

RADIO SPECTRUM POLICY GROUP

DRAFT Work Programme for 2022 and beyond

Nokia's response to the Draft Work Programme for 2022 and beyond

Nokia welcomes the opportunity to respond to the Public Consultation and comment the RSPG draft Work Programme for 2022 and beyond.

Nokia sees digitization as a cornerstone for the economic recovery and further progress of the society. Spectrum remains central to assuring the wireless connectivity for achieving the digital economy and society objectives, including the European Union Digital targets – the 2025 Gigabit objectives as well as the 2030 Digital Compass objectives. We therefore consider that RSPG continues to have a critical role in shaping the EU spectrum policy towards the next European Digital Decade through well-designed spectrum policy. RSPG should continue persuading the Member States to make all 5G Pioneer bands available for 5G and in their entirety.

Nokia acknowledges the RSPG role of improving cooperation between stakeholders, and we therefore encourage RSPG to continue and intensify the exchanges with the stakeholders through regular workshops in addition to the usual public consultations and reports.

Nokia equally acknowledges the value of the work RSPG did towards 5G and the identification of the 5G Pioneer bands. The licensing and deployments of 5G is well underway now in Europe in all – low, mid, and high – spectrum bands.

Nokia sees benefits for a similar approach to be considered in respect to 6G, leading to the identification of 6G pioneer bands in the different ranges. To this end, early identification of additional harmonised spectrum for 6G in all spectrum ranges, including spectrum below 20 GHz, will be essential for Europe's leadership. Hereinafter we express Nokia's views on specific topics of relevance to the wireless technologies and networks.

Peer review and Member States cooperation on authorisations and awards

Nokia – as a telecom equipment provider – considers that clarity in spectrum availability and award plans in the Member States, together with known conditions of the authorisation regimes and the associated technical characteristics, play a key role to ensure the planning of the equipment development and supply in response to the market demands.

The peer review process – as established through the Article 35 of the European Electronic Communication Code (EECC) – aims at facilitating collaboration between Member States on the spectrum awards and authorisation process and sharing of expertise and best practices. As

already highlighted by the industry on different occasions, we note again that the process continues to be entirely closed to the industry. Nokia pleads for the transparency of this process and encourages the RSPG to continue organising stakeholder workshops on awards and allow for more collaboration with the industry.

We are looking forward to comprehensive RSPG annual reports on awards experiences and best practices, as well as availability during the entire period of the additional reports and opinions on voluntary Peer Reviews Forums. With regards to the content of peer review work, we noted that 5G awards have been of very high priority in the recent past. We see a role for RSPG to continue persuading Member States to make all 5G Pioneer bands¹ available for 5G in their entirety. While focus on 5G should continue to be important, we recommend RSPG to consider and foresee that sharing best practices are not limited to 5G-related awards, but also considered for the license renewal processes.

Transparency on such issues is crucial not only for administrations but also for all other stakeholders that look for valuable information in preparation of spectrum awards and licence renewals. Nokia believes that improvements in transparency and an increased dialogue with the industry may lead to more efficiency in the designing of the spectrum awards and better collaboration with the administrations.

Nokia expects the annual reports to provide some knowledge on the authorisation and spectrum awards and encourages RSPG to actively consider stakeholder workshops, including for planned awards.

Last but not least, while focus of past 5G awards was mainly on mid and low bands, Nokia encourages RSPG to support and encourage the award of the high bands as well. Availability of mmWaves is key to meet the ultrahigh broadband speeds and capacity envisioned for 5G, therefore the RSPG should consider encouraging, incentivising, and maximising the use of the harmonised mmWave bands, in addition to low and mid bands.

WRC-23

Sufficient harmonised spectrum is key to assure that the EU digital targets 2030 are achieved. In view of the upcoming WRC-23, RSPG should finalize the recommendations for European Union position(s) on items which are of importance for EU policies. Nokia and the entire mobile industry would appreciate good dialog with RSPG on the preparation of EU positions for WRC-23 on the additional spectrum for wireless connectivity. Nokia encourages RSPG to discuss on definition of the EU objectives for WRC-27 to identify target bands for the evolution of next-generation mobile and wireless access systems (such as IMT beyond 2020) in relation to achieving the EU 2030 connectivity.

