Inmarsat S-band services

Mobile Satellite Services (MSS) platform

S-band Satellite for MSS

Europasat, our S-band satellite, a state-of-the-art platform, will provide multi-beam pan-European Union (EU) coverage. The satellite is custom-designed to offer a variety of innovative MSS services to Inmarsat’s traditional and new mobile markets. Europasat will be served by gateways as well as offer connectivity to the other terrestrial networks.

Complementary Ground Component (CGC)

The MSS services from the S-band satellite will be supported by a Complementary Ground Component (CGC). This pan-EU CGC infrastructure will use the same S-band allocation, providing an enhanced customer experience and integrated set of services.

Core Services

Inmarsat’s S-band MSS initiative consists of the following core services:

Aviation Services

One of the innovative ways Inmarsat plans to deploy the hybrid satellite-terrestrial connectivity is to serve the aviation market. The MSS satellite will be complimented by pan-EU deployment of Aero-CGC, operating in the same S-band to provide high-throughput integrated and hybrid services to aircraft. Passengers will be able to access a wide range of services from social media updates and emails to live-streaming TV, safety instructions in their own language, outside live views from cameras, international news or connecting flight information – with even more to come. Passengers would actually be using their own smart devices (phones, PCs, tablets, etc) with no modification needed. Connectivity applications will also serve a wide range of airlines’ administrative and operational communications, including (but not limited to) digital cabin logbook, aircraft documentation viewer, telemedicine and on-board rescheduling of flight connections. Many of these services will be aimed at improving operational efficiency, with real-time data allowing for better planning, resulting in reduced costs, reduced emissions and improved productivity.

Public Protection and Disaster Relief Services (PPDR)

Public safety and disaster relief are two proven markets for MSS. S-band introduces a new suite of pan-EU services promoting delivery of PPDR services against the EU ‘Solidarity Clause’ policy objective. PPDR services are provided by relevant protection and disaster risk agencies, notably police, fire and ambulance services, civil defence, and auxiliary services such as military search and rescue. The S-band system will provide high connectivity speeds which will serve PPDR.

The S-band spectrum can overcome the current limitations of national PPDR services and cater for future expected high growth in the need for broadband data, with the use of hybrid satellite-terrestrial services to improve mobile communications for public safety and security services. The S-band system allows deployment of a pan-EU network designed to enable the wide area coverage and disaster-
relief advantages of satellite communication to be combined with the high capacity and availability of terrestrial networks in order to provide an overall unprecedented and cost-effective solution.

**Business Services**

Inmarsat S-band allocation makes it possible to serve a range of traditional business and consumer services in the future. In particular the S-band infrastructure deployment will enable Inmarsat to serve the following markets:

- **Maritime services**
  Broadcast and interactive services made available to coastal vessels within the S-band pan-European footprint.

- **Enterprise**
  High throughput mobile services can also be offered to fixed or transportable terminals.

- **Land Vehicular applications and services**
The S-band enables new spread of services. Cost effective and efficient user terminals will be able to provide broadcast/multicast and interactive services for cars, trucks, trains etc.

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**High level S-band architecture**

**S-band integrated services for Europe**

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**Ground Stations**
The feeder links land the traffic from the S-band satellite at the Satellite Access Station (SAS). The feeder link will most likely operate in Ka-band, and Inmarsat already manages and operates Ka-band ground station facilities in Italy and in Greece. Inmarsat equally has an L-band station in The Netherlands as well as in Italy where a large part of the infrastructure that is used as a common platform across multiple-bands is installed. Inmarsat’s existing ground stations will be used to serve the Inmarsat S-band network.

**Network Management**
On the ground, the Satellite Access Stations (SAS) and central Network Operations Centre (NOC) will be interlinked by a private terrestrial network, referred to as the Inmarsat Data Communications Network (DCN). This network supports the signalling between ground network elements of the network management information as well as transport of actual traffic data.

**Service Coverage**
The S-band coverage is in line with the common conditions of the EU framework, both in terms of geography and population. The satellite will provide multi-beam coverage over Europe. It will also provide a high degree of flexibility in resource allocation enabling Inmarsat to match user needs, now and in the future. In addition, CGC will also be deployed across the EU in-line with user demand to compliment the S-band satellite for integrated MSS services.

**User Terminals**
The three families of products planned for the S-band satellite system build on the existing BGAN terminals and the established broadband/broadcast terminals using DVB-SH/DVB-S2 standards.

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