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Additional comments:

Question 1: What are likely to be the key underlying factors influencing changes in demand for this spectrum (in terms of quantity of spectrum or preferred bands) over the next 5 to 10 years? Please provide band specific evidence to support your view.:

The main bands used by Inmarsat's current network are the L-band MSS spectrum (1518-1559 MHz, 1626.5-1660.5 MHz, 1668-1675 MHz) and the C-band FSS spectrum (3400-4200 MHz and 5925-6725 MHz). The L-band is used for the service links and the C-band is used for the feeder links. Inmarsat's services are typically used for communications to mobile users and to users in remote areas where there is no reliable or cost effective alternative. The increasing demand for mobile broadband communications has led to increased spectrum requirements for Inmarsat's services.

The trend in terrestrial mobile networks is for users to move away from low bandwidth (typically voice and low data rate) services towards high bandwidth services (e.g. mobile internet access). Similarly, Inmarsat users are generally moving to higher data rate applications. To date, this demand has been accommodated in L-band by improvements in spectrum efficiency (for example from the use of multiple spot-beam satellites). The use of L-band for MSS with the use of C-band for feeder links will continue for the foreseeable future. L-band has advantages over higher frequency bands, for example negligible impairments from rain, and the ability to use small hand portable terminals not technically feasible at higher frequencies, where the propagation conditions require the use of higher gain antennas.

However, with the dramatically increasing demands for mobile broadband access, it is apparent that the limited spectrum available in L-band will not be sufficient. Inmarsat is developing a new network, "Global Xpress", that will launch in 2013 and operates in the Ka-band FSS spectrum (17.7-20.2 GHz and 27.5-30 GHz). The Global Xpress network will provide users with mobile broadband capabilities of around 10-50 Mbit/s to a single terminal - commensurate with the data rates currently available through ADSL and fibre technologies and with expected 4G terrestrial mobile technologies.

There is, in fact, a clear demand at Ka band for the provision of mobile broadband applications in areas not covered by terrestrial infrastructure (aircraft in flight, ships at sea, remote areas, oil rigs, etc.), which can only be effectively provided by satellites. In many cases, for example for communication to aircraft passengers, the satellite service is shared by multiple users (for example via a WiFi system in the aircraft cabin). This places a further demand on the required data rates for a single satellite terminal. Furthermore, the future development of high speed broadband services, whether by wired or wireless terrestrial networks, will set expectations and lead to a similar increase in demand for high data rate satellite services.

The Ka-band exclusive satellite bands, 19.7-20.2GHz and 29.5-30GHz, are already insufficient for the currently planned systems, including the new Inmarsat Global Xpress, let alone the forecast for future demand. Consequently Global Xpress will also use some of the Ka-band spectrum internationally allocated also to the Fixed Service (FS) for user terminals and for feeder links. However, the use of shared spectrum is constrained by the requirement for coordination and generally user terminals cannot operate in geographical areas where FS stations have been deployed.

It is not currently feasible to make use of satellite bands higher than Ka-band, due, in part, to extreme atmospheric propagation impairments. This is likely to be the case for the foreseeable future. Recognising also the need for satellite systems to operate in internationally harmonised bands, the increased use of Ka-band provides the only realistic possibility of accommodating the future needs of satellite communication systems.

Overall, the general trend over the next 5-10 years is likely to be one of very fast uptake of new services in Ka-band, while the use C-band and L-band will increase at a lower rate. The use of all three bands: L-band, C-band and Ka-band, will continue for the foreseeable future.

