

***GVF/SIA answers to specific questions posed by OFCOM in its consultation regarding
the manner in which radio spectrum should be managed in the
United Kingdom***

Q3: Are there any other issues of sufficient significance to merit mention in this document?

Today, whereas information on spacecrafts are made public through filings to the ITU and also when earth stations need to be coordinated with national radiocommunications in shared bands, there is no public national licensing database reflecting the actual terrestrial operations. We believe that in order to increase transparency on spectrum use in Europe, information and data on all radiocommunications should be collected and publicized at national level in the UK.

Q4: Are there important lessons to be learnt from experience in other countries that is not addressed here?

In 2002, the Federal Communications Commission (FCC) adopted emission limits¹ for license-exempt radar detectors, in order to protect very small aperture satellite terminals (VSATs) operating in the 11.7 – 12.2 GHz band from interference generated by the radar detectors. The satellite industry petitioned the FCC for assistance when its VSAT networks began to experience harmful interference due to the high levels of radiated emissions from the license-exempt devices. The FCC subsequently granted a thirty-day waiver to allow the continued marketing of the license-exempt devices, but after said deadline required that all radar detectors be certified as complying with emission limits to protect VSAT operations in the Ku-band frequencies. This case illustrates the need for the local regulatory agencies to act quickly in order to protect established satellite services from unexpected interference from license-exempt devices.

The U.S. government also has recognized that international satellite spectrum should not be subject to auctions or trading and included a prohibition against said actions in Section 647² of Public Law 106-180 of March 17, 2000, entitled *Open-Market Reorganization for the Betterment of International Telecommunications Act (ORBIT Act)*.

While auctions may be appropriate mechanisms for the allocation of scarce spectrum below 3GHz, their use in the U.S. in frequency ranges above 3GHz has largely shown them to be of little financial value and a potential hindrance to deployment of services by

¹ FCC DT Docket 01-278, First Report and Order, adopted July 12, 2002.

² Section. 647. Satellite Auctions. “Notwithstanding any other provision of law, the Commission shall not have the authority to assign by competitive bidding orbital locations or spectrum used for the provision of international or global satellite communications services. The President shall oppose in the International Telecommunications Union and in other bilateral and multilateral for any assignment by competitive bidding of orbital locations or spectrum used for the provision of such services.”

a broader range of operators. After the burst of the "Internet bubble", U.S. auctions of fixed wireless spectrum above 3GHz have shown that there is so much available spectrum for such use that operators are now asking the FCC not to auction any more, as each failed auction only serves to further depress the book valuation of spectrum resources they previously purchased.

For technical, economic and public interest reasons, the FCC has chosen in its most recent allocations of fixed service spectrum (above 70GHz) to return to a "first-come first served" coordination model, rather than auctions. The higher degree to which coordination can be readily achieved in microwave bands argues for adoption of "as-needed" licensing, without auctions or fees, to allow services to be provided where demand warrants and economic efficiency can be realized. Auctions, fees and other regulatory encumbrances serve only to reduce the efficiency of the market by limiting services in rural areas with few efficient choices (eg. satellite) to those that can justify the cost based on service to large populations where a large number of substitutes are available. Auctioning spectrum in satellite bands based upon urban economics represents an economic loss to rural and other consumers that have few choices and may make such service impractical.

With these facts in mind, we observe that the inertia of the "Internet bubble" era has not totally ceased, as there continue to be efforts in both the U.S. and elsewhere to increase the sharing of satellite spectrum above 3GHz through auctions or licensing of unaffiliated fixed service operators in the bands used by satellites. Given the high economic value of satellite services to broadcast, industrial networks, financial services and consumer access, along with the overabundance of fixed-service spectrum, we urge OFCOM to direct future fixed service needs to their own bands and to avoid auctions or fees on satellite spectrum to avoid economic loss to rural and competitively disadvantaged users.

Q5: Do you agree with OFCOM's intent to maximise the use of trading and liberalisation?

