



# THE EUROPEAN AVIATION NETWORK

## Powering Europe's aviation connectivity

Aircraft flying European routes will have access to the European Aviation Network (EAN), a revolutionary, combined connectivity platform that will offer passengers a high quality, high-speed broadband service to rival that experienced on the ground.

The network seamlessly combines an S-band satellite and a complementary aviation ground component - a 4G LTE mobile terrestrial network. The first of its kind in the region, the network has been designed specifically to meet the growing needs of aircraft travelling across the high traffic flight paths in Europe.

This world-leading connectivity platform will meet the needs of airlines and their passengers – and can be expanded rapidly to meet the growing demand for a quality broadband experience in the future.

Access to this leading broadband-in-the-sky service gives airlines the ability to enhance their passengers' experience. In addition, airlines can utilise the benefits of high-speed broadband to improve the operational efficiency of their aircraft flying these busy routes, thus boosting the capabilities and competitive position of the European aviation industry.

The European Aviation Network is a partnership between Inmarsat and Deutsche Telekom – bringing together two experts in global connectivity to deliver a world-leading broadband service to the aviation community.

### S-band satellite for Mobile Satellite Services (MSS)

The Inmarsat S-band satellite, a state-of-the-art platform, will provide multi-beam pan-European coverage. The satellite is custom-designed to offer innovative MSS services to commercial and business airlines flying over the dense European routes, exploiting Inmarsat's 30MHz (2 x 15MHz) S-band spectrum allocation in all 28 EU member states.



### Complementary LTE-based ground network

On the ground, Deutsche Telekom will build and manage a new powerful mobile broadband network of approximately 300 LTE sites that seamlessly works

together with the MSS services. This pan-European infrastructure will use the same S-band allocation in the most efficient way, providing an enhanced passenger experience.

Once the aircraft have reached 10,000ft, the S-band connectivity will be combined with the DT ground solution. The future-proof network will consist of special LTE tower sites, linked together to provide high-speed broadband coverage across all the 28 European Union member states.

Switching between the satellite and ground will be automatically managed by the cabin systems, creating no impact or interference with the service delivered on board.

Advantages:

- The same spectrum can be re-used on adjacent cells (three cells per site)
- Cells can be multiplied on demand without incurring significant costs
- High capacity can be provided to each aircraft as we expect peak data rates of 75Mbps per cell across the coverage area

## Satellite and LTE technology: the perfect fit for Europe

- A market-leading broadband network that will enable the European aviation industry to offer a connectivity experience for passengers to rival anything available anywhere else around the world
- Increased bandwidth for faster connectivity options even in high-density flight areas
- Economical antenna/terminal solution for every type of aircraft

- Easily and economically scalable to meet demand, wherever and whenever needed
- Complements the recently launched Global Xpress satellite network, which provides high-quality broadband to the aviation industry across the globe

### Ground stations

Existing satellite ground stations sites will be used to expand the required infrastructure for the Inmarsat S-band network.

## Network management

On the ground, information from both the satellite and the high-speed broadband ground network will be integrated at Inmarsat's Data Communications Network (DCN), which takes information from the Satellite Access Stations (SAS) and central Network Operations Centre (NOC). This network supports the signalling between ground network elements of the network management information as well as the transport of actual traffic data.

## Aviation terminals

Aircraft will be equipped with terminals for both the S-band satellite and the high-speed broadband ground network enabling seamless connectivity all across the coverage region.

### European Aviation Network combines the best of satellite and LTE technology

Inmarsat's state-of-the-art and custom-designed S-band satellite, will provide multi-beam pan-European coverage

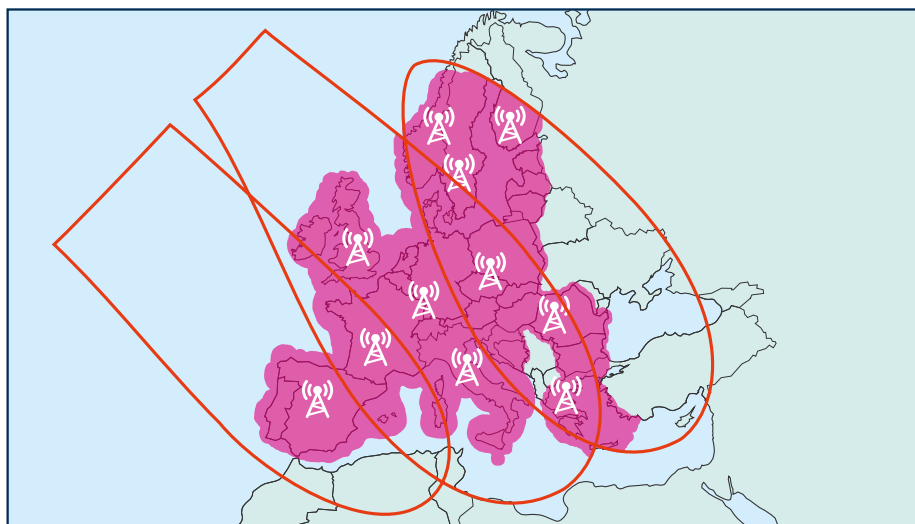
For onboard communication, the high-speed connection will be available via Wi-Fi

Over 50Gbps total network capacity

Deutsche Telekom's LTE-based ground network ensures the most efficient use of S-band satellite frequencies (2 x 15MHz)

- High capacity even in busy traffic areas
- A customer experience just like at home
- Demand driven network extension reduces cost of capacity

### Proposed S-band coverage



Deutsche Telekom complementary ground network | Inmarsat S-band coverage

Please note that coverage is indicative as the service is not yet operational

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