

IAF SYMPOSIUM ON FUTURE SPACE ASTRONOMY AND SPACE PHYSICS MISSIONS (A7)  
Space Agency Strategies and Plans (1)

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INTRODUCTION OF THE GK2A KSEM:KOREA'S FIRST GEO SPACE WEATHER PROGRAM

**Abstract**

KSEM(Korean Space Environment Monitor), which is a Korea's first GEO space weather sensor suite on GK2A(GEO-KOMPSAT-2A) satellite was launched in Dec 2018 and has been operating successfully. KSEM is comprised of three different sensors: PD(Particle Detector), MG(Magnetometer) and CM(Charging monitor). PD is an enhanced energetic particle detector, which adopted a heritage design by THEMIS SST(Solid State Telescope) and MAVEN SEP(Solar Energetic Particle). The electron measurement range of PD is from 100keV up to 2MeV. MG called SOSMAG(Service Oriented Space Magnetometer) developed cooperatively by ESA(European Space Agency) consists of four magnetometers and an 1-m deployable boom, which measures Earth magnetic field disturbances at three axes. CM sensor has a function to monitor currents driven by energetic particles. The electronic box of KSEM, IDPU(Instrument Data Processing Unit) is a main control unit, which integrates all of three sensors.

In this paper, key aspects of GK2A KSEM project will be introduced. Major KSEM milestone (PDR, CDR, PSR and LEOP) activities are described. In particular, the interface tests of KSEM payload between GK2A satellite during the EQM(Engineering Qualification Model) FM(Flight Model) development phases, ETB(Electrical Test Bed) and GK2A system level interface tests conducted at the KARI(Korea Aerospace Research Institute) AIT(Assembly Integration and Test) facilities will be presented. KSEM functional and performance tests performed during the GK2A In-orbit test period (from Dec 2018 to June 2019) will be discussed as well.

Acknowledgements: The GK2A program was carried out at Korea Aerospace Research Institute, under the GK2A satellites and the AMI and KSEM payloads development projects sponsored by Ministry of Science, ICT and Korea Meteorological Administration respectively.