

# Galileo Adds Accuracy and Reliability to IOT Operational Planning with STK

## STK Reduces Risk & Shortens Timetables

**THE PRE-LAUNCH CHECKLIST:** Galileo—a satellite navigation system built by the European Space Agency (ESA)—provides precise measurements, better positioning at high latitudes, and global Search and Rescue (SAR) functions. As ESA launched the first operational satellites, an In-Orbit Test (IOT) ensured they survived without damage and performance matched ground tests. Inmarsat Global Ltd.—responsible for implementing and operating the Galileo Payload IOT System—used STK to validate ground contacts while minimizing interference to and from other satellites or stars.

**STK IN ACTION:** Operational planning of the Payload IOT timeline was highly complex included numerous constraints. These included frequency coordination, interference avoidance, antenna horizon profiles, azimuth/elevation masks, station availability, time windows for testing, satellite payload, and health-and-safety considerations. Systems Tool Kit (STK) from AGI provided engineers with the ability to refine the daily high-level planning of the measurements during the IOT Campaign by taking these constraints into account. Engineers built three specific scenarios into STK to cover each set of measurements, noting that the process of preparing the daily high-level plan with the aid of STK improved the efficiency and the reliability of the IOT System.

“STK gave us the possibility to refine the daily high-level planning of the measurements during the IOT Campaign by taking into account several constraints. The process of preparing the daily high-level plan with the aid of STK improved the efficiency and the reliability of the IOT System.”

— MASSIMO CIOLARO, ENGINEER



Image credit: Thibault Denis



Planning Payload In-Orbit Test (IOT) Timelines for Galileo satellites was a complex task with numerous constraints. STK helped refine high-level planning of navigation measurements and C-Band measurements. STK improved accuracy and reliability—allowing for greater collaboration among planning teams. It also saved time to execute needed measurements.

**THE AFTER-ACTION REPORT:** Inmarsat preferred a quickly available commercial off-the-shelf (COTS) solution. After preparing requirements, they found STK software met their needs. STK brought improved accuracy and reliability to the mission, while saving critical time during execution of measurements. This common platform enabled greater collaboration between planning teams