EARTH OBSERVATION SYMPOSIUM (B1)
Dual Use Earth Observation (6)

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THE COMMISSIONING OF THE COMPLETE COSMO-SKYMED SYSTEM AND THE PERFORMANCES WITH THE FULLY DEPLOYED CONSTELLATION

Abstract

COSMO-SkyMed is a dual-use (civilian and military) Earth Observation system based on a constellation of four Low Earth Orbit satellites carrying an advanced Synthetic Aperture Radar on-board.

COSMO-SkyMed is the most important Italian investment in the space sector so far, and one of the most advanced EO system in the world. The development programme was co-ordinated by the Italian Space Agency (ASI) and the Italian Ministry of Defence (It-MOD), in order to provide data to institutions, defence organizations and private companies. Presently ASI and It-MOD manage the operational phase of the programme.

The last satellite of the constellation was launched on November 2010. After the satellite LEOP (Launch and Early Orbit Operations) the commissioning and the operative qualification of the overall

system in its final configuration were performed and completed by April 2011. Since then, COSMO-SkyMed is fully operational.

The four satellite orbit on the same plane in a sun-synchronous, frozen, almost circular orbit, at 620 km of mean altitude. In the present constellation configuration, 3 satellites (PFM, FM2 and FM4) are positioned at 90 deg anomaly intervals, while the FM3 satellite is placed in "tandem-like" one-day interferometry configuration with respect to FM2. While the equi-phased configuration would allow to meet the best performances in terms of revisit and response time, the present configuration allows to exploit the one-day interferometry opportunity without significant reduction of the time performances. Anyway, the satellites have been designed to have sufficient propellant to change their anomaly in order to take advantage of other constellation configurations (included the tandem one).

The paper will deal with the commissioning and operative qualification as well as with the performances of the full COSMO-SkyMed system.