

IAF SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS SYMPOSIUM (D2)
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DEVELOPMENT OF SIMPLE PAF: SATELLITE EMISSION SYSTEM AND ITS PERFORMANCE
EVALUATION

Abstract

KHI has developed the following three types of payload adapter fitting for small satellites. Simple PAF 8M : P.C.D 8in Simple PAF 15M : P.C.D 15in Simple PAF 239M : PAF239M Compatible Simple PAF has the following features. 1. Low impact 2. A non-pyrotechnic separation device is applied. 3. Good operability 4. Pyrotechnic Compatible Electrical interface In this report, we report on the satellite emission system used in the Simple PAF and its evaluation test.

satellite emission system In the simple PAF, the tip off at the time of satellite separation is suppressed by pushing out the satellite by the push plate which keeps the level by the guide.

Separation performance evaluation test: Separation test during drop In order to evaluate the satellite separation performance under weightless conditions, separation tests were carried out in a falling environment. In order to simulate a weightless state, it is important that no external force is applied to the simulated satellite and the simulated rocket during the fall. In our tests, the external force was minimized as much as possible by:. 1. Only a light and soft string is connected to the simulated satellite and rocket. 2. The start of the drop is detected by the limit switch installed on the simulated rocket. 3. The power source for the separation device is installed in the simulated rocket. 4. The motion of the simulated satellite and rocket was measured by a wireless communication type data logger. In the test configuration satisfying the above conditions, a drop was started in the combined state, and the drop was detected, and then separated. The separation performance was evaluated by the angular velocity and acceleration of the simulated satellite and rocket, and the image data acquired by the high-speed camera.