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Small Earth Observation Missions (4)

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THE SSTL-X50 TRUECOLOUR MISSION

Abstract

Demand for small low-cost spacecraft by themselves or in groups has been increasing significantly over recent years. In order to address this demand, SSTL has investigated, qualified and implemented a new satellite platform production process and associated new set of avionics. The process makes significant use of modern automated manufacture and test techniques, and the avionics are designed taking this into consideration. The consequence of this is that significant savings in production costs and schedule are achieved, which are quantified in this paper. Most of the effort has been focused on qualifying the production process, to ensure it meets the strict requirements placed on equipments for long life operational space missions. The first mission which will be produced using these new avionics and processes has been contracted, and will be using a new SSTL-x50 platform. In future SSTL also plans to use the new avionics in its larger satellite platforms.

This paper will give an update on the architecture, design and production approach for the new platforms along with details such as the platform performance, lifetime and expected recurrent price. Levering off the recent advances in SSTL capabilities in production, automated testing and new technologies, as well as the innovative approaches applied to the STRaND project, this will represent the biggest jump (upwards) in performance and the biggest step (downwards) in platform cost since the SSTL-100 platform was first introduced in the early 2000s.

Within the X50 class of missions, the SSTL-X50 TrueColour mission is a unique Earth observation mission aimed at dramatically improving the performance of the previous DMC satellites. The new instrument will continue to deliver the traditional green, red and near-infrared bands with the trademark DMC wide swath, but will add to these blue and SWIR bands. In addition the resolution is improved to cater for the ever increasing demand for image detail. The paper will describe the performance envelope of the mission and describe the applications that it is targeting. The paper will also discuss how this mission will fit within the market place given the introduction of the free data that will be available once Sentinel-2 launches later this year.