Question 2: Will the reducing trend in the numbers of fixed links in the spectrum under review to support mobile backhaul continue? If so, in which bands will this reduction be most apparent and how will link capacity/bandwidth requirements change? What factors will have the biggest influence on the outcome? In your view, what will be the impact, on spectrum demand, of deploying next generation mobile networks for example using Long Term Evolution (LTE) standards? :

Question 3: How might the changes to current or future public safety networks influence the existing and future requirement of the spectrum under review for fixed link backhaul for public safety applications over the next 5-10 years? In which spectrum bands is demand most likely to arise and how much spectrum would be required? May demand for bands currently used by public safety applications decrease? Is it likely that the public safety services

may require access to the spectrum under review for other data networks or for alternative uses?:

Question 4: How likely is it that use of CCTV by local authorities will significantly increase overall demand for fixed link infrastructure spectrum over the next 5 to 10 years? If so, in which bands is the additional demand most likely to be required and why? Do you have any information about the relative costs of wired and wireless CCTV links in urban and rural areas?:

Question 5a: What are the main factors (technical or regulatory) that determine preferences for one band over another for satellite applications? Do these factors vary between different types of satellite applications (Mobile, Fixed, Broadcasting and Science services)? In which bands will we see the most significant changes in demand in the next 5 to 10 years, and why?:

C-band is technically advantageous for satellite use, due to favourable propagation conditions, allowing high availability and the ability to provide global beams. Ku-band has also proven to be a valuable frequency band for satellite systems. However both C-band and Ku-band are highly congested from the number of satellites in orbit. Also, all or parts of the C-band and Ku-band are used by terrestrial systems, which may prevent the use of mobile satellite applications, or the use of ubiquitously deployed satellite terminals.

Ka-band use for satellite applications, thanks to advances in technologies, shows some clear advantages for fixed and mobile broadband provision: larger available bands, use of spot beams with high gain/throughput, smaller, cheaper terminals.

While propagation can be challenging at these higher frequencies, impairments can be mostly overcome by counter-fade techniques such as adaptive modulation, power control, space diversity, etc.

However, ultimately, the take up of new services in Ka-band will depend on regulatory certainty, due to the significant investments involved in satellite programmes. Feasibility of sharing with other services and availability of satellite exclusive portions of spectrum are also key aspects.

Satellite feeder links operate to a small number of gateway earth stations, but require access to a large quantity of spectrum. For these earth stations, coordination with the FS is usually practical, and the earth stations can operate in a shared band. In the case of satellite user terminals, coordination with the FS is typically not practical, especially in the case of mobile satellite terminals. Hence, for these earth stations, operation in bands not shared with the FS is usually necessary.

In this respect, license exemption for user terminals is quite critical, as, due to the demand foreseen for Ka band satellite services and the need for free circulation of mobile terminals, having individual licensing of satellite terminals would be an impractical administrative burden and would also increase the overall cost of the service to the users.

As mentioned above, the most significant change in demand in the next five years in expected in the Ka-band. In addition to Inmarsat's Global Xpress system, other Ka-band satellite systems are being developed to provide a range of different applications, including mobile broadband access, fixed broadband access, and fixed backhaul. Consequently, improved access to satellite spectrum is likely to be required. Work is underway in CEPT (in particular project team FM44) to review the current European regulatory framework, and this might lead to changes at the CEPT level. New CEPT Decisions or Recommendations may be developed that would provide a good basis for the implementation of changes within the UK.

Question 5b: A number of the frequency bands under review are currently used for satellite Permanent Earth Stations (PESs), for example to feed Direct to Home satellite broadcast services. What are the continued and future spectrum requirements for satellite PESs (E-s & s-E) likely to be and in which bands? Please provide evidence to support your views.:

Spectrum for PESs will continue to be required in C-band for existing services and new requirements in Ka-band will arise for the future services already mentioned in other parts of this document.

Question 5c: During recent years, some commentators have forecast significant demand for spectrum to support satellite consumer terminals. To date this demand has been slow to materialise. Do you have information which would help inform a more accurate assessment of future demand for spectrum in bands currently shared with fixed links?:

The availability of mobile broadband in locations on the Earth not covered by terrestrial networks can be realistically made possible only via satellite provision, for which adequate spectrum is required.

