



European Satellite Operators Association response to ARCEP consultation document:

Spectrum Strategic Review for Very High Bit Rate Mobile Services
("Revue stratégique du spectre pour le très haut débit mobile")

16 February 2015

Introduction

ESOA is pleased to provide comments to the French regulator ARCEP in response to the public consultation on the Spectrum Strategic Review for Very High Bit Rate Mobile Services ("Revue stratégique du spectre pour le très haut débit mobile").

ESOA is a non-profit European organisation established with the objective of serving and promoting the common interests of European satellite operators. The Association is the reference point for the European, Middle East and African satellite operators industry and today represents the interests of 30 members including satellite operators who deliver information communication services across the globe as well as European space industry stakeholders and insurance brokers.

ESOA members are extremely involved in the discussions related to the identification of additional spectrum for the mobile terrestrial industry in view of the deployment of 4G services, because several frequency bands being discussed in Europe or in ITU working groups are from spectrum that is critical to satellite communications. We therefore propose the following comments.

Kind regards

Aarti Holla-Maini

Secretary General

+32 2 550 35 75

sg@esoa.net

ESOA Comments to the ARCEP consultation on 4G

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Background

ESOA has reviewed the ARCEP consultation document and below provides responses to a few selected questions related to:

- Mobile traffic data growth estimates. (Section 1.2 of the consultation document)
- Evolution in mobile technologies and spectrum needs. (Section 1.3)
- Spectrum band 3400-3800 MHz covered by the consultation (Section 4.5)
- Other envisaged spectrum bands (Section 4.6)

Question 1 – Mobile traffic evolution

As a first very important point, we note that the ARCEP describes mobile data growth that is based on highly disputed sources.

The ARCEP consultation document (Section 1.2) underlines exponential mobile traffic forecasts referring to the ITU-R Report M.2290 (page 9). The text highlights:

“d’ici 2020, le trafic mobile devrait être de 44 à 80 fois supérieur à ce qu’il était en 2010”

ESOA can only repeat the observations from independent experts that the spectrum demand resulting from these ITU estimates is grossly exaggerated.¹ As extensively demonstrated and publicised for months, the inputs to the ITU model are fundamentally flawed, in that the model uses a series of inputs which are orders of magnitude (factors of 10 or in some cases 100 times) different from real world values. Some of these values, in particular **population density** and **data traffic**, are demonstrably excessive and are apparently based on the highest possible population densities experienced anywhere in the world. In addition, other factors such as **spectrum efficiency** are also based on unrealistic assumptions.

Several industry voices as well as highly respected academic sources have analysed and seriously questioned the mobile spectrum demand resulting from the projections made on this respect. To quote one of them: “Our findings suggest the mobile industry contains much higher levels of inherent demand uncertainty than is commonly estimated and that business and governments may not be fully factoring it into their policy decisions.”²

UK Ofcom, often cited as a reference source of data on mobile communications, itself identified a significant error in the modelling of the UK mobile spectrum demand, reducing the assumed values for the traffic density by a factor of 1000. Thus, without this correction, the UK spectrum demand estimates, which are sometimes used to support the results in ITU-R Report M.2290, can not be considered credible.

¹ http://www.lstelcom.com/fileadmin/content/marketing/Press_releases/IMT_Spectrum_Requirements_Final_Report_v107.pdf

² From Overestimating Wireless Demand: Policy and Investment Implications of Upward Bias in Mobile Data Forecasts, at: papers.ssrn.com/sol3/papers.cfm?abstract_id=2418364

Attached, you will find an annex showing a traffic density analysis specifically for France that would derive from these ITU estimates, as undertaken by independent consultants. It is very clear that the population density and data traffics used for the ITU forecasts, compared with actual information or estimates from CISCO and the UMTS Forum, are *not* realistic at all.

Question 2, 3, 4 – Evolution in spectrum efficiency and network architecture

While it is clear that there is high growth in mobile data consumption that will likely persist for several years, the growth in mobile data consumption does not simply and automatically equate to a need for more spectrum for wireless broadband. As the ARCEP justifies rightly argues (Section 1.3), there are indeed several other ways to accommodate this growth. These include:

- Technology improvements - for example from the use of LTE equipment
- Improvements in network architecture – for example increasing the density of base stations and the use of small cells
- Increased use of WiFi off-loading

ESOA therefore welcomes the ARCEP's analysis that new mobile network technologies and network densification as well as innovative techniques in using spectrum will represent essential means to respond to the mobile traffic growth.³

Question 5 – Mobile needs for more spectrum

Before considering the need for additional spectrum, it is interesting to verify the amount of spectrum currently identified for IMT/mobile broadband in Europe, but not yet brought into use.

Interestingly, the EU Commission in its Inventory Report in September 2014 cautiously considered that no more spectrum for mobile was needed beyond what's already harmonised in Europe at this stage – evaluating the level of under-utilised spectrum for mobile broadband to be approximately 30% in Europe.⁴

Attached, you will find another annex providing a summary of a 2014 study from LS telcom that compares the spectrum that is licensed with the spectrum that has been made available, in various regions and countries of the world.⁵ Their findings for Europe confirm the EU Commission's estimates, and ESOA encourages France and other European countries to make sure that the mobile industry makes a full usage of the spectrum that is already accessible to them before considering further allocations or assignments.

