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Association of Wireless Production Technologies e.V. (APWPT)
reply to
RSPG's Opinion on the ITU-R World Radiocommunication Conference 2023 [DRAFT]

The APWPT promotes on an international level the efficient and demand-driven provision and use of production frequencies for professional event productions as well as safeguarding such production frequencies for the users on the long run.

Programme Making and Special Events (PMSE, also known as SAB/SAP) is the term used to describe the wireless communication links that allow the creative industries to transport the captured audio and video content from performers and presenters on location to audiences, either at the venue, at home, or increasingly, on the move. PMSE is primarily divided into audio and video, and each has unique characteristics that need to be catered for.

Content created with PMSE is consumed all over the world on a multitude of platforms. It relates typically to televised sport, outdoor music events, theatre productions, television light entertainment, feature film production and live television news gathering. However, it also encompasses many other applications, for example PMSE is used at exhibitions, house of worships, conferences, and educational institutions.
Especially streaming platforms created an increased demand on producing new content, requesting high quality PMSE applications.
Therefore, PMSE is essential for the social and cultural life and contributes with a high factor to the economy of every country and of the European Union.

Please see also ECC Report 323 'Spectrum use and future spectrum requirements for PMSE'[1].

[1] https://docdb.cept.org/document/18490

Specific comments on WRC23 AI 1.5

We appreciate that all EU member states are listed with ITU-R RR FN 5.296 allowing audio PMSE (SAB/SAP) access to the band 470 - 694 MHz as a land mobile service.

Access to sufficient interference-free radio frequencies remains essential for wireless PMSE equipment to meet the expectations of content production workflows. At the same time, not all frequency bands are technically equally suitable for specific PMSE applications as different frequency bands have different propagation characteristics which may or may not support production requirements such as mobility, indoor penetration, latency limits, range, etc.

The UHF band below 1 GHz is the core band for professional audio PMSE applications due to several reasons of that band. The combination of radio propagation characteristics (particularly, body absorption and operating range), a low level of existing man-made noise, favourable antenna length and predictable, stable interference scenarios allow to deploy high quality audio PMSE equipment.
PMSE applications such as audio capturing (wireless mics) and play-back (IEM) for live sound have such demanding requirements in terms of latency and reliability that operating in the UHF band below 1GHz is required.

High-quality audio PMSE applications have specific requirements in e.g., terms of latency, which cannot be achieved by existing standardized radio technologies. Therefore, many audio PMSE applications are implemented based on proprietary dedicated wireless solutions. Nevertheless, manufacturers are very innovative and continuously invest in the development of new technologies, e.g., wideband systems based on WMAS, DECT 2020 NR and 5G. It is worth noting however, that these technologies are still not available and even when they will become available, technological innovation will not eliminate the need of audio PMSE for dedicated interference-free frequency resources in the sub-1GHz UHF band.

The typical frequency spectrum requirement does vary for different use cases and applications. The report 'Report on spectrum requirements for Audio PMSE'[2] analyses the spectrum needs for audio PMSE. According to the results of this report the daily required spectrum for audio PMSE in the UHF-TV band today is in average 110 MHz. With this amount of spectrum, the requirement of the most of campus/venues and events can be fulfilled. Nevertheless, for major events the average of the required spectrum sums is 174 MHz, while the peak demand could require the whole available UHF-TV spectrum of 224 MHz (audio PMSE is deployed in between active TV transmitters).

[2] https://apwpt.org/wp-content/uploads/2022/03/Report-PMSE-Audio-spectrum-requirement.pdf

RSPG opinion RSPG15-595 FINAL[3] on a long-term strategy concluded that the current user of the band below 790 MHz, Broadcast and PMSE, do need secure access till at least 2030. Decision (EU) 2017/899[4] of the European Parliament and of the Council confirmed the availability of the 470-694 MHz frequency band at least until 2030 for the terrestrial provision of broadcasting services, including free television and PMSE
Please note that the demand for PMSE is growing (ECC Report 323), which, as consequence, requests access to the UHF-band below 1 GHz far beyond 2030.

APWPT's sharing analysis concludes that PMSE and IMT are not compatible and cannot share frequency bands. Any future access policy to the TV-UHF band must continue to support the future use of audio PMSE.

Additional comments: IMT mobile duplex centre gaps below 1 GHz

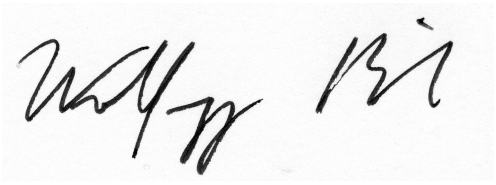
APWPT would like to request that the duplex centre gaps in the mobile IMT bands below 1 GHz are opened for audio-PSME use. However, please note these bands are not sufficient for high professional audio PMSE applications, which require more frequency spectrum, which is clean and interference free from adjacent IMT services.
Note: One of them, 821 - 832 MHz is a harmonized frequency band [add ECC decision]

Summary

- PMSE is an essential service for social and cultural life contributing with a high factor to the economy.
- The TV - UHF band is the core band for audio PMSE and is an essential frequency resource.
- The band below 1 GHz is essential for physical and technical reasons. PMSE requirements are much different compared to other services, including IMT.
- The ITU-R RR FN 5.296 must continue supporting the access for PMSE.
  (ITU-R terminology: SAB/SAP; land mobile service).
- APWPT supports no change in relation to WRC-23 Agenda Item 1.5.

[3] RSPG15-595 https://rspg-spectrum.eu/wp-content/uploads/2013/05/RSPG15-595_final-RSPG_opinion_UHF.pdf
[4] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017D0899&from=en

Yours sincerely



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