



Opinion on Government Decree amending the Government Decree on the Use of Radio Frequencies and the Frequency Plan.

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We welcome the opportunity to share our opinion on Government Decree amending the Government Decree on the Use of Radio Frequencies and the Frequency Plan especially on the future use of the UHF band.

Since 1925, Shure has been a leading manufacturer of high-quality, innovative audio products based in the United States. Shure products (www.shure.com) are utilized worldwide in applications known as audio Programme Making & Special Events (PMSE also known as SAB/SAP). PMSE equipments such as Wireless microphone are playing an essential role in supporting productions for a number of facets of Finland life, culture, and the economy. Beyond their traditional role in broadcasting and film production, wireless microphones support productions in a wide range of sectors including news reporting, theater, music, sports, worship, civic events, transportation infrastructure, and education.

While the consultation text primarily concerns the long-term evolution of digital terrestrial television, it is essential to underline that the *indirect* consequences for the PMSE sector would be substantial and potentially irreversible. The explanatory memorandum to this consultation explicitly notes that removing the upper part of the UHF band (614–694 MHz) from terrestrial television could “enable the use of the frequency range in the initial phase, for example for testing mobile communications,” and that this 600 MHz band is viewed as “a significant and valuable frequency range in the future, especially from the perspective of building comprehensive mobile network coverage.” Furthermore, it highlights that Finland’s national 6G roadmap aims to “promote the use of frequencies below 700 MHz for mobile use” (Publications of the Ministry of Transport and Communications 2025:6, p. 23).

Although these considerations are framed within the context of mobile innovation and future network development, reallocating or repurposing the 600 MHz band would dramatically affect PMSE operations. The 600 MHz range forms an indispensable part of the remaining UHF spectrum available for wireless microphones, in-ear monitors, intercom systems, and other tools required for broadcast production, cultural events, theatre, and live performance. PMSE typically occupies the interleaved portions of the broadcasting band; therefore, any change to DTT allocations has a direct and unavoidable impact on PMSE capacity. Reducing the available UHF range would severely constrain frequency coordinators’ ability to deploy reliable, interference-free wireless systems. This is particularly critical because PMSE systems would be forced to operate in closer proximity to powerful mobile uplink signals whose behaviour is inherently unpredictable in dense event environments.

We would, however, like to underline an important procedural concern. The timeline for this consultation has been extremely short, especially when considering the far-reaching consequences that changes in this band may have for Finland’s cultural industries, broadcasting infrastructure, and live events sector. These sectors rely on complex, interconnected production



systems, where changes in spectrum availability can have immediate and significant operational impacts.

We strongly believe that future steps in this process should involve theatres, frequency coordinators, event producers, equipment manufacturers and other creative-sector stakeholders whose operational reality is shaped by access to reliable UHF spectrum.

We stand ready to support the Ministry in this more detailed, collaborative phase.

1. Importance of the 470–694 MHz Band for Finland’s Cultural, Broadcast and Events Sectors

The UHF broadcasting band remains essential to the professional audio and content production ecosystem in Finland. Wireless microphones, in-ear monitoring systems, audio links and intercom systems used in television studios, theatres, festivals, concert halls, sports arenas and institutional environments depend on this spectrum. The UHF band uniquely combines favourable propagation characteristics with low latency, high reliability and predictable RF behaviour — all necessary for real-time professional production.

This spectrum supports the technical infrastructure behind many pillars of Finland’s cultural and media landscape: the productions of Yleisradio and commercial broadcasters; large festivals such as Flow Festival, Ruisrock, Pori Jazz and Provinssi; the performing arts venues in Helsinki, Tampere, Turku and Oulu; Tradeshows such as Slush, the touring shows that visit Finland as part of global productions; and a wide range of institutional and governmental events that require secure and reliable audio transmission.

These activities depend on uninterrupted, stable and sufficiently wide access to UHF frequencies, particularly in the 470–694 MHz range.

2. The Central Role of Frequency Coordinators in Ensuring Reliable PMSE Operations

A defining characteristic of the PMSE ecosystem is that it relies on specialised professionals known as frequency coordinators or RF coordinators. Their work is often invisible to the general public but absolutely essential to cultural and media production. Frequency coordinators analyse spectral conditions on-site, perform complex intermodulation calculations, assign channels to dozens or sometimes hundreds of wireless devices, coordinate operations with broadcasters and mobile network operators, and monitor RF activity throughout live broadcasts or performances. Their expertise ensures that productions run smoothly, safely and without interference.

The ability of frequency coordinators to perform this mission-critical work depends directly on access to sufficient, contiguous and predictable spectrum in the UHF band. When that spectrum is reduced, fragmented or threatened by adjacent-band interference, the difficulty of their work increases sharply. Intermodulation products multiply, safe frequency margins evaporate, and reliable coordination becomes increasingly fragile.

If Finland were to lose significant portions of the 600 MHz band, many large productions would face a serious risk that reliable coordination simply could not be achieved with the remaining spectrum. Such a situation would not only affect artistic quality but could also threaten the safety, continuity and economic viability of many productions.



As the demand for spectrum access surges across a growing array of sectors and devices, it is imperative to revisit the traditional model of nation-wide exclusive licenses. This shift is crucial to accommodate the evolving needs of modern wireless applications, particularly for Program Making and Special Events (PMSE).

Frequency coordinators are essential professionals in this transition, uniquely positioned to ensure that spectrum usage is managed to meet user needs and maintain high-quality, reliable service. They can be instrumental in developing shared-use frameworks—such as dynamic spectrum access via databases—that enable PMSE devices to share spectrum resources efficiently and adaptively.

