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Space, the new frontier

For more than seventy-five years, the name TELERAD has been associated with one of the world leaders in surface-to-air telecommunications. True to its DNA—innovation—TELERAD naturally had to play a role in crossing the “new frontier” evoked by John F. Kennedy: SPACE. Today, with optimal reliability, TELERAD systems ensure civil and military radio communications around the globe via satellite networks, as well as the remote supervision of equipment.

To better understand the challenges related to satellite communications, including from a sovereignty perspective, I invite you to read the “Focus” on the back of this new issue of the *TELERAD Communication* newsletter.

And, still with the aim of contributing to your reflection, who better than Florian Guillermet—Executive Director of the European Union Aviation Safety Agency (EASA)—to discuss aviation safety in Europe?

Patrice Mariotte
CEO of TELERAD

Three questions to...

Florian Guillermet



Executive Director of the European Union Aviation Safety Agency (EASA)

Can you describe EASA, and its primary purpose for us?

EASA is the centrepiece of aviation safety in Europe. Its purpose is to ensure that air travel is safe for European citizens, within Europe and in other parts of the world. A secondary mandate is to ensure that aviation becomes more sustainable.

The European aviation system extends far beyond EASA, with many tasks allocated at national level, particularly for oversight. EASA therefore depends on the national authorities in the member states to ensure safety across the European system.

In our daily work, we are guided by five strategic themes: SAFE, GLOBAL, GREEN, INNOVATIVE and RESILIENT. The SAFE theme is clearly dominant: we will never agree to anything which places aviation safety at risk. GLOBAL reflects our regular work with leading aviation authorities in other countries with whom Europe has a Bilateral Aviation Safety Agreement (BASA), with the International Civil Aviation Organization (ICAO) and with many other international partners. GREEN reflects our activities to support the aviation industry in reaching the goal of net zero by 2050 and INNOVATIVE our support for new technologies and evolution in general. Finally, RESILIENT focuses on the Agency itself, and ensuring we have the right staffing, the right expertise and the right budget.

What challenges does EASA face with respect to aviation safety in Europe?

Aviation safety requires consistency and a lack of complacency right across the system. Every individual involved with a flight, including the passengers themselves, need to play their part.

Specific challenges arise from time to time. Interference with satellite-based navigation systems as a side-effect of the Russian invasion of Ukraine has been a growing problem over the last few years. As with other industries, cybersecurity poses a threat, and EASA has acted to introduce stronger security controls across the board to mitigate this. Operational challenges, such as runway incursions, call for our attention and action. Emerging risks, such as changes in weather patterns, are being assessed for their longer-term impact on safety.

Currently, the topic of lithium batteries is drawing attention after a series of accidents and incidents where these overheated and caught fire on board. This is a good example of how the actions of individual passengers can make a difference: they need to ensure they are aware of the rules for transport of these items and act responsibly. In general, the topic of generational change and knowledge retention is an important background factor for our industry. Many experienced and established colleagues are moving into retirement. This means we need to attract new workers to the industry and then equip them with the right training and understanding as to how we have established aviation as the safest form of travel.

How does certification contribute to making European skies safer?

Certification is a fundamental cornerstone of aviation safety: if the aircraft itself is not safe, then operations will always hold an inherent risk. Harmonisation of product definition across Europe, and even beyond, is important for safety and efficiency of operations, by facilitating standardised pilot trainings and rating qualification.

Certification is constantly evolving due to the process of constant learning. We thoroughly analyse every in-service event and accident to determine needed actions – and we ensure design thoroughness and testing of all novelties to be sure that they meet our very high safety standards.

But even the safest plane must be operated properly, and EASA's remit extends to setting the rules and standards for this. The aircraft needs to be seamlessly integrated into the operational and airspace management ecosystem. New technologies and automation can be drivers for safety improvements, but they can potentially also introduce a new risk and therefore need to be carefully assessed and tested to ensure their certifiability.

The industry is currently in a period of rapid change, driven in part by the need to decarbonise, but also by new developments such as Artificial Intelligence. It is without doubt an exciting time to be in aviation!

With products and systems deployed in over eighty countries, TELERAD specializes in the design, development, and manufacturing of radio systems for aerial and maritime navigation control. As a unique player in this field, TELERAD is a key contributor to the French and European defense, industrial, and technological base.

Radio in the Land of a Thousand Colors

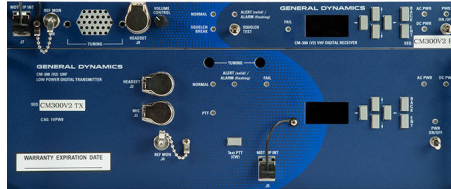
Indian integrator VARDHMAN Airport Solutions has selected TELERAD solutions for ground-to-air communications at two airports in northern India. The ability to operate simultaneously in analog and VoIP under extreme environmental conditions, while maintaining low maintenance costs, was among the factors that convinced VARDHMAN to entrust this project to TELERAD.



