

SMALL SATELLITE MISSIONS SYMPOSIUM (B4)
Design and Technology for Small Satellites - Part 1 (6A)

Author: Dr. Dae-Hee Lee

Korea Astronomy and Space Science Institute, Korea, Republic of, dhlee@kasi.re.kr

Dr. Uk-Won Nam

Korea, Republic of, uwnam@kasi.re.kr

Mr. Seoung-Hyun Cho

Korea Astronomy and Space Science Institute, Korea, Republic of, csh@kasi.re.kr

Mr. Youngsik Park

Korea Astronomy and Space Science Institute, Korea, Republic of, parkys@kasi.re.kr

Prof. Ho Jin

Kyung Hee University, Korea, Republic of, benho@khu.ac.kr

Dr. Bongkon Moon

Korea Astronomy and Space Science Institute, Korea, Republic of, bkmoon@kasi.re.kr

Mr. Duk-Hang Lee

Korea Astronomy and Space Science Institute, Korea, Republic of, 7grace7@kasi.re.kr

Mr. Sang-Mok Cha

Korea Astronomy and Space Science Institute, Korea, Republic of, chasm@kasi.re.kr

Dr. Chang Hee Ree

Korea Astronomy and Space Science Institute, Korea, Republic of, chr@kasi.re.kr

Dr. Woong-Seob Jeong

Korea Astronomy and Space Science Institute, Korea, Republic of, jeongws@kasi.re.kr

Dr. Jang-Hyun Park

Korea Astronomy and Space Science Institute, Korea, Republic of, jhpark@kasi.re.kr

Dr. In-soo Yuk

Korea Astronomy and Space Science Institute, Korea, Republic of, yukis@kasi.re.kr

Prof. Toshio Matsumoto

Japan Aerospace Exploration Agency (JAXA), Japan, matsumo@ir.isas.jaxa.jp

Dr. Seung-Wu Rhee

Korea Aerospace Research Institute (KARI), Korea, Republic of, srhee@kari.re.kr

Mr. JONG-OH PARK

Korea Aerospace Research Institute (KARI), Korea, Republic of, jopark@kari.re.kr

Dr. Wonyong Han

Korea Astronomy and Space Science Institute, Korea, Republic of, whan@kasi.re.kr

CALIBRATION AND VALIDATION OF MIRIS SPACE OBSERVATION CAMERA

Abstract

MIRIS (Multi-purpose IR Imaging System) space observation camera (SOC) uses a PICNIC array to obtain NIR (0.9 – 2.0 μm) images. The focal plane assembly including the array will be operated at the temperature of 80 K, and the optics system will be cooled down to 200 K by passive radiation, to reduce the thermal noise.

Although the absolute calibration will be performed in flight with some known calibration stars, it is important to calibrate and validate the instrument on ground. The calibration and validation include the optical performance check, the dark noise measurement, the flat-field measurement, and the spectral response measurements.

We design and manufacture a "MIRIS SOC optimized" vacuum chamber and a GSE (Ground Support Equipment) system to do the calibration and the validation. The vacuum chamber includes a thermal control function so that we can cool down or heat up the instruments. The GSE system provides the electronic environment of data acquisition and spacecraft bus simulation. With this vacuum chamber and other optical instruments as well as the GSE, we perform the calibration of the MIRIS SOC.