

**Question 1: Do you have comments on Inmarsat's planned use of the spectrum, our planned approach to authorising the overall MSS and CGC system, the availability of the Network and Spectrum Access 2 GHz Licences, or any other aspect of the scope and purpose of this document?**

### ***Legal Definition***

Inmarsat welcomes the fact that the Ofcom consultation has considered the consistency of Inmarsat's planned use of the spectrum and the EU legal framework. Not only has the consultation given significant consideration to the legality of the proposed service, it also confirms that Mobile Satellite Services (MSS) in these frequency bands may include a combination of both satellite and complementary ground components (CGC).

Inmarsat has long argued that the architecture of its European Aviation Network (EAN) and planned services are consistent with the definition of MSS in Decision 626/2008/EC and Decision 2007/98/EC. The important element of this network is the relationship between the mobile satellite component of the network and the ground network.

Ofcom rightly finds that MSS is defined in these Decisions as "*the combination of the satellite component and the CGC (i.e. it is not limited to the satellite component)*". Accordingly, any service carried over the CGC will, by definition, improve the availability of MSS as defined in the Decisions". In addition, the consultation correctly acknowledges that "*if the MSS system did not include the CGC then the quality of the service aboard aircraft would suffer*".

It is very welcome, therefore, that the consultation finds that Inmarsat's planned use of CGC meets the definition of CGC as set-out in the Decision 626/2008/EC, so providing an endorsement of the configuration of Inmarsat's planned network.

### ***Network development***

Inmarsat's combined satellite and terrestrial MSS 2GHz network is designed to provide mobile broadband services to aircraft flying over Europe. Services provided over the European Aviation Network (EAN) will serve the communication requirements of aircraft passengers and some operational requirements of the aircraft.

As Ofcom is aware, construction of Inmarsat's dedicated S-band satellite is progressing according to build plan. Furthermore, Inmarsat is currently scoping and planning roll-out of the ground network. Due to the hybrid nature of the network, combining as it does both satellite and terrestrial elements, it is imperative that the licensing conditions, including the technical parameters for the ground network and the aircraft terminals, are clarified in the near term. This will allow network build to commence in the near term, so ensuring that the ground element of the hybrid system can be operational on launch of the hybrid system.

Ofcom's proposals envisage fee differentials per CGC station dependant on geographical location. A fee structure such as this will impact the choice of location of the ground station. Therefore, given the lead-time required to select all sites and build the network, we would urge Ofcom to conclude this consultation with urgency and as soon as practicable.

### ***Economic Benefits***

Inmarsat's vision is to provide the world's first hybrid mobile satellite and terrestrial communications network, a vision that is supported by our European business partners and one that will become fully operational by 2017. This innovative platform will be used to provide seamless communications for European airlines, ensuring that airlines and airline passengers alike can access in-flight broadband Internet services.

In regulating the use of the CGC in the provision of MSS in the UK, it is important to acknowledge the total economic benefit that the development and roll-out of this unique platform will have for UK citizens and business alike.

The roll-out maintenance and operation of Inmarsat's pan-European MSS/CGC in-flight broadband network will realise a total investment by Inmarsat of £194m by 2025. This includes a £132m investment in the space sector to build and launch the S-band satellite, along with a further £62m investment in the complementary ground network to increase the network's capacity and resulting quality for users. This roll-out and maintenance work is expected to create over 500 high-skilled, high-tech jobs across Europe.

The introduction of Inmarsat's in-flight connectivity service is also expected to offer society a host of wider economic benefits, such as technological advancement; higher-value employment opportunities and increased labour force productivity; competition; as well as opportunities for improved environmental and airline safety standards. These benefits are expected to be valued in excess of £46m (present value) over 2014–25.

### **Question 2: Do you have any comments on the technical conditions we propose to include in the Network 2GHz Licence**

Inmarsat is content with the technical licence conditions for the DA2G base stations described in section 7 of the consultation document and we are content with the draft licence in Annex 6 of the consultation document. We concur with Ofcom that the technical conditions are consistent with those assumptions in ECC Report 233. In accordance with the conclusions of that Report, we agree with Ofcom's conclusions (para 7.20) that no special mitigation measures are required for the DA2G base station with regard to potential interference to other services and applications operating in the UK in the adjacent frequency blocks. As identified by Ofcom, this includes any CGC deployed in the adjacent frequency block to that assigned to Inmarsat.

