SIGMA PRESENTATION

SIGMA

Funded by the European Union

01. INTRODUCTION

SIGMA

Satellite-enabled **I**nteroperable system ensuring **G**OVSATCOM services' reliability, optimal traffic **M**anagement, security and long-term **A**vailability for EU and national public authorities

https://www.sigma-he.eu/

EUSPA European Union Agency for the Space Programme

CONSORTIUM MEMBERS

Inster Tecnología y Comunicaciones, S.A.U. (Grupo Oesía) (**Spain**)

https://grupooesia.com/inster/

Centre Tecnològic de Telecomunicacions de Catalunya (**Spain**)

https://www.cttc.cat/

ND SatCom GmbH (**Germany**)

https://www.ndsatcom.com/

Telespazio France SAS (**France**)

https://www.telespazio.com/

LuxGovSat S.A. (**Luxembourg**)

https://govsat.lu/

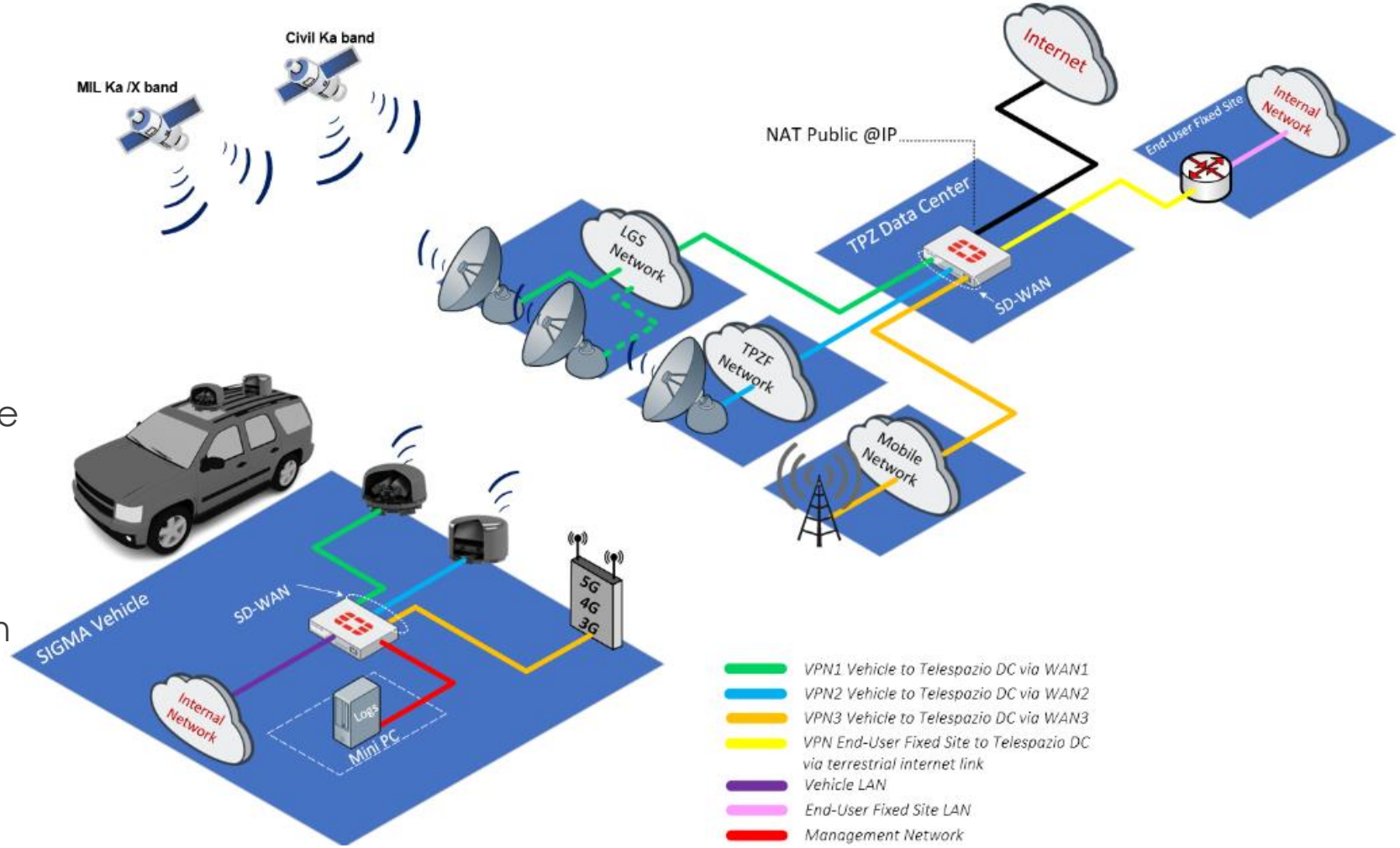
Cipherbit (Grupo Oesía) (**Spain**)

