

Draft RSPG Work Programme for 2020 and beyond

Nokia Position

Nokia welcomes the opportunity to provide its views on the draft RSPG Work Programme for 2020 and beyond. We are pleased to continue cooperating with the RSPG and we encourage RSPG to engage more frequently with the industry and to strengthen transparency on the decision making.

Spectrum Sharing – pioneer initiatives and bands

Spectrum scarcity and the growing demand for wireless connectivity make spectrum sharing a regulatory priority, in both sub-6 GHz bands where spectrum refarming is unsustainable, and in the mmWave ranges where sharing is more appropriate given the propagation characteristics of the radio frequencies. Equally, spectrum sharing is also seen as a key enabler of 5G & Industry 4.0 use cases being high on the regulatory agenda.

Nokia supports RSPG's effort in evaluating the future spectrum management techniques that can increase the effectiveness and efficiency in radio spectrum usage by assessing the potential for new services / usages to flourish while ensuring that coexistence with services in the same or adjacent bands is possible. Nokia has been consistently working on spectrum sharing methods for the last ten years, contributing to the technical and regulatory developments of several spectrum sharing technologies.

Some initiatives on spectrum sharing are already underway in different regions, with some countries having already tested sharing schemes in Europe and North America, investigating the potential use of various sharing / collaboration techniques on several frequency bands in all spectrum ranges.

While clearing spectrum for mobile broadband remains the preferred option for the public network providers to assure the quality of service required for voice and data services, in some cases such solutions are not feasible for various reasons and therefore coexistence is the most efficient option. Of special relevance is the possibility to access additional frequency bands for mobile broadband services through sharing with incumbent services underutilizing these resources.

Several sharing solutions have been investigated over time, with two methods getting traction at international level and being standardised: the European Licensed Shared Access (LSA) and the US-based Citizen Broadband Radio Service (CBRS) covering 3.55-3.7GHz range.

While the first one was not embraced by the European mobile industry, the latter is highly supported by the US stakeholders and being commercially deployed.

Nokia is one of the companies at the origin of and has extensive experience with Licensed Shared Access (LSA), being equally engaged in ETSI RRS in the further evolution to eLSA (evolved LSA). Nokia has played an instrumental role in the FCC technical regulatory and policy proceedings as well standards work in WInnForum, CBRS Alliance and 3GPP to lay the foundation for successful commercial deployments in the CBRS band. We are also on the Boards of the WInnForum and CBRS Alliance.

On the broader topic of spectrum for vertical industries, the 3GPP has analysed use cases and defined a set of functional requirements and system parameters related to communication services for each use case in each domain. Several of the developed service performance requirements have an impact on preferred spectrum management approach. Nokia supports this work item and is happy to further provide support based on our expertise in sharing technologies.

A new work item for RSPG could result as an outcome of the WRC-19 in the form of an AI for WRC-23 – the review of the UHF band 470-694 MHz for Region 1. This will be in coordination with the planned review of the band around 2025 (Decision (EU) 2017/899) in EU. Nokia sees benefits in the sharing of the band between the broadcasting and mobile broadband usage. The continuing conventional HPHT DTT will be increasingly completed by 5G broadcast technology and likely be complemented with macro-cellular gap fillers for true mobile TV reception; eventually, additional DL capacity from a macro-cellular layer could be used to transport unicast AV content. This could cost-efficiently complement mobile network DL capacity where needed (e.g. in rural areas) and benefit both broadcast and mobile broadband providers in their task to deliver content at high data rates to European citizens. Nokia considers that an all DL 470-694 MHz ecosystem will flexibly address differing targets and paces across Member States. Europe could pioneer the band for such innovative shared use.

Additional spectrum needs and guidance on the fast rollout of future wireless broadband networks

We share RSPG's view that 5G is the most important evolution of wireless broadband in the near future and we welcome the consideration of additional harmonised spectrum to be available by 2025/2030. Nokia understands that under this work item RSPG will consider identification of additional harmonised spectrum resources for both exclusive and shared usage, for mobile operators and industries basis.

Future expansion of 5G will depend on the timely supply of adequate spectrum with reasonable capacity and propagation characteristics – ideally in the 3-24 GHz frequency range – to match the growing data usage around 2025-2030 period.

