

Nokia response to ACMA's Discussion Paper
on
“Exploring the future of the 1880-1920 MHz Band”



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.

Nokia is a global leader in 5G standardization and technology innovation with a strategy specifically designed to support the Australian market. Nokia is proud to be a strong partner in the current roll-out of 5G in Australia, continuing our 120-year presence here.

Nokia has been selected by both Optus and TPG Telecom as a key supplier for the network deployments of 5G, including the required radio modules, as well as a major supplier to nbn for fixed network technology solutions. Nokia is also a supplier to various enterprises which have deployed private wireless networks deployed using apparatus licenses, including for example 27 mines with 10 customers in Australia. Globally Nokia has been selected by more than 214 operators to supply 5G networks.

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: 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 Australian Communications and Media Authority Consultation discussion paper on exploring the future use of the 1880-1920 MHz. As a leading player in the global communications sector, and contributor to the Australian market over many decades, Nokia is well placed to provide insight on market and technology trends, including industry structure and regulatory practice.

Nokia has contributed to ACMA's "Five-Year spectrum outlook 2021-2026" which set a clear signal that all stakeholders should work together to meet the expected demand for spectrum for mobile broadband (public or private) and ensuring the speedy development of 5G. ACMA has identified several spectrum bands to address future needs to make 5G a reality for Australia.

Through our submission we would like to re-iterate on position related to 1880-1920 MHz band as previously submitted. *Nokia welcomes the opening of a discussion related to 1880-1920 MHz and the possible use that include the modernization of train communication system. FRMCS is set to become the global standard for railway communications. This mobile broadband-ready technology will enable you to improve safety and operational efficiency, support innovative passenger services and accelerate your digital transformation. FRMCS also minimizes network latency and uses cloud technology, which will help you automate train operation and support broadband M2M communication.*

Nokia strongly recommends that ACMA aligned any technical decision with global standards such as 3GPP. This allows the licensees to benefit from the associated global economies-of-scale and more diverse product ecosystem, hence supporting overall 5G deployment. *The ECC Decision 20(02) Harmonised use of the paired frequency bands 874.4-880.0 MHz and 919.4-925.0 MHz and of the unpaired frequency band 1900-1910 MHz for Railway Mobile Radio (RMR)*¹ clearly indicates 1900-1910 Band for FRMCS as a way forward but more importantly is that this band will be part of 3GPP Rel. 17 for the initial planned deployment. From Australian railway operators' perspective, alignment with the larger European market means access to wider choice of suppliers and User Equipment's.

However, it is important to note that GSM-R and FRMCS will co-exist for a certain period. Current and future spectrum allocation for railway will be both crucial for support high bandwidth industry 4.0 applications.

We expect that the digitization of the industries will continue to grow and, as such, their demand for spectrum to increase over time across the different sectors. Their spectrum needs will depend

¹ The ECC Decision 20(02) Harmonised use of the paired frequency bands 874.4-880.0 MHz and 919.4-925.0 MHz and of the unpaired frequency band 1900-1910 MHz for Railway Mobile Radio (RMR) [ECC Decision \(20\)02 \(cept.org\)](#)

on the use cases in terms of coverage, capacity and performances and will be addressed by a combination of local access and wide national coverage, via private networks and public ones.

As mentioned in the discussion, spectrum is used by different sectors like mining and energy companies. Wireless Broadband services and P2P are important technologies for some critical sectors of the Australian economy. Nokia strongly encourage ACMA to facilitate the use of this spectrum for (private) industrial use. In the different proposal, the geographical separated services (figure 18) approach may be the best initial approach to ensure deployment of different services based on their optimal socio-economic usage.

Nevertheless we also consider that the portion 1880MHz-1900MHz should be further consider and co-existence between DECT(-2020 NR) and other wireless technologies (IMT or MulteFire) should be further study so that business enterprise services operated by private entities within the confines of their own premises may be possible.