European Satellite Operators Association

SPECTRUM PRINCIPLES PAPER

The Importance of Satellite Access to Spectrum

Satellite systems and networks require hundreds of millions of Euros of investment, years of advance planning and construction prior to deployment. Investment decisions related to development of networks are made based on the business case and require market access on reasonable terms to the countries in the footprint. Once a satellite is operational, commercial viability depends on the availability of spectrum and the applicable regulatory regimes that the satellite network will be serving.

Satellite companies use their satellites to deliver a full range of services including among others: broadcast and other program distribution; broadband; maritime; aeronautical; government and emergency communications; telecommunications and private data networks, mobile fleet / traffic management and telemedicine. In particular, satellite has been at the forefront of digital TV & high definition television ("HDTV") development and should also be considered as one of the best platforms for the further growth of HDTV and the development of 3-D and interactive on demand digital services in Europe. Taking advantage of the high reliability of their infrastructure, European satellite operators have also long used their networks to connect Europe and the world during the most difficult man-made and natural disasters. Furthermore, satellite is the only available means of communications able to efficiently and immediately deliver broadband to all underserved or un-served areas of Europe.

The success and stability of satellite services for users is inextricably linked to the ability of the satellite operator to use the spectrum free of damaging interference and without the risk that such spectrum may be taken away after the investment has been made.

ESOA believes that 'harmful interference' represents the ultimate stage where the radio signal is damaged or lost, and where the communications service associated to this signal is seriously degraded, obstructed or repeatedly interrupted. It is critical to guarantee the highest level of service availability in ensuring that satellite services are not subjected to harmful interference, i.e. even before this occurs.

To assure efficient use of spectrum, it is very important that individual states abide by their international commitments and with ITU & CEPT policies and regulations. To avoid damaging interference, communication satellite users need as much identified / designated frequency bands on an exclusive basis as possible, notably based on ITU-RR and CEPT decisions.

In other cases, when the frequency band has to be shared with terrestrial systems, technical criteria and measures to protect sensitive satellite earth stations against damaging interference must be developed and implemented before terrestrial services are rolled-out.

ESOA therefore recommends that:

- **National Regulators in Europe implement the 2005 and 2006 ECC Decisions on Ka-Band ref. ECC/DEC/(05)01, ECC/DEC/(05)08, ECC/DEC/(06)02, ECC/DEC/(06)03 to facilitate the growth of digital broadband services by satellite in Europe.**
- **National Regulators in Europe implement the EC decision on BWA 2008/411/EC in a way that enables full compliance with Article 1 which states the aim of *"…harmonising, without prejudice to the protection and continued operation of other existing use in this band, the conditions for the availability and efficient use of the 3400-3800 MHz band for terrestrial systems…"*.**

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Technology Neutrality & Satellite Services

The satellite industry favours the Technology Neutrality (TN) principle as it was originally developed (*i.e.* as a competition principle). ESOA favours 'regulatory or platform neutrality' whereby the same economic regulations apply regardless of the type of network or service. For example, when countries encourage the take up of broadband, satellite technology should be recognized as an enabler and have equitable access to government funding as other communications technologies.

Where TN is used as a spectrum management tool to introduce "flexibility" in the usage of spectrum, ESOA believes that the limitations of "avoidance of interference" need to be taken into account with regard to satellites. In the radio spectrum area (*i.e.,* that affecting satellites), TN is sometimes used as a term to justify the opening of frequency bands to all uses (*i.e.,* the sharing of the same frequencies amongst different systems). It is further used to justify relying on market mechanisms to allocate or assign frequencies to users in the name of (economic) efficiency. These justifications can be very detrimental to satellite services if not applied with care.

'Allocational neutrality', aimed to encourage the most efficient use of a scarce resource such as spectrum, does not level the playing field for all technologies. Certain types of technologies, such as satellites, are inherently more suited to specific frequency bands and services, while being more prone to interference from other services.

Appropriate technical constraints that recognize the technical features inherent to satellite networks in order to avoid damaging interference need to be adopted which do not contradict allocational neutrality. In fact, failure to recognize necessary technical requirements would violate TN by not permitting the appropriate technical constraints required for communications satellites to operate without interference.

ESOA believes that a balanced approach, which takes into account the laws of physics and the quality and diversity of services, is more appropriate to maintain the benefits of harmonisation of spectrum usage.

