Development of the multi-spectral auroral camera onboard the INDEX satellite(2)

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The high time and spatial resolution observations of auroral images and particles will be obtained by the multi-spectral auroral camera (MAC) and low-energy particle sensors (ESA/ISA), respectively, onboard the INDEX satellite which will be launched by an H2A rocket as a piggyback satellite into a polar orbit at an altitude of ~700 km in the meridian of 1030-2230 LT in order to clarify the fine-scale structures of auroras, such as multiple arcs, patches, and rays. We have been developing the MAC instrument, which is characterized by monochromatic auroral imaging observations with the field-of-view (FOV) of 7.6 deg at emissions of N2+ 1N band (427.8 nm), OI (557.7 nm), and N2 1P band (670 nm) using three independent CCD cameras and interference filters.

MAC will operate only in the nightside polar region mainly by the image/particle simultaneous measurement mode, and the auroral height distribution measurement mode. Refer to the presentation by Obuchi et al. in this meeting regarding on the operations.

So far, we have been made vibration tests, thermal vacuum tests, and operational function tests to validate the specifications of MAC in detail. In this presentation, we report the present development status of the MAC, and results of the calibration for absolute sensitivities and the direction of field-of-view on each channel of MAC.