Section 3 –Spectrum use by the PMSE sector in the UK

Question 1: What are your views on how our processes work - for example our online booking system, turnaround times, and event coordination. Do you think the current approach works well? How could we improve it?

Confidential? – N

SOLT & UK Theatre's response to this consultation has been informed by our members' insights and experts from the British Radio Entertainment Industry Radio Group (BEIRG) and the Wireless Microphone Spectrum Alliance (WMSA).

In response to the question on how Ofcom's approach could be improved, SOLT & UK Theatre would like to participate in stakeholder engagement events on the use of UHF spectrum (470–694 MHz) in future to help inform our response to consultations of this nature.

Recommendations

SOLT & UK Theatre recommend that Ofcom:

1. Explicitly recognise theatres as persistent, high-intensity PMSE users in spectrum modelling.
2. Protect sufficient UHF spectrum to support multi-channel live performance.
3. Avoid assuming affordability or practicality of private networks or rapid equipment change.
4. Engage regularly with theatre and performing arts sector stakeholders.
5. Explore mitigation or compensation mechanisms where spectrum access is reduced.
6. Actively engage with the Radio Spectrum Policy Group (RSPG) process and CEPT (European Conference of Postal and Telecommunications Administrations) FM51 as an observer or participant, ensuring UK PMSE experience, underpinned by regulatory data and industry engagement, informs European deliberations.
7. Advocate for the benefits of harmonised access conditions for audio PMSE in the entire 470–694 MHz band, recognising that harmonisation directly benefits UK PMSE users through a larger, more competitive equipment ecosystem.

Question	Your response
	8. Engage in ITU (International Telecommunication Union) and CEPT processes shaping the future of the band ahead of WRC-31, ensuring UK and European PMSE interests are protected.

Section 4 – PMSE historic trends

Question 2: Do you have any comments on how we have analysed and characterised wireless microphone and IEM demand, or suggestions for alternative ways of characterising this demand?

Confidential? – N

SOLT & UK Theatre welcome this opportunity to respond to Ofcom's review of the future needs of the Programme Making and Special Events (PMSE) sector. We appreciate Ofcom's consideration of the theatre industry's needs however Ofcom's analysis prioritises episodic peak events over persistent daily users. Theatres operate continuously, often seven days a week, year-round, with overlapping matinees, evening shows and rehearsals.

Persistent year-round use defines the theatre industry's radio frequency usage

SOLT & UK Theatre'[s Theatre in the UK 2026 report shows theatres represent high-utilisation civic infrastructure, hosting millions of attendances annually and running near-continuous programmes in major urban centres. Persistent radio frequency access reliability matters as much as peak capacity: interference on a single night can jeopardise a performance with immediate financial and reputational impact. We are therefore concerned that Ofcom's approach risks undervaluing the cumulative spectrum dependency of theatres compared with sporadic events such as major music festivals.

As outlined in WMSA's response to this consultation at peak-demand venues such as "major West End theatres, broadcast studios, and national arenas, effective spectrum occupancy can already exceed 170 MHz of the UHF band. This is not peripheral use, it is mission-critical infrastructure for the UK's highest-value cultural productions and for pan-European tours".

SOLT & UK Theatre members include receiving and producing theatres across the UK. Our member venues accommodate a broad programme of drama, musical theatre, opera, dance, comedy, pantomime, community productions, and live music. Many operate as multi-use venues serving theatre touring companies, local arts organisations, schools, and community groups.

The theatre sector is reliant on UHF systems operating in 470 – 694 MHz

The theatre industry relies on spectrum for the operation of wireless equipment, such as microphones and in-ear monitoring systems. The choreography and rapid vocal exchanges in

