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Radio Spectrum Policy Group

GSA[1] Response to the public consultation on the RSPG Opinion on the ITU-R World Radiocommunication Conference 2023

GSA appreciates the possibility to comment on the draft RSPG Opinion on the ITU-R World Radiocommunication Conference 2023. The GSA response covers Agenda Items 1.5 and 10.

If any additional clarifications are required for this response, please do not hesitate to contact:

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[1] The GSA (Global mobile Suppliers Association, https://gsacom.com) develops strategies and plans, and contributes studies and technical analysis to international, regional and individual country policymakers and regulators to facilitate the timely availability of spectrum for use by mobile network operators. GSA has a focus group for spectrum topics for technical and regulatory matters of radio spectrum pertaining to the successful evolution of International Mobile Telecommunication (IMT) and associated radiocommunication systems and comprises a team made up of spectrum and regulatory affairs specialists from GSA Executive Member and GSA Member companies. In addition, GSA reports regularly on global spectrum developments.

Agenda Item 1.5, UHF Review

GSA has commissioned an independent report by Plum Consulting to look at the future of the UHF spectrum in Region 1 (available at https://plumconsulting.co.uk/the-future-use-of-uhf-in-itu-region-1 and https://gsacom.com/reports). The study investigates the various uses and respective usage trends of different services including mobile, broadcast, PMSE, PPDR and Radio Astronomy in UHF.

The study indicates the need to review some assumptions on the prospects of spectrum use by existing services and it also investigates and reviews the spectrum use of existing services and the highly diverse situations country to country specifically in term of broadcast use, one dimension being the declining share of the population using DTT, another one being the number of channels offered and thus the amount of spectrum actually used for DTT.

The study clearly identifies additional spectrum needs for mobile in low bands to cost-efficiently provide the mobile broadband service performance levels required in remote and rural areas, deep indoor or underground areas and along the transportation paths. This would help to reduce the digital divide between urban and rural areas. Given that diversity, the study concludes that under careful consideration of existing services, additional flexibility should be given to national administrations in the form of a co-primary mobile allocation in 470-694 MHz at WRC-23 in ITU Region 1. GSA concurs with the need of additional spectrum for mobile and supports the study conclusions.

Additionally, a more recent study by Coleago Consulting (available at https://www.coleago.com/app/uploads/2022/07/5G-Low-Band-Spectrum.pdf) quantifies capacity and performance improvements as well as economic benefits from additional low band spectrum.

GSA believes that Broadcast and Mobile industries/technology will continue to evolve and are likely to integrate and/or work more closely in the future. A number of duplex arrangements exist (FDD, TDD, SDL/DL etc) and GSA suggests that these should be studied after WRC23 based on a co-primary mobile allocation agreed at the WRC-23. A co-primary mobile allocation at WRC-23 opens options for innovation and provides future flexibility for Administrations to decide within the 2025 – 2030 timeframe what to do with the UHF spectrum taking into account the latest market/technology developments in both broadcast and mobile. GSA notes the large differences within CEPT in terms of DTT usage and believes that flexibility will allow nations to use this spectrum asset as per national needs. A co-primary mobile allocation would also provide additional flexibility for some Administrations to enable mobile technology within a country/sub-region subject to coordination arrangements with neighbours. An IMT footnote can help market development and ecosystem scale if Administrations subsequently decide to make spectrum available for IMT.

Consequently, GSA recommends supporting a primary allocation of the band 470-694 MHz to the Mobile Service at WRC-23 under AI1.5.

Agenda Item 10, agenda for the next World Radiocommunication Conference

With the deployment of 5G systems in full swing, the research focus toward 6G mobile cellular systems has begun. There is an expectation that 6G will be standardized with initial deployments starting around 2030. Since it takes several years for a novel technology to see commercial daylight, research at the global level has begun on technology components for 6G. For example, Hexa-X[2] is a research project under the European Union's Horizon 2020 research and innovation programme, started in 2021. Similar research activities within CEPT member countries are ongoing and programmes are also launched in other parts of the world, e.g., China, Republic of Korea, Japan, India and US.

The development of 6G/IMT-2030 is expected to enable new use cases and applications, and to address rapid traffic growth. In this context, the increase of spectrum availability is a fundamental criterion to expanding mobile network capabilities and ensuring that the future 6G/IMT-2030 can meet the required coverage, bitrates and latency demands.

For Europe to maintain a leading role in the 6G era in terms of both vision and roadmap, RSPG should consider the necessary spectrum resources that will need to be made available for 6G. This includes the early definition of the EU objectives and for WRC-27 to identify target bands for the evolution of next-generation wireless mobile systems.

It is noted that no single frequency range satisfies all the criteria required to deploy future IMT systems. Hence, to meet the capacity and coverage demands of 6G/IMT-2030 and to serve the emerging services and applications, multiple frequency ranges from the low to the very high frequency bands would be needed. For future IMT-2030, availability of spectrum resources that could support broad and contiguous channel bandwidths need to be explored.

In addition to re-using the existing spectrum the IMT industry considers additional spectrum from parts of the 7.125 – 24 GHz frequency range to be essential to enable the capacity-demanding IMT-2030 use cases, the lower the frequency bands are, the better the coverage will be. This should be complemented by spectrum from within the sub-THz range (92-275 GHz), enabling Tbps data rates and extremely low latency capabilities that would be needed for some specific IMT-2030 use cases. These use cases would include direct device to device communications, sensing and recognition, among other local area mobile use cases where such extreme performance is required.

Given the time it takes to secure additional spectrum through regulatory deliberations in ITU or regional groups and to avoid delaying initial 6G commercial deployments starting around 2030, it is now the time to start the process to ensure timely availability of 6G spectrum. This is also considering that the potential implications to and from existing users of these spectrum ranges would need to be studied and addressed, as part of this exploration.

GSA emphasizes the benefits of globally harmonised bands for IMT to achieve a healthy end-to-end network and end-user ecosystems, economies of scale, and to facilitate global roaming. We see a role for RSPG in driving a forward-looking EU position supporting an Agenda Item calling for Studies on frequency related matters on IMT additional spectrum for 6G at WRC-27.

[2] Hexa-X, see more from https://hexa-x.eu/

GSA therefore encourages the RSPG and the EU Member States to consider the necessity to include under WRC-23 Agenda Item 10 the study of additional spectrum for 6G, noting that spectrum from both the essential and the complementary ranges are required for this purpose.