With respect to future spectrum needs for IMT, WRC-23 agenda items of relevance to the mobile industry – AI 1.2, 1.3, and 1.5 – are key, as they have potential to address future spectrum demands in mid and low bands and to meet the increasing society demands for connectivity, coverage and capacity.

¹ 5G Pioneer bands: 700 MHz (698-790 MHz), 3.6 GHz (3.4-3.8 GHz), and 26 GHz (24.25-27.5 GHz)

Nokia's positions on the AI of relevance were already expressed in response to the consultation on the RSPG.

While RSPG's planned activities towards WRC-23 seem quite clearly defined, Nokia considers that while defining EU positions towards WRC, some flexibility/mechanism during the WRC-23 should be considered to allow margin to negotiate the best possible outcome from the conference.

"Good offices" to assist in bilateral negotiations between Member States

In terms of spectrum releases and cross-border network deployment, cooperation and coordination with neighbouring countries plays an important role, and RSPG's "good offices" is central to dealing with these aspects. The cross-border coordination has an impact in the release and deployment of radio spectrum in some areas within the European Union and between EU member states and neighbouring countries, impacting the availability of services and the roll out of mobile broadband for all European consumers. As 5G frequency bands are opened across Europe, the good offices initiative will remain crucial to assure the efficient collaborations between administrations.

We acknowledge the role RSPG plays in this field, as well as in the monitoring of coordination of harmonized spectrum bands, both within the EU and with non-EU countries.

Mobile technology evolution – experiences and strategies

Nokia is a continuous proponent of the spectrum assignments under technology neutrality principle, assuming that the latest and most spectral efficient technologies are favoured. Technology and service neutrality are key principles that should continue to be central to the EU policy. Deviation from this principle has to be carefully analysed, and decisions favouring specific services should always consider the use of state-of-art technologies.

Decisions to phase out older technologies (such as 2G, 3G) are part of the operators' strategies targeting best possible economic and spectrum efficiency. We gladly note that several operators in Europe have taken decisions in this direction and already announced the planned switch-off of 2G and 3G networks. Member States and the Commission should encourage and support such actions, but not artificially extend obligations to keep legacy networks alive.

To support a consistent switch-off of legacy technologies across the Union, RSPG should investigate the potential of migrating legacy services and their implications, including the mandatory support of legacy network for some residual services/applications. It could equally consider recommendations for the new EU-wide applications to be technology neutral based.

Nokia welcomes RSPG's initiative to organize and schedule stakeholder workshop on this topic.

Digital decade 2030

Achieving the Digital Decade target relies on the ubiquity of both wireless and fixed communications. While spectrum is acknowledged by the EC as being critical to achieve the 2030 digital targets, more specific spectrum policies need to be defined. As such, RSPG should carefully consider these targets throughout of its work programme and spectrum policy.

From a competitiveness perspective Europe should aim at a global leadership role in the 6G research, standardisation and development, with targeted commercial deployments around 2030. Accordingly, and in coordination with such an ambitious objective, it is essential for the RSPG to take actions supporting the 6G related activities, including assuring the necessary spectrum.

The development of 6G and possible implications for spectrum needs and guidance on the rollout of future wireless broadband networks

Nokia acknowledges the value of the work RSPG did towards 5G and the identification of the 5G Pioneer bands. The licensing and deployments of 5G is well underway now in Europe in all – low, mid, and high – spectrum bands. We see scope for the RSPG to continue persuading Member States to make all 5G Pioneer bands available for 5G in their entirety.

Nokia sees benefits for a similar approach to be considered in respect to 6G, leading to the identification of 6G pioneer bands in the different ranges, from low bands to sub-THz range. To this end, early identification of additional harmonised spectrum for 6G in all spectrum ranges, including spectrum below 20 GHz, will be essential for Europe's leadership.

In parallel, an evaluation of the 5G in Europe could identify aspects that need to be better addressed in the 6G era in order to achieve the desired outcomes. Opinions similar to those RSPG developed for 5G would initiate wider discussions across the industry and with administrations regarding the 6G objectives and role, juxtaposing the research world and the market environment.

