
Design of CTE Measuring Device for High-Resolution Telescope Structure

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The telescope structure used in the satellite consists of PM(Primary mirror), SM (Secondary Mirror), detector and structure part and operates relatively severe environmental conditions. For example, MSC(Multi Spectral Camera) in KOMSAT-II, which is developed by KARI, is designed to operate at the temperature range of $-20^{\circ}\text{C} \sim 55^{\circ}\text{C}$. These temperature variations during the orbit operation lead to the thermal expansion or extraction of each structural components. These thermal deformations could have a serious effect on the performance of telescope. Therefore, the telescope structure has to be designed to minimize the deformations to the temperature variations. This characteristic is expressed as the dimensional stability. For the telescope used in the satellite, if it is sent to the space, the modification or adjustment is impossible. So, on-ground verification of stability should be performed for the developed telescope model under the same conditions of the space. In this paper, for the verification of performance of the high resolution telescope, the preliminary design of CTE measuring device is to be presented, which can verify the dimensional stability in the laboratory.