Operational maintenance of the FAA's 30,000 Radios

To manage ground-to-air communications across the United States, the Federal Aviation

Administration (FAA) uses more than 30,000 VHF and UHF radios designed by TELERAD and manufactured by General Dynamics. To meet the FAA's requirement of continuing to use these radios for additional 30 years, General Dynamics relies on TELERAD to develop technical upgrades—such as updates to the ED137 standard—and to manage obsolescence, ensuring the full operational readiness of the entire radio fleet.



ANSSI REMPART25 Mission Succeeded!

Exercise:

TELERAD participated in the REMPART25 cybersecurity crisis management exercise organized by the French National Cybersecurity Agency (ANSSI) across France on September 18th. This full-scale simulation allowed TELERAD to test its business continuity plans, strengthen collaboration between different entities, and contribute to developing its digital resilience in the face of cyber crises.



FOCUS

To Infinity and Beyond

The first satellite communications began in 1957 with the launch of Sputnik 1 by the USSR. In 1962, the American satellite Telstar 1 enabled the first transatlantic television transmission between the AT&T station in Andover, USA, and the CNET station in Pleumeur-Bodou, France. The connection was initially short-lived, lasting only about twenty minutes on some passes of the satellite, which traveled through an elliptical orbit in 2 hours and 37 minutes.

In 1964, the first geostationary satellite, Syncom 1, ensured continuous communication, paving the way for the commercial use of telecommunications satellites. Thus, in 1965, the first commercial geostationary satellite, Intelsat 1 (or Early Bird), inaugurated the long series of Intelsat satellites, and the 1970s saw the rise of geostationary satellites for telephony and television.

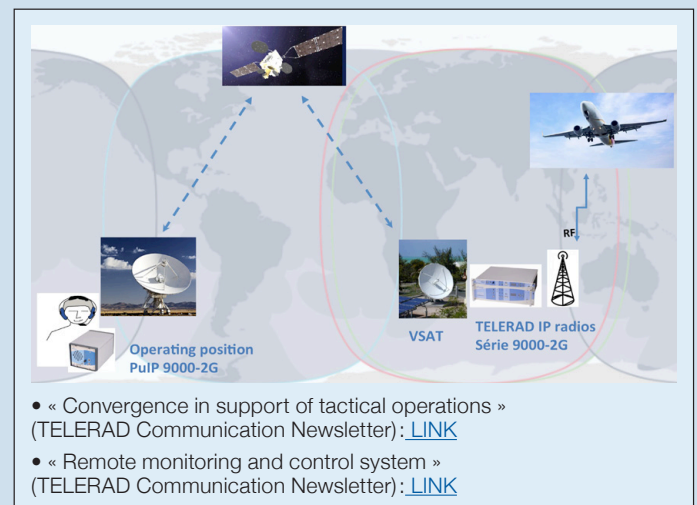
While the 1990s saw the arrival of low Earth orbit constellations (Iridium) to improve global coverage, the 2010s stand out with megaconstellations like Starlink, which revolutionized global internet access. Satellite networks play a vital role in aeronautical communications, providing global coverage, particularly for transoceanic flights that do not benefit from continental VHF coverage. Satellite networks are classified by orbit type (geostationary GEO, low-Earth orbit LEO, multi-orbit) and by usage, the main ones being cockpit communications and in-flight Internet. Geostationary satellites are used for long-distance communications, while low-Earth orbit satellites offer lower latency and complete polar coverage. In geostationary orbit, Inmarsat is today the leading global provider of aeronautical communications (voice and Aircraft Communication Addressing and Reporting System data).

Its services are used by most airlines and air traffic control (ATC). Iridium Certus also provides voice/data services for aviation through hybrid GEO and LEO relays, including SATCOM services for cockpits and ATC communications. The SES/Intelsat/Eutelsat networks provide high-speed connectivity for in-flight Internet. In low-Earth orbit, the Iridium NEXT network, with a constellation of 66 active LEO satellites, supports critical communications such

as voice, data, and tracking, while Starlink Aviation provides ultra-high-speed Internet connectivity for passengers and crew. Similarly, the OneWeb Aviation constellation, supported by Airbus and the ESA, is designed to offer continuous connectivity, particularly on polar routes.

Satellite networks are also used to extend communications to remote areas lacking terrestrial infrastructure through VSAT (Very Small Aperture Terminal) stations. (See box)

Additionally, regional or specialized networks are emerging, such as the European IRIS2 project, based on a multi-orbit communication satellite constellation and intended for hybrid terrestrial and aeronautical communications. IRIS2 will cover both low-Earth orbit and medium-Earth orbit to ensure fast, low-latency communication and broad coverage. The project is part of the EU's digital and security sovereignty strategy, aiming for Europe to have its own space communication network and not rely exclusively on external providers.



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