Nokia response to Draft Radio Frequency Spectrum Assignment Plans (RFSAPs)

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The world is facing fundamental challenges. Pressure on the planet is increasing, productivity is stalling and access to opportunity remains stubbornly unequal. Technology is central to the solution.

Through technology leadership and trusted partnerships, we deliver critical networks to help address global issues. We have the power to bring together the world's people, machines, and devices, sensing and acting in real time at massive scale. Our critical networks go beyond connectivity to enable self-optimizing, intelligent systems both locally and globally.

With our customers we deliver solutions that respond to climate change through more efficient use and re-use of the world's resources, restore productivity growth by bringing digital to the physical industries it has not yet reached and provide more inclusive access globally to work, healthcare and education.

We create meaningful interactions to drive human progress.

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

Disclaimer: This response 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

Nokia Position

Nokia welcomes the opportunity to respond to ICASA's consultation on "Draft Radio Frequency Spectrum Assignment Plans (RFSAPs)" that sets the direction of future developments of the telecommunication sector in South Africa in the upcoming period.

Nokia strongly encourages ICASA to further align in its technical decisions with the international trends and with global standards such as 3GPP and 450MHz Alliance. This allows the licensees to benefit from the associated global economies-of-scale and more diverse product ecosystem, hence supporting overall 5G deployment, while the entire society can take advantage of standardised equipment.

Radio spectrum is an extremely valuable natural finite resource that requires more and more an efficient management to respond to the exponential increase in demand for wireless services. As data traffic is continuously growing, additional frequencies in low, mid, and high bands are required for wireless communications. However, making already occupied frequency bands available is often expensive and involves delays, therefore alternative solutions to access additional spectrum should be considered to optimise the use of underutilised bands by the incumbent services.

The traditional spectrum management considers different frequency bands for different wireless services in order to avoid interference and guarantee more easily quality of service (QoS). Technology advancements have made it possible operation of different wireless services in the same spectrum band, allowing for additional spectrum capacity to be made available either without having to remove existing users or as a temporary solution prior to migrating the incumbents into new bands. Smart spectrum management is likely required to allow innovative shared use of radio spectrum and avoiding harmful interference, as well as a regulatory environment which encourages investment in research and deployment of wireless innovation.

Hereinafter, we provide Nokia's view on the specific frequency bands under consultation and our recommendations based on our global expertise.

380 MHz to 399.9 MHz

Nokia strongly supports ICASA proposal to allow the future use of up to 2x5 MHz in the 380-400 MHz for Broadband PPDR and would suggest the addition of PMR/PAMR and potentially mobile data networks in rural areas. This proposal is in line with ongoing developments for 3GPP FDD Bands development that will be starting in Q1 2023 for the development of 2x5 MHz for 4G and 5G FDD bands in 3GPP Plenary meeting and later in RAN 4 and later RAN 5 working Groups.

This work will be for FDD configurations of the maximum channel bandwidth of 2x5 MHz. As such, we note that at the global level it is used either for limited groups of users (for example, mission critical activities or potentially mobile data networks in rural areas) or for IoT-type applications a large number of connected devices, each requires a limited volume of data). Trends in recent years indicate a growing interest in using this band for Broadband and or IoT applications as well as dedicated use by Mission Critical industry.

410 MHz to 430 MHz

Nokia strongly supports ICASA proposal to allow the future use of up to 2x5 MHz in the 410-430 MHz for Broadband PPDR and would suggest the addition of PMR/PAMR and potentially mobile data networks in rural areas. In the event that available capacity in the 410-430 MHz band ICASA may consider making available for Broadband use in the 410-430 MHz band. 3GPP has defined two FDD bands, each up to 2x5 MHz of bandwidth:

- Band 87: 410-415/420-425 MHz;
- Band 88: 412-417/422-427 MHz.

Given the growing interest and adoption of 450 MHz Bands 31 and 72 for professional use, we are seeing an increase in the number of vendors of chipsets, modules and devices for industrial use. GSA's database[1] has more than 200 modules and devices available for 450 MHz and bands. This has a positive impact on the development of the ecosystem of 410-430 MHz bands 87 and 88, so that they can meet the growing needs of manufacturers see attached 450 MHz Alliance equipment report[2].

[1] GamBOD, January 2023 https://gsacom.com/gambod/
[2] 450 MHz Alliance 2021 Device report

In the low bands, such as 450-470 MHz and 410-430 MHz there are some examples for information purposes:

- In Ireland, the regulator ComReg awarded ESB Networks a license in the 410-430 MHz band 87 for Smart Grid connectivity in 2019.
- In Brazil, the regulator Anatel is planning to allow the use of 410-430 MHz for Private Wireless and considering re-allocating the use of 450-470 MHz to support Energy Utilities.
- In Germany, the regulator Bundesnetzagentur has allocated 450connect in 2021 spectrum in the 450 MHz band 72 for a specific use; it is to be used mainly for secure and reliable connectivity for the energy sector (for Smart Grid and Emergency Voice use)." As such, 450connect is the only user of the 450 MHz frequency in Germany, until 2040. Secondary use for PPDR-type missions and for the armed forces is possible, provided the capability is available.
- In Saudi Arabia, the regulator CITC opened in February 2022 a public consultation for the allocation of a license in the 450 MHz band 72 for a specialized radio network concerning the opening of a [3]national license. The license may be granted to a private or public user who must allow other users to access the network on a non-discriminatory basis. Coverage, resilience and security constraints are considered in this proposal.

The above examples show the flexibility of the now 380-470 MHz band in relation to project type and uses. As mentioned before Nokia sees the interest of allocating the band 380-400 MHz, 410-430 MHz and 450-470 MHz over time up to 2x5 MHz in each frequency range for national use. Such a network to serve mainly critical/ strategic applications, but to ensure economic viability – occupancy rate, financial revenue – other users can be considered.

1518 MHz to 1525 MHz

Nokia does not have any comments for this frequency range other to mentioned that there are 3GPP Bands that use up to 1517 MHz and suggest that the future use of these 3GPP Bands would not be affected by any future deployments in the referred to use of 1518 – 1525 MHz

[3] https://regulations.citc.gov.sa/en/Pages/PublishedPublicConsultations.aspx#/PublishedPublicConsulationDetails/9

Nokia does not have any comments for these frequency ranges since they are currently not covered by 3GPP

- 138 MHz to 144 MHz
- 335.4 MHz to 380 MHz
- 440 MHz to 450 MHz
- 406.1 MHz to 410 MHz

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