The planned new Inmarsat Global Xpress constellation will consist of three identical satellites, in geosynchronous orbit spaced approximately 120° apart, which will provide global Ka-band coverage and innovative mobile broadband availability. Global Xpress will bring a variety of two-way communications services to small user terminals including broadband Internet access, multimedia, voice and other applications.

The satellites are under construction by Boeing and the launch of the first one will take place in 2013. In addition to the global payload, which will use satellite exclusive bands, the Global Xpress system also has six high capacity beams per satellites which will operate, depending on the country/region, in parts of the 19.2-19.7 GHz (downlink) and 29-29.5GHz (uplink) bands. Deployment of these beams will allow essential extra capacity when and where needed.

Global Xpress is designed to respond to the exponentially increasing demand for satellite-delivered broadband high-speed data that is available globally. A basic advantage of Global Xpress is that its terminals can be transported and used in either a fixed mode or while on the move, anywhere worldwide, due to the system's seamless global coverage. The technology and services offered by Global Xpress will stimulate growth and strengthen the economy by enabling companies to compete more efficiently in the global market. Global Xpress will also provide a diverse user community, including government, media, enterprise, and other end users, with increased flexibility and reliability in their communications options.

Global Xpress will facilitate applications related to critical infrastructure, disaster communications, telemedicine, e-learning, media coverage and other remote communications that will affect users' efficiency and quality of life in a positive way. The increase in demand for high-speed data is a reflection of the increasingly mobile, connected lives people live. Users want connectivity everywhere, anytime, especially for critical government and enterprise customers. Global Xpress satellite service will offer communications capabilities in areas where wired and wireless networks might not extend or provide adequate coverage. Therefore, it is particularly desirable for government, maritime (merchant, cruise, fishing), aeronautical users (business, transport, passenger connectivity) media and aid agencies.

Reliable, ubiquitous, and high-bandwidth communications is essential for ensuring that utilities (such as energy) and other parts of the critical infrastructure operate efficiently and dependably. Global Xpress will provide capabilities that will offer high-bandwidth, consistent communications cost-effectively in remote areas to fixed and mobile platforms.

When it comes to mining and the oil and gas industry, reliable, cost-effective communications to fixed and mobile platforms is a must. Global Xpress technology will enable governments and businesses to have access to the latest communications services from even the most remote locations, whether from an off-shore oil platform or an oil exploration site located far from communications infrastructure. Exploration and drilling operations generate significant volumes of complex data that need to be transmitted in a timely fashion to decision-makers at the head office, and Global Xpress provides that capability. As these industries move to explore new prospects that are more remote, the need for an intelligent, flexible and high-performance communications infrastructure to support remote operations has become critical.

Communications is always a fundamental challenge during a disaster, and the ability to restore communications connections is one of the most urgent needs for disaster response and aid relief efforts. Global Xpress is especially well-suited to support emergency preparedness/disaster relief communications when terrestrial networks are unreliable or fail. In addition to providing high-bandwidth to affected users, it can provide backhaul to restore terrestrial communications (by backhauling communications from a pico cell, or providing IP connectivity for land mobile radio and mobile phones).

High-bandwidth, reliable, ubiquitous communications is also essential to media users who are covering fast-breaking events, whether it is a tornado or other natural emergency, or some other media event.
Global Xpress satellite broadband will be able to support telemedicine services, e-learning and other applications that can improve the quality of life regardless of geography, while optimizing the use of available human and capital resources. The service can enable medical and health care expertise to be accessed by remote or under-served locations, and offer solutions for emergency medical assistance, enabling life-saving procedures and diagnostic tests in the field or long-distance consultations. It can also facilitate healthcare administration and logistics (e.g., access to electronic medical records), the delivery of primary and special care in rural communities, and supervision, quality assurance and training for health-care professionals and providers. Global Xpress will offer the potential to significantly improve the effectiveness of remote healthcare by enabling more accurate and timely medical record-keeping and data sharing, and reducing health costs overall.