While we do not take a position on the use of trading and liberalization in non-satellite frequency bands, we do believe that there are certain issues that will warrant oversight from OFCOM if it decides to introduce trading and liberalization into bands adjacent to those used for satellite services, particularly with respect to the identification of interference being caused by unlicensed devices. We address this issue further in our answer to Question 7, below.

Q7: Do you agree with OFCOM's approach to providing spectrum for license-exempt use?

We agree with OFCOM that not all access to radio spectrum should be license-exempt, because the risk of harmful interference is too high and cannot adequately be managed by market players.

If OFCOM wants to rely on unlicensed devices as a means to increase spectrum usage, it should require that their proponents demonstrate how power restrictions will be maintained under all distribution scenarios. Should an unlicensed device become popular with the general public, its use can expand broadly both in sheer numbers and geographically. The aggregate interference from many devices can result in unexpectedly high levels of interference, and, given the numbers and lack of information on geographic location, it can be difficult or impractical to shut down the devices in order to eliminate the interference. In our answer to Question 4, we provide information regarding a problem the U.S. experienced due to the deployment of radar detectors in the Ku-band frequencies, which illustrates the problems that can result from the massive deployment of unlicensed devices in frequency bands utilized by satellites.

On the other hand, where the risk for interference is negligible, as is the case for satellite services in exclusive bands, license exemption should be maintained.

Q10: Do you agree with OFCOM's longer term proposals for spectrum trading?

OFCOM's long-term spectrum trading proposal raises the possibility that license-exempt devices may be introduced in new spectrum bands adjacent to existing licensed services. OFCOM should consider whether additional restrictions should be placed on license-exempt devices to ensure that they do not result in out-of-band emissions in excess of those anticipated and authorized for the band in question. Many license-exempt devices can cause significant out-of-band emissions, particularly at short-range. This could result in unacceptable interference problems for adjacent spectrum users that are not a party to the contractual market mechanism that permitted the license-exempt device to operate in the adjacent band.

An appropriate option would be for OFCOM to require that all license-exempt devices that are operating in spectrum leased pursuant to a market mechanism arrangement to include remote control equipment that would permit the user of the spectrum to shutdown the license-exempt devices in response to a complaint of harmful interference. Incorporation of such technical capabilities appears necessary in light of the extreme difficulty that would exist in remedying harmful interference caused by mass-marketed, ubiquitously deployed, license-exempt communications devices.

Q12: Should OFCOM do more to resolve interference?

We would look to a national regulator such as OFCOM to guarantee that not only illegal interference, but any harmful interference, be appropriately managed and eliminated. Notably, as further detailed above in our answer to Question 7, we are not convinced that interference can be managed without prior regulatory guarantees in an environment where license-exempt use could be developed.

Again, satellite systems form an irreplaceable part of the globe's critical communications infrastructure and often (particularly in the case of emergencies) satellite links are the only means for establishing routine communications links. Therefore, it is crucial that OFCOM keep this in mind when debating the possibility of permitting the use of unlicensed devices into spectrum used by satellite, and it is also crucial to place a high priority on resolving any interference issues that may arise.

Q15: Can you foresee any problems with the proposed approach to harmonisation other than those listed above?

As OFCOM correctly notes, "for satellite services which normally span many countries [harmonization of spectrum use] is a practical requirement." (p.35). In fact it is clear that harmonization is generally required when there is a need to develop a regional cross-border market, such as for pan-European technologies or global operations.

We take this opportunity to emphasize the importance of harmonized spectrum bands for international satellite systems. As you know, the satellite industry is highly capital intensive, with a single satellite typically requiring an investment of more than 120 million pounds. The planning, building and deploying of a satellite is a process that takes years of planning and, once operational, the satellite's characteristics (including its frequency plans) cannot be modified. Therefore it is of the utmost importance that a satellite operator has regulatory certainty, on a multi-country basis, that it will have long-term use of specific frequencies without potential interference issues.