Questions 28 and 29 – Conditions of usage of the 3400-3800 MHz band and continued usage of this spectrum for FSS

The 3400-3800 MHz frequency band is used by the FSS in several countries of Europe as well as elsewhere in the world. In France, several satellite earth stations are licensed until 2017, 2019 or

³ The latest tests performed by Ericsson and Qualcomm for Licensed Assisted Access technology (LTE-U) are promising. See: <http://www.telecompaper.com/news/ericsson-qualcomm-test-laa-technology-in-time-for-mwc--1064405>

⁴ See COM(2014)0536

⁵ http://www.lstelcom.com/fileadmin/content/marketing/Press_releases/Licensing_and_use_of_IMT_Spectrum_version_101.pdf

2023, as outlined by the ARCEP. Others exist that are unlicensed, notably for the direct-to-home reception of TV signals from outside Europe, in conformity with the CEPT / ERC Decision ERC/DEC(99)26 on "Exemption from Individual Licensing of Receive Only Earth Stations (ROES)".⁶

The ARCEP document explains that, given the EC Decision 2008/411/EC, the licensed earth stations will have to migrate to other frequencies to enable the deployment of 4G. (Section 4.5.2, page 68).

We would respectfully remind the ARCEP that Article 1 of the EC Decision states that the harmonisation will occur, but 'without prejudice to the protection and continued operation of other existing use in this band'.⁷ Article 2 of the EC decision states that Member States shall designate and make available the 3400-3600 MHz and 3600-3800 MHz bands for terrestrial electronic communications networks but 'on a non-exclusive basis'.⁸

In fact, this band will continue to be required for FSS in France, and so long as it is possible to deploy satellite earth stations (i.e. while the band has little use for mobile), it should be made possible to extend the license of existing earth stations and to deploy new ones. This would be in full conformity with the spirit and letter of the EC Decision. For example for the Inmarsat station at Aussaguel, it is not possible to migrate frequencies, contrary to what the ARCEP suggests.

Question 30 – frequency bands studied in international working groups

Regarding potential use of the 3800-4200 MHz band by mobile broadband, the draft new Report **ITU-R [FSS-IMT C-BAND DOWNLINK]** - *Sharing studies between International Mobile Telecommunication-Advanced systems and geostationary satellite networks in the fixed-satellite service in the 3 400-4 200 MHz and 4 500-4 800 MHz frequency bands in the WRC study cycle leading to WRC-15* already reached the conclusions that the deployment of LTE systems (even when using small cells) would severely constrain future FSS earth stations from being deployed in the same area. This report was approved by SG5 in November 2014 and is to become final upon approval of SG4 (satellite group). We would therefore encourage France not to envisage this band for mobile systems anymore.

Regarding potential use of the 1492-1518 MHz band by mobile broadband, ESOA is concerned with the potential for interference to MSS services which operate in the adjacent 1518-1559 MHz band. Studies submitted to the ITU JTG 4-5-6-7 and CEPT Project Team D have shown the potential for significant interference to MSS operations. While studies are not yet complete, it is clear that some constraints will be required on IMT operations including a guard band with respect to MSS operations above 1518 MHz. Hence not all of the band 1492-1518 MHz could be identified for IMT. Given the global nature of both IMT operations and MSS operations, a globally harmonised solution to this issue would be required. As a consequence, use of any part of 1492-1518 MHz in France

⁶ As implemented by 30 countries in the CEPT.

⁷ *Article 1:* This Decision aims at 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 3 400-3 800 MHz band for terrestrial systems capable of providing electronic communications services.

⁸ *Article 2:* 1. No later than six months after entry into force of this Decision Member States shall designate and make available, on a non-exclusive basis, the 3 400-3 600 MHz band for terrestrial electronic communications networks, in compliance with the parameters set out in the Annex to this Decision. 2. By 1 January 2012 Member States shall designate and subsequently make available, on a non-exclusive basis, the 3 600-3 800 MHz band for terrestrial electronic communications networks, in compliance with the parameters set out in the Annex to this Decision.

should not be considered before this interference issue is fully assessed and a global solution is determined.

Regarding potential use of the 1518-1525 MHz band for mobile broadband, ITU studies have determined that sharing is not feasible. As this band is used by the MSS in France and in many other countries, this band should not be considered as a candidate for terrestrial mobile broadband.

Equally, the 5350-5470, 5725-5875 and 5875-5925 MHz bands are not suitable to mobile broadband as their opening to a mobile usage would impede future operations of FSS or EESS in Europe (such as Copernicus in Europe), as studied and most recently concluded by the CEPT.

Conclusion

ESOA appreciates that the ARCEP is treating this matter carefully and is available for any meeting or discussion aimed at clarifying the various points of our comments.
