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Response to the public consultation on the discussion paper “Exploring the future use of the 1880–1920 MHz band”

Dear Sir or Madame,

We thank the Australian Communications and Media Authority (ACMA) for this opportunity to respond to the public consultation on the discussion paper “Exploring the future use of the 1880–1920 MHz band” in Australia.

with kind regards

Dr. Andreas Wilzeck
Head of Spectrum Policy and Standards



About Sennheiser

Sennheiser Electronic GmbH & Co. KG, headquartered in Germany, is a global leader in advanced microphone technology, RF-wireless and infrared sound transmission, headphone and speaker technology, and active noise cancellation.

Wireless microphones are essential tools with proven benefits that are used daily within every echelon of society. The definition of wireless microphone includes a wide variety of wireless audio production tools. Wireless microphones are indispensable in modern content creation. Content is a key component of the economy and is a major source of cultural enrichment. Countless schools, municipalities, houses-of-worship, and businesses also rely on wireless microphones. Professional wireless microphones are unique in that they are fault-intolerant, real-time devices (i.e. must exhibit negligible latency), that must compact and have adequate battery life beyond the length of the broadcast or staged event.

Responses to the raised questions

1. *What is the relevance of the Personal Handy-phone System (PHS) and should this use be retained?*

To our knowledge PHS is not marketed in Australia, while the DECT technologies are extensively used for cordless telephony, smart home, IoT, conferencing, presentation, and audio for video.

The use of the DECT family of standards (DECT, DECT ULE, DECT evolution) is available and very successful in Australia.

DECT-2020 NR (also named NR+) is a new technology fulfilling the massive Machine Type Communications (mMTC) and Ultra Reliable Low Latency Communications (URLLC) requirements of IMT-2020 and is now part of Recommendation ITU-R M.2150 (IMT-2020).

DECT/DECT evolution is recognised in Recommendation ITU-R M.1457 (IMT-2000).

2. *What is the interest in the use of new technologies to provide a service?*

The DECT family of technologies is serving a rich set of various use cases including massive Machine-Type Communications (mMTC), Ultra-Reliable Low Latency Communications (URLLC), and wireless broadband applications.

Main differentiator is that all DECT technologies are designed for user-driven, self-organizing deployment – anywhere, at any time, and by anyone.

- a) *How much spectrum is required to provide the service?*

The 20 MHz available to DECT technologies are already today faced with local congestion and additional spectrum would relieve today's congestion challenges and enable a rich ecosystem of the fast evolving DECT family of technologies. Making a contiguous 40 MHz available would help the introduction of DECT-2020 NR to the Australian market.

- b) *What interservice considerations need to be undertaken for the service to be deployed?*

The DECT family of standards including DECT-2020 NR is designed for co-existence in a frequency band among DECT technology based systems. Interworking with other technologies can be achieved via gateways and internet protocols.



c) *What are the deployment scenarios for the service?*

All DECT technologies are designed for user-driven, self-organizing local deployment – anywhere, at any time and by anyone. Services might be specific to the user applications to be served by a deployed system.

3. *Are services still using DECT or are they transitioning to DECT-2020 NR?*

The various members of the DECT family of technologies will coexist in the market for a long period of time.

DECT-2020 NR enables especially applications in Industrial IoT, professional audio, and Public Protection Disaster Relief (PPDR) including wireless broadband. Various applications and application-specific systems based on DECT technologies can share a band without obstacles, while keeping their sovereignty in network deployment and business case.

Classic DECT has the advantage that multiple chipsets are available for very price sensitive applications.

Nordic Semiconductor announced in Nov 2021, that a first chipset for DECT-2020 NR will be available in summer 2022.

4. *Are there any applicable coexistence scenarios not identified? Are there any scenarios that are unlikely to be practically achievable (and hence the associated planning scenario should be discounted), or are there any that are readily achieved?*

We believe that the best suited scenario is an allocation of 1880-1920 MHz to the DECT family of standards (DECT, DECT ULE, DECT evolution, DECT-2020 NR). Various application-specific systems/networks based on DECT technologies can share the band without obstacles.

Coexistence with other technologies is only possible if they share the same medium access principle.

5. What are possible planning scenarios and industry views on the overall future use of the 1.9 GHz band and its services:

a) How much spectrum is required (distinguishing between the minimum viable and desirable) to provide the service?

Currently 20 MHz of spectrum is available to DECT family of technologies. Local congestion is already happening today especially in call centers and professional audio applications.

Given that DECT-2020 NR is introduced, it will further enrich the set of use cases with mMTC and URLLC applications. Additional use will drive spectrum demand locally, but use case driven. 40 MHz would provide sufficient room for introducing DECT-2020 NR to the Australian market with ease.



- b) Is there a clear geographical delineation – for example, metropolitan or regional – for the service?

DECT family of technologies operate on an anywhere, at any time, by anyone principle.

Geographic sharing for example with railways along the rail tracks might be possible thanks to automatic interference management features which could enable detect and avoid approaches to some extent.

- c) Is there or will there be equipment readily available for the service?

DECT, DECT ULE, DECT evolution equipment is available today employing 1880 MHz - 1900 MHz and an extension of existing products to 1900-1920 MHz is likely only a firmware update.

DECT-2020 NR supports 1880 MHz to 1920 MHz with first chipset availability in summer 2022.

Sennheiser is using DECT technologies in its current portfolio, and plans to make use of DECT evolution and DECT-2020 NR in future products.