SIGMA Completes Satellite Test for Secure Disaster Communications via GovSat-1

Luxembourg/Madrid, 5 November 2025 – The European Commission-funded SIGMA project, supported by a consortium of leading European space and telecommunications companies, has successfully carried out its first proof of concept, demonstrating the effectiveness of secure sovereign satellite-enabled communications during outages caused by natural disasters. The demo scenario leveraged the GovSat-1 satellite service to deliver secure connectivity during major flooding events, when terrestrial networks are limited.

Led by GovSat (LuxGovSat S.A.), a public-private joint venture between SES and the Luxembourg Government, in partnership with the Luxembourg Armed forces, the proof of concept simulated a severe flooding case in northern Luxembourg in the presence of limited terrestrial networks connectivity. To overcome this crisis scenario, uninterrupted communication between Army command in Diekirch and deployed field units in the crisis area became essential to coordinate the needed emergency operations.

SIGMA's integrated solution enabled a seamless handover from terrestrial mobile networks to secure satellite links operating in GovSat-1's X-band and Mil Ka-band, maintaining continuous video teleconferencing (VTC) and mission-critical data exchange. Once the situation stabilized, the communication link was smoothly transitioned back to terrestrial networks, demonstrating the flexibility, satellite-terrestrial compatibility and resilience of the system.

Results and Contributions

The proof of concept demonstrated significant, scalable advancements in European crisis communications, demonstrating SIGMA's ability to provide:

- Resilient connectivity: reliable communications for military units and first responders even when terrestrial networks fail.
- Seamless interoperability: smooth switching between terrestrial 5G networks and governmental and civilian satellite capacity, without interruption.

- Enhanced security: end-to-end encrypted communications benefitting operational confidentiality for deployed forces.
- Operational efficiency: improved coordination between command centers and units in the field, enabling faster and more effective decision-making.
- European sovereignty: a fully European solution that leverages GOVSATCOM and civil satellite resources, reducing dependency on non-European infrastructures.
- Scalability: potential of the showcased solution to support broader applications during diverse types of natural disasters or large outages. The successful proof of concept via secure GovSat-1 satellite service demonstrated that SIGMA's technology can play a pivotal role in strengthening Europe's crisis management and defense communication capabilities.

Quote from GovSat

"This successful demonstration underscores the value of European secure satellite solutions for crisis response. We are proud to contribute our dedicated GovSat secure capabilities to support public authorities and armed forces in their most demanding life-saving missions," said Partick Biewer, CEO of GovSat. "SIGMA proves the potential of pooling military and civilian satellite service for achieving higher levels of collaboration when disaster strikes, thanks to communications resilience, security and sovereignty across the EU."

Quote from INSTER (Project Coordinator)

"Secure and uninterrupted communications during a crisis is vital for effective operations. This proof of concept demonstrated that SIGMA provides the resilience and reliability we need when terrestrial networks are limited. The seamless integration of satellite and terrestrial links gives us full confidence in maintaining command and control in critical situations."
— Noel Giraco Garcia, Technical Lead for SIGMA, INSTER

About SIGMA

SIGMA (Satellite-enabled Interoperable system ensuring GOVSATCOM services' reliability, optimal traffic Management, security and long-term Availability for EU and national public authorities) is a European project funded under the Horizon Europe programme, with grant agreement number 101131073. Its mission is to reinforce GOVSATCOM services by integrating SatCom-On-The-Move, multi-band

(X-band and Ka-band) satellite capacity, advanced encryption, and 5G interoperability to guarantee secure and reliable connectivity for EU and national public authorities.

The project is coordinated by Inster Tecnología y Comunicaciones (Spain), with participation from Tecnobit (Spain), ND SatCom (Germany), Telespazio France (France), GovSat (LuxGovSat S.A., Luxembourg), and the Centre Tecnològic de Telecomunicacions de Catalunya (Spain).

Through a series of proofs of concept in Luxembourg, France, and Germany, SIGMA showcases its capacity to support flood response, public event security, and mountain search & rescue operations, strengthening European resilience and sovereignty in secure communications.