Additionally, coordinators can play a key role in exploring and implementing coexistence models, utilizing geographical and temporal separation techniques to minimize interference and maximize spectrum utility. They can ensure that PMSE operations can access the spectrum they need, when and where it is needed most. In this way, we believe frequency coordinators help forge a more responsive, inclusive, and future-proof spectrum management ecosystem.

3. Lessons from UK BEIRG's 2025 Spectrum Report and Scenario Modelling

In assessing potential future uses of the UHF band, we consider the work of the British Entertainment Industry Radio Group (BEIRG) highly relevant. BEIRG's 2025 Spectrum Report includes one of the most detailed scenario-based analyses available in Europe, modelling spectrum availability for PMSE under multiple configurations of the 470–694 MHz band.

The modelling demonstrates that reducing or reallocating parts of the 600 MHz band leads to a steep decrease in usable PMSE capacity, especially for high-density events. In several scenarios, the number of practically deployable wireless channels falls by **30–50%**, a reduction that cannot be compensated by improved equipment efficiency alone.

BEIRG's graphs also show that intermodulation constraints — a core concern for frequency coordinators — become dramatically more restrictive as available spectrum shrinks. In other words, even if some frequencies remain nominally available on paper, they cannot be used safely or simultaneously in real productions due to the multiplication of interference products.

Another key insight from BEIRG is that technical innovations such as WMAS and improvements in filtering and digital processing have limits. While they can improve spectral efficiency, they cannot overcome large-scale losses in UHF bandwidth. The modelling makes clear that the physical properties of spectrum impose constraints beyond which technological progress cannot compensate.

Finally, BEIRG's analysis demonstrates the broader impact of spectrum loss on cultural and economic activity. Reducing PMSE capacity undermines the feasibility of large-scale events, diminishes a nation's attractiveness to international touring productions, and increases production costs for broadcasters and cultural institutions. For Finland — a country with a vibrant festival scene, high standards in public broadcasting, and a strong performing arts ecosystem — such outcomes would have disproportionate negative effects.

BEIRG's March 2025 Spectrum Report is available via its homepage (www.beirg.org), or directly via this [link](#). The audio PMSE spectrum demand profile is similar for events and studio locations

with a high concentration of audio PMSE activity, so irrespective of country, the same critical impacts would result from further loss of spectrum access (see, for example, APWPT's Session 3(b) slide deck from April 2025's RSPG Workshop on 'The Future of the 470-694 MHz band within the EU', available via: https://radio-spectrum-policy-group.ec.europa.eu/events-0_en).

4. Assessment of the Potential Reallocation of the 600 MHz Band

We fully understand the importance of mobile broadband expansion, yet we believe that reallocating the 600 MHz band to mobile services would create more harm than benefit for Finland. Unlike PMSE, mobile services have access to a broad range of alternatives in mid-band and high-band spectrum, as well as increasing opportunities for localised 5G deployments. PMSE, by contrast, has no viable substitute for the propagation and performance characteristics of UHF spectrum.

Introducing mobile uplink traffic into or adjacent to the 600 MHz band would pose severe risks of unpredictable interference for PMSE operations. Live events, broadcast productions and performing arts rely on spectral stability. The presence of variable, high-power mobile devices — particularly in crowded venues — would fundamentally compromise that stability.

Any consideration of reallocating this band must therefore be preceded by rigorous national impact assessments, taking into account the operational realities of professional content production and the findings of scenario-based modelling such as that performed by BEIRG. Premature reallocation would jeopardise vital cultural services and expose Finland's event and broadcast sectors to unnecessary economic and technical risks.

5. Evaluation of Alternative Technologies and Bands

Emerging technologies and supplementary bands (1240-1260 MHz, 1350-1400MHz, 1435-1525 MHz) can provide valuable enhancements but cannot replace UHF for PMSE within the foreseeable future. Solutions such as WMAS (Wireless Multi-Channel Audio Systems) or future 5G-based audio links may play supportive roles, yet their propagation behaviour, latency profile and achievable channel density remain fundamentally different from UHF.

Moreover, any migration to these new technologies would require a lengthy transition with substantial investment from cultural operators, broadcasters and event producers. This transition would only be viable if carried out in parallel with a stable UHF allocation. Deregulating or reallocating UHF before such alternatives reach maturity would place the entire PMSE ecosystem at risk.

6. Recommendations for Finland's Spectrum Strategy

We strongly encourage Finland to maintain long-term access for PMSE across the entire 470–694 MHz band. Given the strategic importance of this spectrum for Finland's culture, media and public service communication, its continued availability should be considered an essential national resource.

We also recommend that the Ministry establish a formal engagement structure with the PMSE community, integrating the practical knowledge of Finland's frequency coordinators, technical service providers and cultural institutions. Their expertise is indispensable to designing a



spectrum strategy that reflects real operational needs.

We further encourage the Ministry to commission a Finland-specific scenario analysis, inspired by the BEIRG modelling, in order to quantify the national implications of different allocation options and avoid unforeseen consequences.

7. Conclusion

Finland's cultural and audiovisual sectors are internationally respected for their quality, reliability and innovation. The UHF band — and particularly the continuity of the 600 MHz portion — is essential to preserving these standards. Reducing PMSE access to this spectrum would undermine the ability of theatres, festivals and production companies to deliver high-quality content and major live events.

In light of the short consultation window and the technical, cultural and economic stakes involved, we respectfully urge the Ministry to engage in deeper, more sustained dialogue with the PMSE and content-creation community before taking decisions that would reshape Finland's spectrum landscape for decades to come.

We remain fully available to support the Ministry with technical expertise, scenario analysis, and participation in future working groups.

Please contact the undersigned if you have any questions.

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