SMALL SATELLITE MISSIONS SYMPOSIUM (B4)
Design and Technology for Small Satellites - Part 2 (6B)

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ENVIRONMENT TEST CENTER DEDICATED FOR NANOSATELLITES: PROGRAM EXPERIENCES

Abstract

An idea of "nano-satellite environment test center" is proposed as a way to reduce the development cost of nano-satellite while keeping the system reliability. We propose to establish the center at a university with a small company serving as a liaison between the customers and the university. The center lightens the burden on the system development unit associated with various management tasks regarding the environment tests. It also guarantees the traceability of the test process and the verification based on unified standard from the top (system) to the bottom (component). The system development unit can concentrate on design and integration making satellite development by a small company without any infrastructure of test facilities. Having the center at a university, the running cost is much lower than having the facilities at a government-owned or private institution. The small company handles all kinds of non-academic services and manages all the document works securing the proprietary data if necessary. The presence of center will encourage newcomers to the space sector. The dedicated center will serve as a one-stop-shop to give assistance about every aspect of environment tests including the use of non-space components. The newcomers will no longer have to have a hard time of finding test places using personal connections sometimes. Overall, the nano-satellite environment test center will serve furthering nano-satellite development in wider community and having more participation to space activities. Kyushu Institute of Technology (KIT) has been specialized in spacecraft environment tests in terms of spacecraft charging, hypervelocity impact, material degradation and others. We have studied the business model of having the dedicated center at KIT based on already existing facilities. In this presentation the result of study will be presented with emphasis on how this idea can serve promoting nanosatellite development in various sectors, such as university, local community and venture business companies. In addition, the program experience from the environmental tests of three nanosatellites to be launched in 2010 carried out in the past one year will be presented.