Outcomes of the WRC-19 are essential for this topic despite the fact that frequency bands in the 3-24 GHz range – of interest for the mobile industry – are not being part of the agenda items. Nokia, as major Industry player, hopes that the frequency range 3-24 GHz will be part of WRC-23 agenda, as already being proposed by the mobile industry, and supported by several Regional organisations.

Licensing schemes of future harmonised bands should also be considered by RSPG in its work. While exclusive nationwide licenses are necessary to guarantee the QoS required by the mobile services and the fast deployment of networks based on the existing footprint, additional schemes should be considered in order to provide the adequate flexibility of spectrum usage based on capacity / coverage when and where needed.

As 5G networks are built on existing 4G footprint, Nokia is of view that no 5G-specific additional coverage obligations, especially linked to high frequency bands (3.4-3.8 GHz, 26 GHz), should be considered by the Member States. Obligations to do so come with additional unjustified costs ultimately reflected in high prices for the consumers.

In line with provisions in the EECC, enhancement of harmonised spectrum policies among Member States is essential to increase predictability and encourage investments in 5G networks. Aspects linked to harmonised licence duration and transparent licence renewal conditions and timely release of new spectrum bands in a consistent manner among the Member States are to be considered if Europe wants to keep pace in the 5G race. To this end, auction design and reasonable spectrum fees should be considered across RSPG members to support the targets set by the 5G Action Plan.

Regarding the EMF-related issues, Nokia draws attention on the fact that several activities on EMF exposure measurement are being already engaged by IEC/CENELEC with ITU-T and ITU-D repeating the processes and the messages associated. To this end, Nokia sees no benefits for RSPG to engage in providing guidance on EMF exposure measurements. However, we can see benefits for a joint RSPG-BEREC collaboration on the BEREC's initiative to provide consistent positions and fight end-user misinformation regarding EMF health effects in the context of 5G and mobile technologies in general.

Nokia sees benefits of a coordinated effort of EU administrations to proactively support consistent science- and evidence-based communication on 5G and EMF at EU and national/local level, in line with the internationally accepted recommendations of WHO/ICNIRP. Such a coordinated campaign on EMF-related issues should aim at a better understanding of the compliance of general public exposure to radiofrequency limit values and removing artificial barriers in the rollout of 5G networks.

Finally, Nokia sees benefits with RSPG's proposal on high-level workshops but suggests addressing the entire industry – network operators, verticals, manufacturers – to provide opportunities for open discussions and better collaboration while providing RSPG with inputs from all stakeholders.

Role of Radio Spectrum Policy to help combat Climate Change

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, in line with the EU priorities and policies. We equally acknowledge the importance of the climate change topic at European level and the climate-neutral target for Europe is 2050.

Any working item that RSPG considers in relation with the spectrum policy aspects (closely) and the efforts of ensuring climate-neutrality should consider developments that are already ongoing.

Nokia considers that it would be desirable 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 will consider recommending should be aligned with proposals coming from this type of organisations.

“Good offices” to assist in bilateral negotiations between Member States

According to the EECC (Article 28 paragraph 2) Member States shall cooperate with each other and, where appropriate, through the RSPG in the cross-border coordination of the use of radio spectrum in order to prevent from cross-border harmful interference.

“Good offices” is a process to facilitate assessing and solving cross-border interference issues between specific EU Member States to facilitate the conclusion of bi- and/or multi-lateral agreements. Moreover cross-border interference can also result from a lack of harmonisation in some details of the regulatory frameworks between administrations, which could happen even in bands harmonised by a Commission and / or an ECC Decision.

The synchronisation of TDD networks is one of these examples, that took a great importance recently, when several regulators, in order to ensure the co-existence between their national TDD networks, defined preferential frame structures in order to avoid inter-networks interference. Diverging constraints (existence of legacy TDD systems or not; technologies used by legacy; type of network owners with potentially different business cases; different time references) and separate national decision processes are expected to impede the definition of a common frame structure at EU level. This would result in mutual interference for some deployment scenarios.

Nokia supports the preparation by RSPG, either within the scope of the work on “Good Offices”, or as a separate work item, of a Report that would provide administrations and network / systems owners guidance on solutions that would suppress, or at least considerably reduce the risk of interference between TDD networks across the borders.