Inmarsat agrees with the technical due diligence provided in Annex 5 of the consultation document. Although this consultation document is not addressing the technical conditions for the aeronautical terminals, Inmarsat agrees with the analysis presented for the aeronautical terminals in Annex 5, which confirms that the aeronautical terminals will also not cause unacceptable interference to users in the adjacent frequency bands.

Inmarsat therefore supports Ofcom's conclusion in 8.32.

**Question 3: Do you have any comments on our proposals for the fee level, fee structure and implementation of the location factor for the fee for the Network 2 GHz Licence?**

Inmarsat further supports the approach of Ofcom to establish a new and alternative fee structure to the UK wide fee, based on a site specific approach. This provides a powerful incentive to install the relatively modest number of towers in locations where the relative value of spectrum is estimated to be lower by Ofcom. We believe that the methodology achieves the objectives Ofcom has set in 8.25 and is better tuned to our expected deployment of DA2G base stations. It indeed creates both medium and long term incentives to minimise the total number of towers and to adopt a responsible approach in locating towers in locations that avoid highly populated areas. We agree that, even though the integrated MSS/CGC nature makes sharing opportunities relatively low, this approach does maximise the potential for sharing.

Inmarsat's unique European Aviation Network (EAN) combines the best of two existing technologies and consists of:

- a satellite (Europasat), covering the landmass of Europe, as well as the surrounding seas and neighbouring regions; and,
- a complementary terrestrial network providing additional capacity.

As acknowledged in Ofcom's consultation, the EAN will be used as a wholesale backhaul service to support a variety of aircraft communications including passenger communications (real-time social media, web-surfing and email, connecting flight instructions, etc.) and airlines' administrative and operational communications (e.g., digital cabin logbook, aircraft documentation viewer, monitoring of engines and fuel saving, etc.).

It is designed as a hybrid network that allows seamless roaming for users between both parts of the integrated system. Both the satellite and the terrestrial components use the same frequency spectrum of 2x15 MHz bandwidth allocated to Inmarsat. Intended customers are airlines, not individual passengers. CGC will complement MSS coverage throughout Europe and will be limited to a few hundred base stations for the whole of the European landmass. S-band terminals operating on the aircraft will be specific and qualified for aerospace.

It is important to note, therefore, that due to the intended market, the specifications of the network and the deployment plan, EAN cannot be compared to any existing

public network, including public mobile networks (i.e. a 3G or 4G type network). Moreover, the innovative nature of the service, and the risk taken by Inmarsat (upwards of £200M will be invested before the launch of the service and even larger amounts by its partners) and the very limited number of towers that will be installed, justify a more proportionate level of national CGC fee.

In support of a revision of the fees for use of CGC, Inmarsat also references Ofcom's 2009 statement on the licensing of 2 GHz MSS Complementary Ground Components (CGC)<sup>1</sup>.

In this 2009 statement OFCOM confirmed that it could reconsider the then proposed fee basis for use of CGC "*once the European regulatory position and associated market developments have become a little clearer, we are presented with clear and compelling evidence that the rate of £554,000 per 2 x 1 MHz is preventing this spectrum from being brought into efficient use*".

Ofcom's current proposals are a clear acceptance of the need to ensure that authorisation fees are proportionate to and commensurate with intended service provision.

Acknowledging the limited infrastructure roll-out, investment to date and the highly innovative nature of Inmarsat's EAN spectrum usage, we support Ofcom's proposals. To date, we see that formats for affordable fees have been accepted by a large number of Member States where either a new licensing category or a per tower CGC fee has been proposed as the basis upon which to determine an appropriate level of fee for CGC.

The proposal put forward by Ofcom combines a per base station fee coupled with a population coverage determinant. This fee calculus varies somewhat from those proposed by other Member States, however, the principle of a tower based CGC fee is welcomed. Ofcom's approach is also technology neutral as it allows operators in 2 GHz to choose between the most suitable licensing category and associated fees, depending on the market addressed and the size of network deployed. This is a welcome development and one that Inmarsat supports.

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<sup>1</sup> Authorisation of terrestrial mobile networks complementary to 2 GHz mobile satellite systems (MSS), A Statement on the licensing of 2 GHz MSS Complementary Ground Components (CGC), 17/07/2009