In the education context, Global Xpress will be able to support e-learning capabilities for communities in remote locations that might not otherwise have access to reliable communications connections. Universities and other educational institutions are increasingly offering online courses, but there are still many users that do not have access to a reliable means of accessing the Internet because they are located in a remote area, or change locations frequently. Global Xpress can offer these students a means of continuing their education by providing a consistent, reliable connection, which is available no matter where they are located.

Question 5d: Are there factors specific to the satellite based communications sector which mean that it faces particular difficulties evidencing and satisfying demand for spectrum? If so, how might these be overcome?:

We are not aware of a significant problem in "evidencing" demand for spectrum, but there are certainly difficulties in satisfying demand for spectrum. There are a number of reasons why spectrum access for satellite systems can be difficult to achieve.

First of all, satellite systems can only operate in the bands allocated for their purpose in the ITU Radio Regulations. The radio spectrum is divided among a large number of different services and only a limited quantity is allocated for satellite communications.

Secondly, some of the bands allocated to satellite services are reserved for government applications and other bands are shared with other services - in many cases the FS. This further limits the bands available for commercial satellite communications.

Thirdly, satellites address an international market, in some instances not necessarily of significant direct national consumer benefit. Especially in the case of provision of mobile services, satellites can be a "hidden" technology (e.g. emergency communications, disaster relief). However, in spite of specific national interests, international cooperation is needed for the international harmonisation of satellite spectrum. If a band is allocated to both satellite and terrestrial services, the decision of one country to deploy terrestrial services may affect the ability of other countries to deploy satellite systems. This is due in some cases to interference issues, and in other cases due to the need for international roaming for some satellite applications.

Finally, the timing and packaging of spectrum licences sometimes favours terrestrial applications over satellite applications. The licensing of satellite gateway earth stations is normally best done on a station-by-station basis. The licensing of satellite user terminals is normally best done on a licence exemption basis or a network licence basis. However, in some cases, Ofcom has licensed blocks of spectrum on a regional basis, which does not fit with the typical deployment of satellite systems - neither for gateway earth stations nor for user terminals. Furthermore, if spectrum is licensed to terrestrial applications before satellite applications are in operation, satellite applications are inevitably pushed from the band.

In order to overcome these difficulties and to maintain an efficient use of spectrum, a common effort from Administrations is essential to ensure that an adequate amount of spectrum is internationally harmonised for satellite use and appropriately balanced against the spectrum requirements of terrestrial services.

Question 6: What is the likely timetable for rollout of Smart Grids and what impact will these developments have on demand for spectrum in the bands covered by this review?:

Question 7: What impact will DAB expansion have on demand for the spectrum under review? Are there any other demand drivers that Ofcom should consider in relation to broadcasting use or services related to broadcasting? :

Question 8a: What is the likely demand for broadband wireless access applications in the spectrum under review and which bands is this likely to specifically impact? How should Ofcom consider the demand for backhaul to support such applications and is such backhaul demand likely to arise in the spectrum under review?:

Question 8b: Do you consider that the emergence of rural broadband fixed wireless access will influence overall demand for the spectrum under review and to what extent? Which bands is this likely to impact most?:

Question 9: Do you consider that there will be a material additional demand from the PMSE community for access to the spectrum under review? Which bands under review is this likely to impact most and to what extent?:

Question 10: How might the economics of new fibre provision (with or without reliance on regulatory remedies ? whether active or passive), as compared with wireless provision of both terrestrial and satellite based services, impact on the requirements for wireless backhaul? We are interested in the possible impact, in terms of the extent of possible substitution for wireless links and in terms of the nature of wireless links affected (urban v. rural, lower / higher frequency bands).:

The Digital Agenda for Europe sets targets for the deployment and take up of fast and very fast broadband, and foresees a number of measures to foster the deployment of Next Generation Access Networks (NGA) based on optical fibre and to support the substantial investments required in the coming years. Furthermore the deployment to FTTH (Fibre To The Home) is booming in the UK and the rest of Europe.

