

EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Sensors & Technology (3)

Author: Dr. Young Wan Choi
Satrec Initiative, Korea, Republic of, ywchoi@satreci.com

DS-1 CAMERA: PRE-LAUNCH PERFORMANCE CHARACTERIZATION

Abstract

With the completion of the flight model development, DS-1 Camera, capable of Earth observation at 2.5 m resolution and 20 km swath width at the altitude of 685 km, has been characterized for its pre-launch performance. Topics discussed in this paper include measurements of system modulation transfer function (MTF) and pixel lines-of-sight (LOS); characterization of focal plane assembly (FPA) and signal processing electronics; radiometric and spectral calibration; end-to-end imaging. The MTF was obtained with knife-edge scanning technique, which is also used to align the FPA. For band-to-band registration, relative pixel LOS was measured using theodolite and effective focal length of the telescope was derived from the measurement. For the FPA and signal processing module, dark reference, pixel-to-pixel response variation and response linearity have been quantified. The end-to-end imaging tests were done to check the imaging function before the launch, by scanning a slide target at the focus of the collimator.