Nokia encourages the RSPG to engage in workshops with the industry, including the verticals, for a better cooperation in view of launching 6G successfully for both consumers and business.

Strategy on the future use of the frequency band 470-694 MHz beyond 2030 in the EU

Nokia welcomes the RSPG proposal to work on anticipating the major elements of an EU-specific strategic policy for the UHF band beyond 2030 in parallel to the related WRC-23 activity.

Ongoing changes in media content consumption habits impact both commercial and public broadcasters, shifting more content towards their streaming and on-demand platforms which translate to an increased media content data traffic in broadband networks. This trend is expected to continue; however, technical developments are expected to provide better support of broadcast- and multicast-modes in mobile networks.

As in many countries the role of linear broadcasting is reducing rapidly and broadcast content is used more via other media, those countries may want to have flexibility to use the band or part of the band to other purposes such as mobile networks. Nokia is of view that more transparency and open discussions regarding the changes in the broadcast content consumption and the different developments at national level in EU countries are required for better assessment and decision.

RSPG's goal is to assure a sustainable "win-win" situation for the sectors concerned as well as benefits for consumers while promoting the single market and strengthening the role of the EU in global developments.

Role of Radio Spectrum Policy to help combat Climate Change

As already expressed in other RSPG consultations, Nokia agrees with the importance of the radio spectrum for the development of the electronic communications and broadband as basis of the digitization of the society and industries. Efficient spectrum policy and management support climate goals and any spectrum policy aspects related to ensuring climate-neutrality should consider already ongoing developments.

Effective spectrum policy supporting climate actions should consider, for instance, the availability of sufficient spectrum resources, large contiguous spectrum blocks, and avoidance of unnecessary deployment limitations. Additionally, we would like to point out that too stringent EMF limits, below the ICNIRP recommendations, may have additional potential negative impacts, triggering delays in deployment, supplemental densification of networks and overall higher cost of networks roll-out.

While spectrum-related discussions in the context of climate change matters are incipient phase, spectrum regulators can work to support reducing climate impacts by making available sufficient contiguous harmonised spectrum per network (vs. aggregating smaller non-contiguous spectrum).

As greenhouse gas emissions are the main cause for climate change, we would like to re-enhance the fact that Nokia is an early adopter of the science-based targets methodology and was the first telecom vendor to set science-based approved targets in 2017 and among the first 100 companies across all sectors.

We reiterate our recommendation for RSPG to strengthen links with global standardization organizations (such as but not limited to ETSI, ITU) having working groups addressing environmental aspects that have undertaken work covering areas related to climate change (assessment methods, energy efficiency of systems, etc.). Any concrete actions that RSPG and the Member States will consider recommending should be aligned with proposals coming from this type of organisations.

In particular, methodologies for energy efficiency and carbon emissions have been standardized for ICT in the ITU-T and ETSI (but also in ATIS, CCSA, and TSDSI), e.g., for radio base station in [ES 202 706-1](#). Such existing ICT energy efficiency methodologies/standards from ITU-T and ETSI should be taken as baseline.

Environmental data from terrestrial, sub-terranean and under-sea is collected for observing climate change impacts. Sensors placed in key locations are instrumental to collecting this data. Wireless connectivity to these sensors which operate at very low power is needed for gathering data for analysis related to climate change. Availability of suitable radio spectrum to drive data connectivity is imperative to support climate change mitigation and adaptation initiatives of member states.

Last but not least, Nokia would like to highlight again the importance of reviewing and aligning the EMF limits with the revised ICNIRP guidelines. Stricter EMF limits (not science- and evidence-based) lead to inefficiencies in the networks rollout as they lead to degraded network capacity, higher deployment costs due to additional sites, unnecessary densification, and difficulties in fulfilling the coverage obligations. We therefore consider that RSPG should continue its common actions with BEREC (i.e., coordinated campaigns on EMF-related issues) to help Member States to better address citizens' concerns regarding the compliance of general public exposure to radiofrequency limit values.