In general, fibre is a potential alternative to some fixed terrestrial and satellite services, but definitely not for the provision of mobile broadband on aircraft, vessels and in remote areas of the world. As mentioned above, the trend towards very fast broadband, whether through fibre provision or through any other means, will likely be a strong driver for increased bandwidth for broadband mobile satellite systems.

Question 11: What issues relating to spectrum access for different services do you think Ofcom should review? How might Ofcom start to rely more on

commercial decisions when determining allocations of spectrum in the bands covered by this review?:

First Question) As mentioned in ECC Report 152, satellite networks have started to expand into Ka band in the past few years. These systems are now mature for mass market applications, including small and portable terminals. Not only does high-capacity Ka band broadband satellite enable the development and provision of broadband services for enterprise, government, in-flight, maritime, oil-rigs, NGOs, but thanks to progress in terms of efficiency and competitiveness, Ka band broadband satellites also have a substantial impact in closing the digital divide in remote areas of the world.

However, in the 17.7-19.7GHz band, uncoordinated earth stations have a secondary status compared to the fixed service in accordance with Decision ERC/DEC/(00)07. Inmarsat is willing to operate on a non protected basis in this band and expect that this will be acceptable for many of the planned Global Xpress operations

In the 27.5-29.5 GHz band, ECC Dec 05(01) which allocates part of the spectrum to the HDFSS, is not widely adopted by member states. We suggest that the following aspects should be reviewed and addressed as soon as possible:
- Potential capability of parts of the fixed links to migrate to higher frequency bands
- Socio-economic aspects associated with the provision of satellite mobile broadband combined with lack of real alternatives in locations not covered by terrestrial network.
- Importance of international regulatory framework for satellite spectrum access.
- Ongoing work within CEPT to review the regulatory framework for FS and FSS in these bands.

The objective should be to make greater portions of the 27.5-29.5 GHz band available for satellite use as soon as possible in the UK. See also comments under Q13 and16.

Second Question) The allocations to different services are determined, at the international level, by the ITU. At the national level, allocations are defined in the UK Frequency Allocation Table and in most cases the UK allocations follow the ITU allocations. Several of the bands within the scope of this consultation are allocated to satellite services in addition to the fixed service and in most cases both fixed links and satellite earth stations can access the band on a first come-first served basis.
For satellite communications, commercial decisions at national level leading to geographical segmentation or technology independent assignment or transfer of spectrum usually, in practice, translate into an impossibility of using the band. In any case these commercial decisions need to be balanced against the economic value of satellite services in key national and international sectors, such as government, security, energy, maritime, etc. This is discussed further in the answer to question 12 below.

From the perspective of satellite communications, the existing ITU and UK allocations may be considered adequate. We are not aware of any demands or drivers for new allocations to satellite services in the bands within the scope of this consultation and hence the need, or otherwise, to rely more on commercial decisions when determining allocations for new satellite services does not seem pertinent. However many of the allocations to satellite services are shared with other services and problems for satellite services to gain access to spectrum can occur where national decisions are made to authorise services which are incompatible with alternative satellite applications. Furthermore, allocations for new services or other changes to the ITU Radio Regulations are sometimes made at the expense of existing satellite allocations (examples from WRC-07 being the allocation to the mobile service in the band 3400-3600 MHz and the removal of the MSS allocations around 2.5 GHz).

