

ESOA response to RSPG Consultation on “Draft Opinion on the Radio Spectrum Policy Programme (RSPP)”

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ESOA welcomes the opportunity to comment on the draft RSPG Opinion on the upcoming RSPP proposal from the EU Commission.

ESOA is a non-profit organisation established with the objective of serving and promoting the common interests of EMEA satellite operators. The Association is the reference point for the European, Middle Eastern, and African satellite industry and today represents the interests of 34 members, including satellite operators who deliver information communication services across the globe as well as EMEA space industry stakeholders and insurance brokers.

ESOA believes the era of fully independent terrestrial and satellite communications networks is most likely over. The key challenge for the industry is to ensure that satellite services are fully and seamlessly integrated with 5G terrestrial infrastructure to best contribute to achieve the goals of the EU Digital Decade.¹

Satellite is increasingly being recognised as part of the global 5G network, especially when considering vertical industries such as IoT/ M2M, media services, connected transport networks and many other services. Such services benefit greatly from the reach and resilience of satellite networks, as well as the amount of data that can be delivered for backhauling or broadcasting to users, either through storage at base stations or directly to devices. The role of satellite in 5G has been extensively recognized and elaborated at European level by the ECC Report “Satellites in 5G”.²

At the international level, the ITU-R adopted a report on the key elements for integration of satellite systems into Next Generation Access Technologies.³ Additionally, there is ongoing work in the international standardisation body 3GPP in the form of two work items⁴ dedicated to ensuring satellite integration into the 5G ecosystem. Further information on the role of satellite in 5G can be found from the industry paper “Satellite Communication Services: An integral part of the 5G Ecosystem.”⁵

ESOA notes that the RSPG is to contribute to the development of the internal market and to support the development of a Union-level radio spectrum policy, taking into account economic, political, cultural, strategic, health and social considerations, as well as technical parameters.

ESOA would like to encourage the RSPG to continue acknowledging the potential and complementary nature of different technologies in a fair and balanced manner. While several ongoing activities within EU Member States, such as 5G roll-out and 6 GHz WiFi, are targeting mainly to provide access concentrated in urban areas, it is vital to continue supporting technologies that enable provision of

¹ <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12900-Europe-s-digital-decade-2030-digital-targets>

² <https://www.ecodocdb.dk/download/e1f5f839-ba17/ECCRep280.pdf>

³ ITU-R Report S.2460 from July 2019

⁴ <https://www.3gpp.org/release-17> and <https://www.3gpp.org/release18>

⁵ <https://www.esoa.net/5g/>

these services in large scale across EU Member States. Only by safeguarding spectrum access to a full variety of existing technologies and networks, is it possible to ensure a versatile European network of networks and to minimize the digital divide in Europe.

ESOA below comments on the following paragraphs (“Paras”) of the text of the draft Opinion.

Licensing, Para 2.2

ESOA agrees that Member States will in general need flexibility in the way they authorise access to spectrum, noting that satellite usage is in principle nationwide, given the satellite footprint coverage. Satellite broadband connectivity using fixed terminals is in any case provided to a single location or premises, and so is automatically applied to a local area, but such premises could be anywhere in the territory of a country or a group of countries. Satellite broadband connectivity is also provided using mobile terminals which can operate anywhere in Europe. In both cases, systems are typically using bands which are available nationally but may require different approaches to licensing depending on whether site coordination is needed or not.

The proposal to use unlicensed spectrum for local networks is raising issues as regards the control of geographical areas and power limits for devices using spectrum that is shared with other users. When local spectrum usage happens in frequency bands shared with satellite systems, for instance, it will be important that local terrestrial licences are limited geographically and perhaps limited to indoor use so that a practical sharing framework with earth stations is established and satellite use is protected. Any new local terrestrial licences will likely prevent the deployment of new satellite earth stations in the same areas and probably some distance away. This would mean that users would not have a choice of technologies and would impair the delivery of satellite services, including broadband, to these users. Even in the event that the locally licensed terrestrial system is not used, the incumbent satellite operator could not count on that, and would have to design its use to avoid the potential for interference, hence constraining its operation.

Member States will also need to continue to rely either individual licencing or a general authorisation regime – noting that both types of regime are today used to authorise satellite services.

It would also be useful to know more about the examples of providing authorisations in a dedicated spectrum band under a light licensing regime based on an automated platform, which the RSPG invites to consider.

Spectrum needs, Para 3

ESOA fully subscribes to RSPG’s encouragement to facilitate the deployment of innovative wireless services, noting this innovation is taking place in all technology sectors.

The satellite communications sector is going through several major innovation trends. Non-geostationary (NGSO) constellations have deployed with MEO systems relying on High-Throughput and Very High-Throughput Satellites (HTS and VHTS), whilst LEO systems ventures are deploying to provide broadband or narrowband services all over the world. Geostationary satellite platforms have also been subject to strong capacity enhancements driven by a systematic digitisation of space technologies, the ‘softwarisation’ of satellite operations and other virtual network functions. Combined with the advent of new ground antennas and reliance on steerable spot beams using Ku, Ka and now Q/V frequency bands, these progresses have increased flexibility in geographical coverage

and spectrum use by new generations of satellite systems operated by several companies active in Europe. In addition, S band GSO systems have been deploying innovative services in the European marketplace.

The satellite community has also multiplied its efforts to ensure its integration into the 5G ecosystem, inter alia through its active participation in research and standardisation activities such as with the 5G-PPP, 3GPP (SA and RAN groups), ETSI and ATIS (NTN group). This evolution has led to a much-increased ability of satellite and terrestrial systems to operate seamlessly within the 5G ecosystem and thus accelerate the deployment of 5G services to end-users in all geographical areas, whether urban, sub-urban or rural.