CEPT is finalizing a revision of ECC Recommendation (15)01: *“Cross-border coordination for Mobile/Fixed Communications Networks (MFCN) in the frequency bands: 694-790 MHz, 1427-1518 MHz, 3400-3800 MHz”* that considers this issue for the 3.6 GHz TDD band. RSPG could base its deliverables on this material, develop guidelines, propose solutions based on concrete cases resulting from already existing – or under preparation – national regulations, and evaluate their impact on network performance.

Peer review and Member States cooperation on authorisations and awards

Nokia sees benefits in better collaboration between Member States in regard to spectrum awards and authorisations through the “Peer Review” platform and workshops. While we understand that the peer review process is subject to be formalised by 21 December 2020, it will stay entirely closed to the industry. Nokia would like to emphasize the importance of transparency and encourages RSPG to continue organising stakeholder workshops on awards as well future publishing of annual reports on awards experiences and best practices.

WRC

RSPG already prepared an Opinion for WRC-19 in support of the European Council in its preparation of the Council Decision for WRC-19.

Nokia supports the same exercise for WRC-23. The Opinion should first identify those agenda items that would have potential impact on EU policies, whether they have been proposed or not by CEPT.

The agenda of WRC-23 will be known only at the end of WRC-19, and it is difficult at this stage to identify how many items of WRC-23 would impact European policies. Nevertheless, Nokia notes that among the items that have been included in Resolution 810 (WRC-15) “preliminary agenda for WRC-23” item 2.5 related to the review of the UHF band 470-960 MHz, will clearly impact several EU policies and, pending confirmation by WRC-19 of its adoption in the agenda of WRC-23, should be included in the RSPG Opinion on WRC-23.

Nokia also noted other proposals that should be discussed in the Opinion, like the removal of the aeronautical exclusion from mobile bands identified for IMT, the consideration of HIBS in IMT bands and the identification of new bands for IMT, especially in the “medium range” 3-24 GHz and spectrum above 71GHz, in order to satisfy the future needs for broadband connectivity for the 2025-2030 period.

Additional work item proposal by Nokia

Nokia also suggests an additional work item on **benchmarking**.

The EECC invites the Commission to publish on a regular basis benchmark studies and, as appropriate, other guidance with regards to best practices for the assignment of radio spectrum, the assignment of numbering or the granting of rights of way. The Code also states

that, where necessary, the Commission shall be assisted by Member States, NRAs, BEREC and the RSPG.

Consequently, Nokia suggests that RSPG undertakes a benchmarking activity and suggest, as examples of studies:

- Benchmarking of regulatory requirements associated to national licensing processes for 5G bands (e.g. the 3.5 GHz band),
- Benchmarking of licensing fees.

About Nokia

We create the technology to connect the world. We develop and deliver the industry's only end-to-end portfolio of network equipment, software, services and licensing that is available globally. Our customers include communications service providers whose combined networks support 6.1 billion subscriptions, as well as enterprises in the private and public sector that use our network portfolio to increase productivity and enrich lives.

With an end-to-end portfolio that is unique in the industry, Nokia can work in partnership with operators to deliver "real 5G". Nokia's in house 5G mmWave Small Cells and AirScale BTS provide in-building and outdoor coverage, while our Microwave Anyhaul, Cloud native RAN, antennas, and 5G cloud-native core are part of approximately half of our agreements to date. Beyond our mobile networks portfolio, Nokia has excellent FP4 network processor-based IP routers and PSE-3 chipset powered optical networking - our customers can use the Nokia Network Services Platform to make this into full-5G-strength software defined connectivity 'smart network fabric' secured by Nokia Security Orchestration, Analytics and Response (Nokia SOAR) to ensure resilient 5G.

As of June 2019, Nokia confirms its 5G leadership position with 42 commercial 5G deals in place with operators around the world, 22 with named customers such as T-Mobile, Telia Company and Softbank. Including these agreements, Nokia's 5G deals, trials and demos total over 100 5G customer engagements to date.

Through our research teams, including the world-renowned Nokia Bell Labs, we are leading the world to adopt end-to-end 5G networks that are faster, more secure and capable of revolutionizing lives, economies and societies. Nokia adheres to the highest ethical business standards as we create technology with social purpose, quality and integrity.

For more information: <https://www.nokia.com/networks/5g/>

Disclaimer: The response below provided above is based on Nokia's current understanding of the market dynamics and various standards bodies; these dynamics are changing and hence our views may update with these changes.

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