We are concerned where national licensing decisions may exclude the possibility of use of some bands for satellite services, despite the existence of UK or ITU allocations to satellite services. A number of examples can be cited in this context:
- Ofcom has authorised the use of parts of the band 3400-3600 MHz for broadband access but has not allowed use of the same band for earth stations, despite the ITU allocation to the FSS. In this case, the potential interference from terrestrial systems to earth stations in other countries is a concern.
- In the case of the band 3600-3800 MHz, both FSS earth stations and broadband access systems (fixed and mobile) are authorised in the UK, in conformance with Commission Decision 2008/411/EC, even though there is no primary allocation to the mobile service.
- In the case of the range 3800-4200 MHz, parts of this band have been licensed in the UK for mobile access systems, despite the lack of a mobile allocation within the UK or ITU, or any European harmonisation measure.

For each of these examples, we are concerned that interference may occur to earth stations (whether located in UK or abroad) and that the potential for new C-band satellite systems to be deployed is significantly reduced.

As a further example related to Ka-band, the auctioning of parts of the 27.5-29.5 GHz on a regional basis has constrained the use of these bands for satellite earth stations.

Each of these examples illustrates how national decisions, in some cases taken without international agreement, can prevent or harm satellite use of bands which are allocated to satellite services. As is mentioned above, such decisions have an impact not only on the use of satellite applications in the UK, but also internationally.

In section 3.32 of the consultation document, Ofcom seeks comment on the potential for increased use of the band 3600-4200 MHz for wireless broadband systems. This band is heavily used for FSS earth stations in the UK and will continue to be required for the foreseeable future. The increased implementation of terrestrial mobile systems in this band would increase the risk of interference to existing earth stations and would constrain the possibilities of deploying new earth stations in the future. Bearing in mind that Ofcom plans to make additional spectrum currently managed by the MoD in the band 3400-3600 MHz available for terrestrial mobile systems, there seems to be no justification to issue further licences for terrestrial mobile systems in the band 3600-4200 MHz.

In bands where the FS and satellite services are both allocated, the use of market based mechanisms to choose between terrestrial and satellite uses may unfairly discriminate against satellite use, for reasons explained below.

Question 12: We would welcome views on the potential for more widespread use of market based approaches to the spectrum under review such as third party band management, and the regulatory steps which would need to be taken to facilitate this. :

Inmarsat would like to express its concern that, in general, a market based approach in individual countries does no cater well for satellites needs, due to a number of reasons.

Firstly, there is a need for international harmonisation of satellite use, since satellite beams generally cover several countries, interference can occur across national boundaries and free circulation of terminals may be required. This may require, in some cases, administrations to refrain from authorising terrestrial systems so as not to undermine the international harmonisation.

Secondly, since satellite services inherently address an international market, it is not possible for satellite operators to compete with terrestrial operators for spectrum access on a country by country basis, for both economic and practical reasons. The economic reasons relate to the fact that the revenue per country would typically be much lower for a satellite system than for a terrestrial system. The practical reason is that a country by country approach cannot meet the requirement for a satellite system to access the same spectrum in multiple countries.

Thirdly, market based approaches do not adequately reflect the social and other non-commercial benefits of satellite communications, such as coverage of remote areas and communications in emergency and disaster relief situations.

Finally, most satellite operations allow for the same spectrum to be used in the same geographic area by multiple systems. For example, the same spectrum can be used by two GSO satellite operators with orbital spacing of their satellites of a few degrees. Hence, for some satellite operations there is no need for spectrum to be assigned exclusively to one operator within a particular geographic area, and in fact such a method of assignment would be highly inefficient and would raise competition concerns.

It is not at all clear what advantages third party management would bring to the industry. The idea of going towards a "privatisation" of spectrum management does not seem to be suitable for a vital, common resource such as spectrum. Inmarsat suggests that the main function of spectrum management strictly remains with Ofcom to avoid possible speculations and biased approaches.

Also, for bands shared with FS that would be used for satellite gateways, or wherever the possibility of coordination with other services is foreseen, link-by-link licensing is clearly preferable.

