MTG-I weather satellite passes tests in preparation for liftoff

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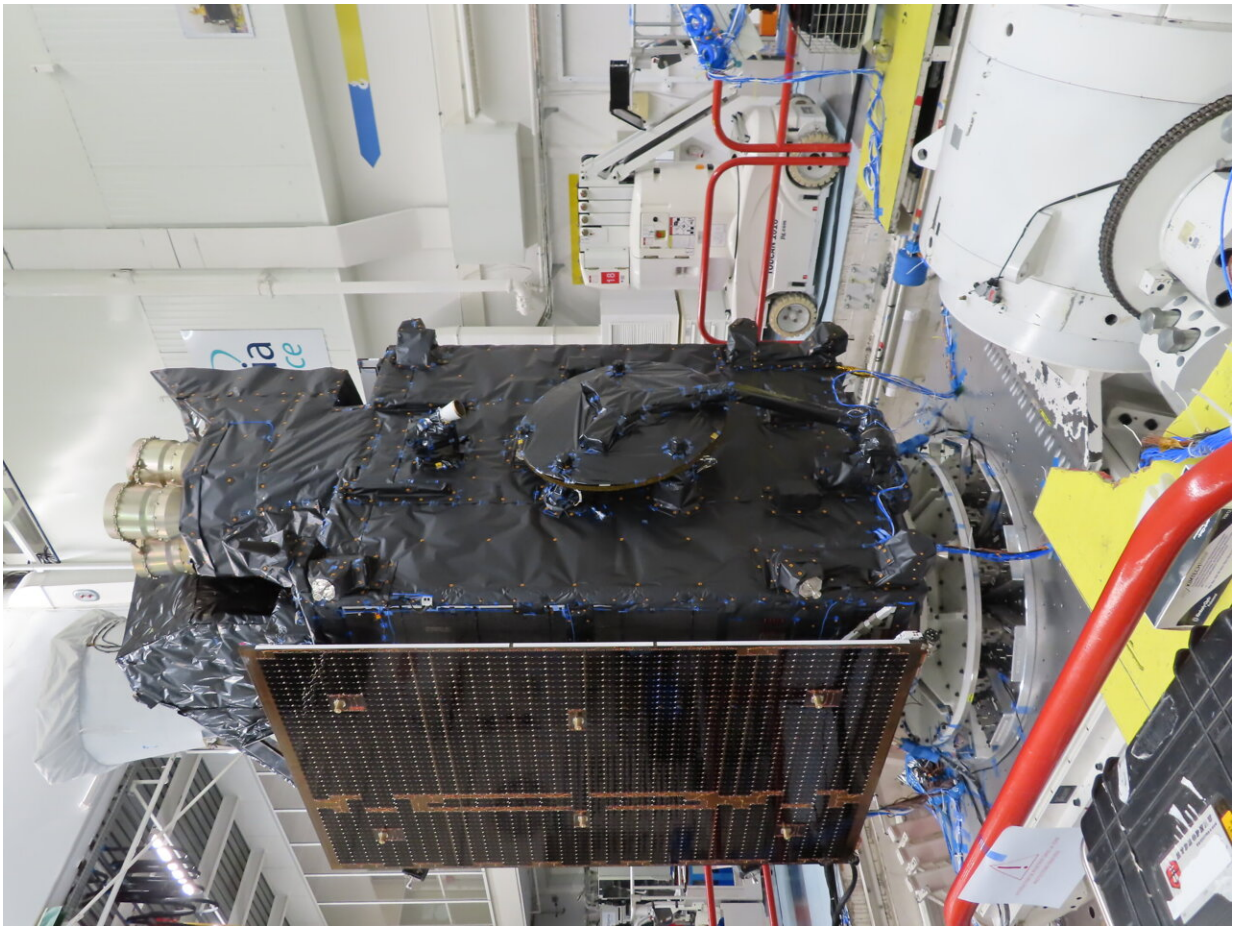

