



The COSMO-SkyMed Second Generation satellite simultaneously acquires images over areas hundreds of kilometres apart

A unique innovation becomes a reality available to Users

Rome, 12 June 2020 - The first satellite of the COSMO-SkyMed Second Generation (CSG) constellation, launched last December 18th, is now completing the Orbit Test stage that will make it capable of fully-fledged operational co-operation with the four COSMO-SkyMed First Generation satellites, increasing the overall capabilities of the system.

The CSG mission is approaching an important goal, in line with the objectives set by the Italian Space Agency (ASI) and by the Italian Ministry of Defence, which have promoted, funded and supervised its development programme in their roles as customers.

The primary goal of CSG is to provide a dual - civili and military - user base with Earth Observation services through a broad portfolio of products, obtained in various operational modes of the SAR (Synthetic Aperture Radar) sensor, in both narrow field and ultra-fine resolution mode and wide field mode.

The design of the Second Generation SAR sensor, together with the flexibility features provided by the Ground Segment, currently represent *state of the art* technology for the Earth Observation systems based on radar technology, in terms of image quality, planning and image-taking versatility, acquisition agility and ground-based updating and processing capabilities for the obtained information.

The versatility and electronic agility of the CSG SAR implement a new operational mode, which allows *simultaneously* the acquisition of two areas located hundreds of kilometres apart on the Earth's surface. In more detail, in this mode it is possible to simultaneously acquire two dual polarisation images in the higher spatial resolution modality (Spotlight), overcoming the restraints imposed by traditional modality. This allows the improvement of the quality and typology of the service, permitting, for instance, to serve access requests on geographically separate areas simultaneously illuminated by the satellite during its pass. CSG is the first SAR satellite system in the world capable of simultaneously acquiring two images and then serving two requests that would have been in conflict for any other satellite system.



The attached images, are examples of two SAR Spotlight very high (sub-metric) resolution acquisitions, simultaneously taken from the first COSMO-SkyMed Second Generation satellite on 25th April over the areas of Rome and Altamura, and have been processed by Telespazio at the Matera Space Centre.

The CSG System has been realised for the Italian Space Agency and Italian Ministry of Defence with an important contribution by **Leonardo** through its affiliate and subsidiary companies. In particular, **Thales Alenia Space**, a joint venture between Thales (67%) and Leonardo (33%) is responsible for the End to End system and for the Radar satellites, while **Telespazio**, a joint venture between Leonardo (67%) and Thales (33%) is responsible for the Ground Segment. Leonardo also contributes to the programme by supplying the star trackers for the satellite positioning, the photovoltaic panels and power units for electric power management.

e-GEOS, a company founded by Telespazio (80%) and ASI (20%), is responsible for the worldwide marketing of the COSMO-SkyMed products and services.

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