



C BAND SPECTRUM THREAT TO SATELLITE SERVICES Information Paper

1. INTRODUCTION

The satellite industry believes that the continued rollout of mobile broadband technologies using radiofrequencies of the C-band poses a significant threat to the satellite business.

This radio frequency band - C-band - is used by satellite operators to provide essential telecommunication services on a global basis. In many countries it serves as the core network for national and international communications. Its low susceptibility to interruptions due to rainfall means that it is and will remain an important band for satellite transmission.

The threat is due to the deployment of Broadband Wireless Access (BWA) services and the proposed inclusion of so-called IMT¹ services - the global mobile terrestrial standard - in radio frequencies 3.4 - 4.2 GHz allocated to Fixed Satellite Services (FSS).

2. PRESENT DAY SITUATION

Within Europe, the lower end of the frequency range (up to 3.8 GHz) has already been identified or is under consideration for use by BWA services such as WiMax. Customers of satellite services where WiMax services have been introduced have reported significant interference and service interruptions for satellite ground stations and their related services.²

SAP REG, ESOA & GVF are aware of interruptions in satellite services having occurred throughout Africa and in Australia, Bolivia, the Caribbean, China, Fiji, Hong Kong, Indonesia and Russia.

In addition, some national administrations in Europe are now considering identifying new terrestrial IMT services (UMTS / 4G in Europe) in the upper end of the frequency range (3.7 to 4.2 GHz).

¹ In this document the term "IMT" refers to IMT-2000 & IMT-Advanced services

² A Report recently issued by The Office of the Telecommunications Authority (OFTA) in Hong Kong concluded that without the implementation of severe technical constraints which would be costly for both BWA operators and FSS users, the deployment of BWA services in the extended band would lead to interference problems in the entire C-band (3.4 – 4.2 GHz), making a wide and cost-effective deployment of BWA systems in a small area such as Hong Kong difficult. In its conclusions, the OFTA report also notes that these interference problems have been increasingly reported in other areas outside Hong Kong as well.

In fact, all C-band frequencies are used for FSS services throughout Europe and the rest of the world. The level of FSS deployment in C-band in Europe, notably, is described in the companion document to this paper.

3. INCOMPATIBILITY

In view of the large distances involved, satellite signals received by earth stations have very low power and are, therefore, highly sensitive to interference. Numerous studies have shown that terrestrial and satellite services are incompatible. At least one condition for a 'technology neutral' approach (freedom from interference) has therefore not been met.

The only effective solution to protect satellite services in all C-band frequencies would be to separate terrestrial systems from satellite earth stations by long distances, and define exclusion zones around existing FSS earth stations, or find other spectrum in which these services can operate. Yet exclusion zones are often impractical given the number of C-band antennas already deployed, and the implementation of exclusion zones would most definitely impact the ability of FSS operators to expand operations beyond existing earth stations.

4. INTERNATIONAL DIMENSION

It should be recalled that within Region 1 of the ITU which encompasses all of Europe, satellite services today have priority over mobile services above 3.4 GHz in C-band. For UMTS/ 4G services, some European administrations advocate this band as a harmonized band on a world-wide basis, in view of the forthcoming World Radio Conference in 2007 (WRC-07). SAP REG, ESOA & GVF believe this approach is flawed and that some major countries will likely not support such use in order to protect important satellite communications.

The issue is also being discussed in other regional bodies of the world such as the Inter-American Telecommunication Commission (CITEL) in the Americas; the Asia-Pacific Telecommunity (APT); and the African Telecommunications Union (ATU); and it is raising a lot of concerns amongst national administrations.

5. CONCLUSION

European regulators should be well informed of the fact that European satellite operators would be severely affected at global level by any initiative to foster the deployment of mobile broadband services in C-band in Region 1 of the ITU. Together with the entire Europe, ITU Region 1 includes areas of the world such as Russia and Africa who rely on the use of this band for international satellite services.

In view of any forthcoming international conference, **SAP REG, ESOA & GVF urge the European Union & CEPT not to support a European position which would damage the viability of global satellite communications.** We invite the CEPT to maintain the current ITU allocation status in Region 1, and we would recommend the examination of alternative frequency bands for IMT services. We would finally hope that all the EU & CEPT national administrations would make a combined effort to invoke this result.