design of Cubesat components but will rarely progress to a full verification process resulting in a qualification review. The OirthirSAT mission has progressed from CDR into phase D of the engineering lifecycle and it is therefore important to share information relating to the approach to AIT for other student teams that may progress through to the qualification stage. This paper outlines the AIT activities planned and undertaken during the OirthirSAT programme and highlights the key testing activities performed to fully qualify the nanosatellite. A guide to the processes, sign-off procedures and testing methodology derived from ECSS standards for the nanosatellite subsystems is provided along with a general overview of the OirthirSAT mission to date. A plan for incorporating the subsystem engineering models into engineering course laboratories to maximise the impact of the programme is included.