

IAF EARTH OBSERVATION SYMPOSIUM (B1)
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METEOSAT THIRD GENERATION – DEVELOPMENT OF THE COMMON SATELLITE
PLATFORM

Abstract

Meteosat Third Generation (MTG) is the next-generation European geostationary meteorological satellite system - a collaborative EUMETSAT/ESA program, equipped with high resolution payloads. The MTG mission, which will be operated in orbit between 2021 and 2041, comprises of 4 MTG-I (Imaging) satellites and 2 MTG-S (Sounding) satellites. OHB is the prime contractor for the platform contribution and the MTG-S satellites.

The required high performance for the satellite platform coupled with a common platform design and an extended mission duration including an on-ground long term storage phase presents unique challenges to the overall platform design and implementation. In order maximize efficiency and operability a common platform is developed for the distinct satellites with capability to accommodate two sets of instruments for the imaging or sounding satellites and their control electronics within the platform. Due to the duration of the overall mission and a staggered launch approach ensuring availability of 2 MTG-I satellites (1 MTG-I as in-orbit spare) and 1 MTG-S satellite in orbit at one time, the remaining platforms and instruments undergo a long term storage phase of up to 10 years. Detailed planning and necessary design decisions are required to counter common issues of long term storage such as parts obsolescence and knowledge retention.

The main technical challenge on PF side is the high performance AOCS comprising of a Star Tracker assembly, with 3 sensors, 1 Very High Performance Gyro Unit, 4-axes mounted on isolators to reduced microvibrations susceptibility and 1 Reaction Wheel Assembly composed of 5 wheels mounted on isolators to damp the wheel induced microvibrations. AN AOCS software merges the various measurements and provides control to attain the required fine pointing performance. The AOCS performance is verified on various software simulators and hardware test benches.