Another important evolution is the adoption of cloud technology by satellite operators. Big players such as IBM, Microsoft Azure or Amazon are counting on satellite to extend the reach of direct access to the Core or access to the Edge using the cloud. The same players are relying on cloud technology and artificial intelligence to help process the large databases of imagery and other sensing data: big data from Space Earth Observation, Navigation and other scientific activities are downloaded from ground stations or teleports co-located to data centres and cloud access points, in joint operations with satellite players.

All in all, industry's implementation of technology advances and integration into the 5G and future 6G ecosystems make satellite usage of radio spectrum even more essential. This is leading national regulators to deal with a multiplication of satellite players, sharing the same spectrum amongst themselves, to respond to a wide variety of connectivity needs.

Space, 3.2

ESOA welcomes RSPG's invitation to be kept well informed about EU space policy developments, including for the extension of connectivity to everyone and the provision of governmental services, so the spectrum aspects can be duly considered. Indeed, "Member States should respond to spectrum needs and contribute to long term spectrum access and protection of satellite systems supporting EU public policies and services and contribute to development of measures to improve efficiency of spectrum usage, including sharing with other services and between satellites."

Transport, 3.3

ESOA notes that RSPG is focusing on connectivity on-board moving platforms, and besides cars and trains, reference is made to aircraft. The satellite industry is playing a key role in ensuring connectivity not only to cars and aircraft, but also to vessels (maritime sector). The aeronautical and maritime sectors increasingly rely on satellite links to ensure connectivity, whether for the logistics of freight transport or for the delivery of broadband services to passengers. This capability is provided within Europe and the rest of the world.

L-band satellite systems are well established for providing connectivity to ships and aircraft, with a particular focus on safety related services. L-band satellite systems are planned to be used more extensively in Europe in the near future with the development of the Iris system. S-band satellite systems are providing broadband connectivity for aircraft passengers throughout Europe, using an integrated satellite and complementary ground network. ESOA members are also extremely active in deploying earth stations on board platforms (ESOMPs), using Ku-band (11 and 14 GHz) and Ka-band (18 and 28 GHz) spectrum, relying on an appropriate spectrum and licensing regime put in place within the CEPT.

More globally, the ITU is defining the conditions under which Earth Stations in Motion (ESIMs) are operating in the Ku- and Ka-band spectrum, whether by geostationary (GSO) or non-geostationary (NGSO) satellite systems.

All these systems illustrate the extensive and vital role that satellite systems fulfil in supporting transport in Europe and globally. This is a market with substantial potential for growth, in which satellite operators will play a major role.

Standardisation & Spectrum Governance, 4.4

ESOA endorses the RSPG's plea for a well-orchestrated and coordinated approach amongst EC, CEPT, ETSI and CENELEC.

In this context, ESOA members are surprised to read that the performance of receivers and adoption of appropriate parameters in European standardisation bodies is considered as the one-way avenue to "facilitate the introduction of future systems." How about the performance of transmitters? How about the need to ensure adequate filtering of emissions from high-power and ubiquitous systems introduced in the market and put into service?

It has become clear that new IMT 5G system characteristics make them less able to coexist with other services in the same frequency bands and in adjacent frequency bands than more traditional technology (3G, 4G). It is particularly noticeable in the case of 5G terrestrial equipment using the mmWave bands, where we see that equipment is being developed and deployed with highly inefficient transmitter characteristics. ESOA therefore wishes to stress the importance of examining the transmitter requirements as well as the receiver requirements and suggests that RSPG should also focus toward the transmitter to critically examine terrestrial mobile equipment performance.

Furthermore, tightening up the values for receiver parameters of future, new equipment or for frequency bands where usage is today limited can only have an effect in a few years from now: it is important to keep in mind that the values contained today in the standards can be considered "adequate" in the sense that they define the resilience of existing equipment for which deployment can sometimes be very wide (e.g. with millions of satellite TV households). This existing adequacy derives from the standards that are based on operators' expectations, supported by ITU and CEPT references.

Beyond the question of equipment design and performance, it is also noticeable that the introduction of IMT 5G systems in the 3400-3800 MHz frequency band is creating coexistence issues with satellite operations above 3800 MHz, when and where national regulators have not imposed sufficiently stringent limits or established appropriate guard bands. It would be beneficial to examine the various measures implemented by Member States when awarding spectrum of the 3400-3800 MHz band and identify some best practices.

Migrating regulatory obligations, 6.1

ESOA notes the RSPG's concern that public policy objectives such as geographical coverage are maintained and actually fulfilled. ESOA considers that it is important to guarantee that such obligations are well enforced when they do exist.

Pandemic Response, 6.5

The COVID-19 pandemic has revealed that broadband connectivity everywhere, reaching all households, is not a luxury but a prerequisite for the functioning of any modern society. Another lesson learnt is that all existing digital connectivity platforms play a role in this context, whether for online video conferencing, access to the cloud and the transfer of very large data files, the transmission of digital TV services or the exchange of WhatsApp messages, to name but a few. Satellite remains an important part of this solution, especially as standards are further developed at 3GPP including satellite services. Satellite is part of 5G and, as seen over the past year, is a critical part of any solution for broadband connectivity.

Audiovisual Media, 6.6

ESOA notes that “the RSPG supports (...) ensuring the EU population free access to linear broadcasting content over different platforms, where appropriate and based on national decisions.” Several ESOA members contribute today to the distribution of Free-To-Air or Free-To-View digital TV content in various EU countries, whether in standard definition, high-definition (HD) or Ultra-HD, ensuring full coverage and in a way that uses existing spectrum in a very efficient way. Satellite operators stand ready to further contribute and reach the goal of a fully inclusive approach, in collaboration with national authorities.