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## DEVELOPMENT OF OPERATIONAL 100KG-CLASS STANDARD SPACECRAFT BUS

**Abstract**

The Space Environment Reliability Verification Integrated System (SERVIS) is being developed by the Institute for Unmanned Space Experiment Free Flyer (USEF) and NEC Corporation under the contract with the Ministry of Economy, Trade and Industry (METI) of Japan.

The SERVIS project is intended to establish a technology baseline for using Commercial-Off-The-Shelf parts and technologies (COTS) for space application. Two spacecraft, SERVIS-1 and SERVIS-2, were already launched and verified under severe space environment so far. As the result of the space verification, three technology baseline documents, namely COTS Database, COTS Evaluation Guideline, and Equipment Design Guideline have been established. They will be revised after the reflection of the space verification result of the third verification spacecraft, SERVIS-3. The final goal of the project is to strengthen Japanese technical competitiveness in space in the world.

In 2011, we started the development of the SERVIS-3. This includes ground evaluation of the latest COTS, development of the spacecraft and space verification of the COTS onboard of the spacecraft. On the other hand, the world demand for the small spacecraft is growing especially in Asia, Africa, Middle East, Central and South America, and so on nowadays. Accordingly, the market for low cost, short delivery and high performance small spacecraft is expanding. We intend to bring 100kg-class spacecraft in such emerging markets by means of developing SERVIS-3 as the standard spacecraft bus for operational use.

We will present the outline of the SERVIS project, the trend analysis of the small spacecraft market in the world, the characteristics of SERVIS-3 and the development status of the spacecraft.