It is therefore essential that the EU countries acknowledge the particularity of some technologies such as satellite communications which are at risk of suffering from damaging interference if forced to share frequencies with other services and take appropriate regulatory measures to guarantee the satellite sector an appropriate protection of, and access to, their spectrum. This is particularly critical for the implementation of the new EU Regulatory Framework for Electronic Communications into EU Member States. (Telecoms Package).

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Spectrum Pricing: The Effect on Satellites

- Given the international nature of satellite communication services, spectrum pricing on a large, global scale could cause enormous harm to the satellite industry. At a minimum, spectrum pricing beyond administrative cost recovery would damage competitiveness, innovation and could lead to substantial increases in consumer costs for services.

- Unlike stand-alone terrestrial services which are wholly domestic in nature, a satellite is capable of simultaneously providing one or more services to many countries (a single geostationary (GEO) satellite can provide service simultaneously to as much as one-third of the earth's surface).

- If each country in the satellite footprint imposed spectrum pricing, the additional costs resulting from such pricing would inevitably be calculated into the downstream pricing for customers and end-users thereby reducing consumer benefit and choice without improving spectrum efficiency. This makes spectrum pricing particularly burdensome and would likely place satellite operators providing services in Europe in an unfavourable competitive position against terrestrial service providers.

- The combined effect of countries raising high fees and/or using auctions on the spectrum used by the satellite sector would be to deter investment, distort competition among various platforms and, generally, harm the sector's ability to provide quality, affordable services to its customers. It could even curtail the decision of operators to invest the necessary capital needed to build, launch and operate satellite systems to serve countries with these policies.

- Satellite systems have extremely high up-front infrastructure costs. The purchase, launch, operation and insurance for a GEO satellite is highly capital intensive. Non-GEO satellite systems cost even more. Satellite operators therefore have powerful economic incentives to maximise spectrum efficiency and fully exploit their assigned spectrum so as to recover their significant up-front investment.

- Fierce competition for orbital slots and related frequency assignments among satellite operators further ensures spectrum efficiency.

- Due to the extremely high development costs, the additional burden of spectrum pricing for satellite spectrum could severely impact the commercial viability of satellite services potentially limiting or delaying capital investment, service roll-out and competition. It will also inhibit development and roll-out of riskier/innovative, perhaps even less profitable, yet much needed services.

- For example satellites are an ideal means of providing affordable broadband connectivity to rural and remote areas in Europe. Satellites also provide critical emergency services to first responders particularly when other means of communications are unavailable.

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- Spectrum pricing that is not based on recovery of administrative or regulatory costs would unnecessarily increase the costs of these services and could reduce the availability of such important services.

- The need for national intervention and individual assignment of frequencies is relatively low for satellite services that operate in harmonised frequency bands. Therefore these services can operate well under a general authorisation regime and spectrum charging is not appropriate, in line with the EU Authorisation Directive of the Telecoms Package.

Principles Deriving from The Pricing Effect

1. **Maintain "no landing rights" approach.** There is no need to require licenses or to impose other regulatory requirements on satellite operators for the provision of satellite capacity (so-called 'landing rights' on the provision of space segment). In the European Union, this activity is totally deregulated and does not discriminate between EU and foreign satellite operators. Therefore, since the authorization of space stations is done by the satellite operator's home licensing administration, there is no need to duplicate it in other countries and there should be no fee associated to it. The current regime works well and has established the EU countries as worldwide policy leaders in this arena.

2. **Avoid Auctions.** Do not implement auctions for satellite frequencies or licenses because they would cause harm to the sector, deter investment and ultimately raise costs for users.

3. **Make Network & Services Licensing Fees Non Discriminatory and Stable.** Licensing procedures, applicable to national network or service providers, should be streamlined and transparent and should be the same regardless of the technology used and whether they access domestic or foreign systems.

4. **Administrative Costs Recovery.** Licensing fees and other regulatory / administrative charges ought to be limited to the recovery of the actual costs of the NRA's regulation of satellite services.

5. **Ensure Fees are Predictable and Fostering Investments & Innovation.** Satellite typically are based on long business cycles (15-20 years) which impose that rules and costs charging associated to them are predictable and maintained stable over time.

Regulators within the EU should take into account the general objectives of the EU telecoms regulatory framework which include "encouraging efficient investment in infrastructure and promoting innovation, taking into account investment risks" as well as "promoting regulatory predictability."

June 21, 2010

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