

광학카메라를 탑재한 위성에 대한 우주환경시험

최준민[†](한국항공우주연구원) · 현범석^{*}(한국항공우주연구원) ·
이창준^{**}(한국항공우주연구원) · 김희경^{***}(한국항공우주연구원)

Space Environment Test for Optical Payload Satellite

Joon-Min Choi, Bum-Seok Hyun, Jang-Joon Lee, and Hui-Kyung Kim

Key Words: Space Environment Test(우주환경시험), Optical Payload(광학탑재체), Optical Camera(광학카메라), Satellite(인공위성), Thermal Vacuum Chamber(열진공챔버)

Abstract : Before launching a satellite, space environment test is conducted to validate the satellite performance under the simulated space environment condition. When the payload of satellite is a high resolution optical camera, lots of things should be considered for the test such as contamination, thermal distortion, over- or under-tests, etc. In this paper, several thermal vacuum test methods are introduced for the optical payload satellite to avoid contamination against the optical system and over-test satisfying the predicted space thermal environment. Before the test, the numerical prediction is performed and the prediction results are compared with the test results.

마이크로채널 내에서의 유동비등 열전달 특성에 대한 실험적 연구

허철[†] · 김무환^{*}(포항공대)

An Experimental Study of Flow Boiling Heat Transfer in a Microchannel

Cheol Huh and Moo Hwan Kim

Key Words: Flow Boiling(유동비등), Two-phase Flow(2상유동), Microchannel(마이크로채널)

Abstract : An experimental investigation was performed to study boiling heat transfer in a microchannel. Simultaneous visualization and measurement of flow boiling were carried out using a single horizontal rectangular microchannel having a hydraulic diameter of 103.5 μm . Tests were performed for a mass flux of 77.5, 154.9, and 309.8 kg/m²s and a heat flux of 180-500 kW/m². Test results showed that nucleate boiling heat transfer and bubbly flow was dominant in the middle sections of the microchannel. However near the exit of microchannel, convective heat transfer and very long elongated slug flow acting like an annular flow was dominant