Paper ID: 30945
poster

SPACE OPERATIONS SYMPOSIUM (B6)
Interactive Presentations (IP)

Author: Dr. Eunghyun Kim
Korea Aerospace Research Institute (KARI), Korea, Republic of

Mr. Moon-Jin Jeon
Korea Aerospace Research Institute (KARI), Korea, Republic of
Mr. DooChun Seo
Korea Aerospace Research Institute (KARI), Korea, Republic of
Mr. Myeong-Shin Lee
Korea Aerospace Research Institute (KARI), Korea, Republic of
Dr. Seok Weon Choi
Korea Aerospace Research Institute (KARI), Korea, Republic of
Mr. Byoung-Soo Kim
Korea Aerospace Research Institute (KARI), Korea, Republic of

DEEP SPACE IMAGING OPERATION FOR EARTH OBSERVATION INFRARED SENSOR CALIBRATION

Abstract

Korea Aerospace Research Institute develops new earth observation satellite with Mid-wave infrared sensor and begin the flight operation from 2015. The basic mission of new infrared sensor is to provide remote sensing images in the spectral range from 3 to 5 μm. The in-flight calibration of infrared sensor is performed using measurements on the deep space and on the on-board black body. Especially deep space imaging operation needs the spacecraft attitude maneuver from nominal attitude. During this operation the sensor FOV (Field of View) shall point for the relatively dark sky because a lot of bright stars in image obstruct the calibration parameter calculation. Also to avoid the entrance of the Earth and the Sun in the sensor FOV, the spacecraft attitude is controlled to the opposite direction of nadir pointing attitude in eclipse phase of the orbit. Generally the deep space imaging operation starts from the polar region and maintain up to the eclipse. Since this operation requires the large attitude maneuver and to obtain as many images as possible within one eclipse pass, it must be carefully prepared in the mission planning. We summarize the pre-determined operation plan for deep space imaging, in-flight operation results, and its future observation plan.