Question 13a: do you consider that any changes should be made to the Ofcom licence fixed link product set?:

Question 13b: Might a more flexible approach to licensing, in bands where demand is unlikely to exceed supply for the foreseeable future, enable more intensive use of these bands? If so, what form might the licensing take and in which bands would this be appropriate? :

Question 13c: Are there other actions which Ofcom could take to improve spectrum efficiency by encouraging migration to or use of higher, less heavily used, bands, with a view to freeing up spectrum in popular lower frequency bands? :

Inmarsat would like to express its concern regarding the large amount of spectrum which Ofcom has made readily available at higher frequencies (52/55/60/65/70/80GHz bands) for fixed links and which is left almost entirely unused, while FS allocations in lower frequency bands (e.g. 18/28 GHz) prevent these bands from being used by some applications of the satellite systems, even though some of these bands are also unused by the FS.

The higher frequency bands mentioned above, for which FS equipment exists from a range of manufacturers, could clearly accommodate deployment of new links and lighten the pressure on some of the spectrum at the more congested lower frequencies.

On the other hand, as already mentioned in our reply to Q1, use of frequency bands above approximately Ka-band is clearly not a currently viable option for reliable satellite telecommunications.

Inmarsat also notes that these higher frequency bands remain largely unused by terrestrial systems, independently of the licensing regime which varies from fully managed to light license and license exempt.

Light licensing, although very flexible, seems to fail to provide sufficient confidence regarding possible interference from other links and will not work for companies which need to provide a contractual availability to customers. Inmarsat notes that there is already a "band factor" reduction in spectrum fee for the Ofcom managed 52/55GHz band, compared to lower bands and that, in spite of these financially more favourable licensing conditions, also these bands are left unused.

Considering the need to use spectrum as efficiently as possible, Inmarsat courteously suggests that a dialogue should continue between Ofcom and the Fixed Service Industry to develop a clear understanding of the reasons for this lack of use of the higher bands, maybe via a further consultation, in order to determine appropriate action.

The managed approach with competitive spectrum rates, as for the 52/55GHz band, would seem a very valid method to encourage use of these bands. The fact that none of the bands are used may suggest that the FS demand for spectrum is already satisfied. If this is the case, the demand for spectrum in lower bands such as the 28GHz would definitely be greater for satellites than for terrestrial services.

In conclusion, we believe that it would be sensible to make lower frequency bands that are lightly used by the FS available for satellite use and encourage new FS systems to use higher frequency bands.

Although an initial reticence from the fixed link operators is understandable, due to costs involved in change of equipments and lack of confidence in link availabilities, what needs to be prevented is that inertia towards change will cause a prolonged delay in use of these new bands and, consequently, inefficient use of available spectrum.

Question 14: What is your view on the impact of geographically uniform fees for spectrum bands included in this review? If you consider that a geographic fee modifier would promote more efficient use of spectrum, how might that modifier be constructed?:

Question 15: Are there other aspects of the review on which you have evidence that would help inform our consideration of these issues and formulate proposals for consultation?:

Question 16: Is the proposed list of bands to be included within the review (as set out in Figure A.5.1 in Annex 5 appropriate?:

With reference to the 28GHz band, Inmarsat notes the fact that this band is not listed as being within the scope of this consultation, since it has been auctioned in the UK, for applications including fixed links.

The 28GHz band is the satellite uplink band that is normally paired with the 18GHz downlink band. With ECC Dec (05)01 the CEPT administrations decided to segment the frequency band 27.5-29.5 GHz between FS and FSS (uncoordinated FSS earth stations). The auctioning, in the UK, of 112MHz of spectrum (28.8365-28.9485GHz), which is designated in Dec (05)01 for HDFSS, prevents in fact adoption of ECC DEC(05)01 in the UK.

Furthermore, the auctioned bands seem to remain, for the time being, largely unused for terrestrial services, while there is demand for access to the same spectrum for new satellite applications.

Inmarsat believes there is justification for increasing access for satellite services in the 28 GHz band. As a way forward, Inmarsat suggests monitoring the use of the auctioned band and reconsider its allocation as soon as possible.