In preparation for liftoff, the first Meteosat Third Generation Imager satellite has been put through its paces at Thales Alenia Space's facilities in Cannes, France. With over 400 accelerometer lines installed and checked out, and around two tonnes of simulated propellant loaded, the satellite was mounted onto the shaker and was shaken to 'within an inch of its life', simulating the rigours of launch. Credit: Thales Alenia Space

With extreme weather events threatening to be more frequent and more severe as the climate crisis takes grip, it's never been more important to have fast and accurate forecasts. ESA and Eumetsat are working hard to ensure that there will be a constant stream of weather data from space for the next decades and that these data will arrive faster and be more accurate compared to what we have today. It is therefore fitting that on World Meteorological Day, ESA can be assured that the first of the next generation weather satellites, Meteosat Third Generation Imager, has passed a critical set of tests, paving the way for it to be launched in December.

Following on from the success of the first and second generation of Meteosat satellites, the Meteosat Third Generation (MTG) will soon take over the reins to ensure the continuity of data for weather forecasting, from geostationary orbit, for the next two decades.

This new generation of weather satellite will offer a significant enhancement of the current imager capabilities provided by the Meteosat Second Generation (MSG), a real-time lightning imaging capability and an all-new infrared sounding capability providing early detection of the development of severe storms.

The MTG mission comprises two types of satellite: four MTG-Imagers and two MTG-Sounders.

With the first MTG-I, MTG-I1, scheduled for launch at the end of the year, it's full steam ahead getting it ready for liftoff and its life in orbit 36,000 km above Earth.

Last November, the satellite was placed in the large thermal vacuum chamber at Thales Alenia Space's facilities in Cannes, France. Following

initial checkout tests, it underwent a punishing five-week campaign during which, under hard vacuum conditions, it was exposed to the extreme of temperatures it will face in orbit.

MTG-I1 passed the tests with flying colors, with all modes of the satellite exercised faultlessly at both cold and hot operating plateaux. It also survived "switch on" from cold non-operating conditions.

After removal from the chamber alignment tests confirmed that no detectable impact on instrument alignments had taken place and the satellite was then prepared for a suite of mechanical tests, which have now also been completed.

Paul Blythe, ESA's Meteosat Programme Manager, explained, "With over 400 accelerometer lines installed and checked out, and around two tons of simulated propellant loaded, the satellite was mounted onto the shaker, again at the Thales' Cannes facilities, and was shaken to 'within an inch of its life' during the three-axes of Sine testing.

"Again thanks to the extensive development activities at module and equipment level, and the full qualification campaigns undertaken at unit and instrument level, there were few surprises for these tests and the satellite has completed the Sine campaign, confirming compatibility with the Ariane 5 launch environment."

There is still another set of tests to go and these involve a "fit and release" check of the launcher clamp band and adapter, supported by Arianespace. Then follows acoustic testing, final alignment and reference performance test at the end of April.

The satellite will then be released for final functional checks, including the system validation testing with both "launch and early orbit phase" and routine mission control centers, Telespazio and Eumetsat

respectively.

The final documentation set for the Qualification and Acceptance Review are under preparation. The consent to ship to Europe's Spaceport in Kourou, French Guiana, is planned for early October with launch targeted for mid-December.

Paul Blythe Programme Manager for the Meteosat Programme commented that, '"MTG has been a long and challenging development, but the success of these key environmental tests has demonstrated that the significant determination, commitment and skill at all levels of the MTG satellite consortium, which comprises over 100 subcontractors, is now converging in the world-class European product that MTG-I1 represents."

MTG is a cooperation between ESA and Eumetsat. ESA is responsible for the definition and implementation of the MTG satellites and procurement of recurrent hardware, while Eumetsat is in charge of operating the spacecraft throughout its lifetime. The MTG satellites will replace the current Meteosat Second Generation operational system.

Provided by European Space Agency

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