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SEAMLESS AIR ALLIANCE AND EUROPEAN SPACE AGENCY ANNOUNCE MAJOR PROGRESS IN 5G NON-TERRESTRIAL NETWORKS FOR AVIATION

Barcelona, 27 February 2025 – The [Seamless Air Alliance](#) (SAA) and the [European Space Agency](#) (ESA) are pleased to announce significant advancements in the development of 5G Non-Terrestrial Networks (NTN) for aviation connectivity. This collaborative effort marks a major milestone in the integration of space-based communication technologies to enable a seamless extension of mobile networks to provide in-flight connectivity and exceptional passenger experiences.

Status Update:

ESA-led trials have successfully demonstrated 5G NTN links over both LEO and GEO satellites. [Telesat](#) and [Eutelsat OneWeb](#) have showcased 5G NTN connectivity via LEO satellites. Separately, ESA and Hispasat have conducted successful trials of 5G NTN links over GEO satellites.

ESA and SAA, in collaboration with Airbus, are advancing their efforts by engaging industry partners to showcase multi-orbit NTN capabilities across Europe and the United States. Seamless Air Alliance Members — including Boeing, Kontron, ST Engineering iDirect, and Thales — are already active in the 5G NTN Working Group. To further strengthen the ecosystem and foster innovation, ESA and SAA are also seeking increased participation from chipset vendors.

"The successful completion of these 5G NTN tests mark a significant step toward revolutionizing in-flight connectivity with space-based solutions," said Laurent Jaffart, ESA Director of Connectivity and Secure Communications. "Our partnership with the Seamless Air Alliance continues to foster innovation and pave the way for the future of global aviation connectivity."

"Seamless Air Alliance remains committed to advancing the adoption of 5G NTN technologies within aviation," said CEO Jack Mandala. "These milestones reflect our dedication to enabling seamless, high-speed connectivity to passengers worldwide."

Key Achievements on the Path to 5G NTN for Aviation:

The first use case for 5G NTN in aviation was presented by a delegation of the SAA members to the global telecommunications standards body 3rd Generation Partnership Project (3GPP) and passed screening from 3GPP stakeholders to continue in the process. The use case included Gate-to-Gate internet access with service continuity in joint Terrestrial/Non-Terrestrial Network (TN/NTN) and multi-orbit deployment scenarios. This crucial milestone paves the way for the standardization and widespread adoption of NTN solutions within the aviation sector, along with the following achievements:

- In July 2024, SAA and ESA formalized their [partnership](#) to accelerate space-based connectivity solutions on board airplanes
- SAA is recognized as a Market Representation Partner for [3GPP](#), further strengthening its role in shaping future connectivity standards

- SAA members showcased the vision for future NTN at the ETSI Conference on Non-Terrestrial Networks
- SAA delegates presented key advancements in NTN Mobile VSAT enhancements at 3GPP Release-19 RAN Plenary
- SAA provided critical insights into the future of aviation connectivity with release of the "[3GPP Non-Terrestrial Networks for Aviation Connectivity](#)"
- SAA co-chairs from Airbus and Vodafone assembled a dedicated Technical Working Group to drive the integration of 5G NTN technologies into the aviation industry
- ESA enabled the creation of the [NTN Forum](#) in 2024 to harmonise all stakeholders' needs and promote space hybrid TN/NTN networks for a future of global connectivity.

The Seamless Air Alliance invites mobile network operators, airlines, technology and connectivity service providers to join the industry-wide collaboration to define interoperability standards and programs that drive innovation, economies of scale, and enable airlines with the most cost-effective, efficient and flexible solutions. To learn more, visit <https://www.seamlessalliance.com>.

About Seamless Air Alliance

The Seamless Air Alliance is committed to advancing inflight connectivity through open standards, uniting stakeholders from the aviation and telecommunications industries to provide a seamless connectivity experience.

About ESA's Space for 5G/6G & Sustainable Connectivity programme

The European Space Agency (ESA) is Europe's gateway to space, coordinating the financial and intellectual resources of its Member States to conduct space programmes and activities. ESA's 'Space for 5G/6G & Sustainable Connectivity' strategic programme line is advancing 5G and 6G technologies to support the digital transformation of Europe by integrating satellite and ground networks. This fusion of terrestrial (TN) and non-terrestrial networks (NTN) will revolutionise how we live, work and communicate in terms of smart mobility, global coverage, security and network resilience. The programme aims to promote the standardisation of seamless global connectivity for various industries and applications, including telemedicine, tele-education, and autonomous vehicles, airplanes and ships.

The flagship ECSAT 5G/6G Hub (UK) is a centre for innovation and demonstration, tailored to meet the growing demands of stakeholders such as operators, technology and service providers, and applications developers.

This programme is part of Advanced Research in Telecommunications Systems (ARTES), overseen by ESA's Connectivity and Secure Communications (CSC) directorate, which aims to connect everyone, everywhere, at all times.

Learn more at <https://connectivity.esa.int/space-5g-6g>