https://grupooesia.com/cipherbit/

02. SIGMA ABSTRACT

Propose a **secure** and **intelligent system** for EU GOVSATCOM platform, to ensure communication in **Emergency Response** by integrating **Satcom On The Move** and **5G** terrestrial network.

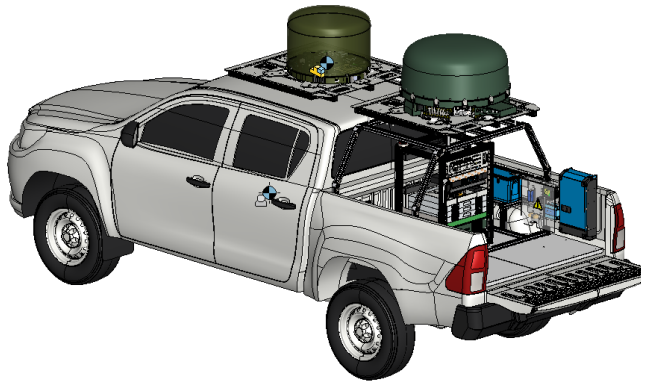
SIGMA integrate multiband SatCom-On-The-Move terminals (operating in X-band, military Ka-band, and civil Ka-band), 5G user equipment, and Traffic Management tools to ensure a seamless transition between satellite and terrestrial networks based on SD-WAN.
End-to-end security is provided by an Encryption modules that incorporates Advanced Encryption Standard algorithm.

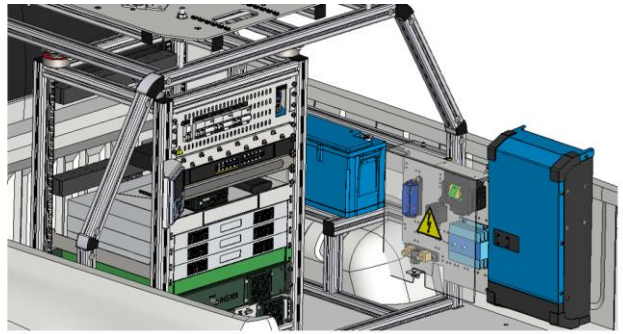


03. DEMOSTRATIONS

- **What is the purpose of the demonstrations?**

Simulate the impact of 5G communication failure on the emergency event	The emergency team arrives in the operational area for rescue and 5G terrestrial communication is no longer available. However, satellite communication will be available in KA-Band and X-Band.	Demonstration by forced handovers from the 5G mobile to SatCom networks. The loss of 5G during communication services (simultaneous voice calls, file transfer (FTP), etc) between the emergency team deployed in the crisis area and central control department will be overcome by a switch to satellite communication networks in different frequency bands.
Simulate severe weather conditions due rain	The Ka-band connection is lost, and the more robust X-band connectivity will be available.	Demonstrate the resilience of X-band communication provided by a government satellite. The X-band connectivity will take over the traffic.
Automatic traffic prioritization and re-routing (Best Path Dynamic Selection)	Progressive recovering of the connection in Ka-Band and 5G terrestrial links.	Because 5G terrestrial network provides faster link speed and lower latency than both satellite links in GEO. Similarly, Ka-Band offers more bandwidth than X-Band links. After recovering of the connection in Ka-Band and 5G terrestrial, the routing of the traffic will switch to the best path.





04. CONCLUSIONS

1. SIGMA aims at developing a robust solution that provide interoperability, security and seamless operational capabilities for GOVSATCOM services, based on high TRL equipments.

2. End to end technical solution with automatic traffic switching and seamless handover of the communication networks will provide minimal impact to the user, even when moving in a vehicle.

3. The GOVSATCOM user services will be secured using an advanced cryptographic technique.

4. The use of hybrid solution with terrestrial 5G and Governmental and Civilian geostationary satellites (X and Ka-bands), increase the communication availability and resilience.

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