Question	Your response
	major productions such as *The Greatest Showman,* which premiered at the Bristol Hippodrome in April this year, leave no tolerance for latency or dropouts. UHF PMSE systems operating in 470–694 MHz remain the most reliable for real-time musical performance and are the least susceptible to blocking by bodies, sets, and costume elements. **Theatre as a Growth Sector** Theatre is a key part of our creative industries sector, which has been identified by the Government as one of eight sectors with the greatest growth potential over the next decade. We therefore ask Ofcom to consider our industry's contribution to the UK's economic resilience and regional growth when assessing future use of the UHF spectrum. More than 37 million people attended SOLT and UK Theatre member venues in 2025. The West End alone drew a record 17.64 million people, generating £1.08 billion in revenue. Every £1 spent on a theatre ticket generates a further £1.40 in local economic activity. **A highly skilled sector** Theatres and performing arts venues are also skills training hubs where professionals are able to hone their craft. The industry supports over 100,000 FTE jobs, and generates intellectual property that feeds film, television, and the wider creative industries. **Data sharing to address evidence gaps** As outlined in WMSA's response to this consultation, Ofcom's licensing data may be the only substantial regulator-generated dataset capturing PMSE's actual use of the 470–694 MHz band anywhere in Europe. Across most EU Member States and CEPT administrations, PMSE typically operates under general authorisation and its spectrum use is not individually recorded or measured. This creates a major evidence gap at a moment when CEPT FM51 is starting work examining the flexible use of the band, taking into account its incumbent use, which includes audio PMSE.

Question	Your response
	SOLT & UK Theatre supports WMSA's call for Ofcom to present its PMSE licensing data, including the growth trend analysis, as an input to the CEPT FM51 process, or to make it available to the Radio Spectrum Policy Group (RSPG) in support of its developing opinion on the future of the 470–694 MHz band.
Question 3: Do you have any comments on how we have analysed and characterised wireless video demand, or suggestions for alternative ways of characterising wireless video demand?	Confidential? – N **Ofcom's analysis should balance consideration of annual large-scale events such as music festivals with the daily year-round needs of the theatre industry** We support Ofcom's use of multi-year licensing data and peak-demand analysis to identify growth trends and pressure points however peak-bandwidth focus risks underrepresenting theatres and performing arts venues. Characterising demand primarily by maximum MHz on peak days captures large outdoor events well, but does not reflect sustained, lower-bandwidth wireless video use in theatres as outlined in earlier sections of our response. Rather than by occasional ultra-high-bandwidth requirements, theatres and performance venues tend to use wireless video regularly throughout the year for production, monitoring, accessibility and creative applications. Individually modest links can represent significant aggregate demand across venue networks. **Ofcom's analysis should include more recent innovative use of video elements in theatre** While current wireless video use in theatre is typically lower-bandwidth than in large broadcast or sporting events, some of our members' productions are increasingly deploying innovative video applications that blur the boundary between live performance and screen-based content. These uses are qualitatively different from traditional broadcast PMSE but are becoming more common in high-end theatre and touring productions. Recent large-scale productions such as *Stranger Things: The First Shadow* in the West End demonstrate how contemporary theatre is incorporating complex video elements, including

Question	Your response
	dynamic projection, real-time visual effects, and synchronised audiovisual systems to enhance storytelling and audience immersion. These productions rely on tightly coordinated video systems operating alongside dense wireless audio deployments, often within challenging indoor environments where reliability and interference management are critical. The Royal Shakespeare Company (RSC) have consistently pioneered the integration of digital and video technologies within live performance. This includes the use of video capture, projection, motion tracking and hybrid stage-screen techniques to support creative innovation, accessibility, education and broadcast extensions. These developments indicate that wireless video demand in theatres is evolving in response to creative ambition and audience expectations. Characterising demand solely through peak bandwidth at large outdoor events risks overlooking the growing role of video as a core creative and operational tool within the theatre sector, particularly in major cultural centres and producing houses.

Question	Your response
## Section 5 – Future trends and opportunities ## Wireless audio ### Drivers of demand **Question 4:** What factors have driven changes in the demand for audio PMSE applications, specifically for: a) the increased use of coordinated wireless microphones and IEMs, particularly the peak number of simultaneous assignments used at the largest events? b) the slight decline in the number of national wireless microphone licences (UHF channel 38 and VHF)? Has the extent of use of these licences changed, and if so why? c) the declines in talkback, fixed audio links and ADS licences?	Confidential? – N The following factors have driven increased demand over recent years: • Larger and more technically complex touring productions. • Growth in wireless-intensive musical theatre. • Increased audience expectations for sound clarity. • Expansion of in-ear monitoring systems. • Use of multiple performance spaces within venues. • Growth in corporate and hybrid live/streamed events. • Increasing use of assistive listening systems. In our members' experience, growth has been accommodated through: • Use of more spectrally efficient digital wireless systems • Careful frequency coordination via licensed PMSE channels • Greater reliance on shared planning and advance coordination • Investment by venues and production companies in modern equipment. However, our members are increasingly operating within tighter spectrum margins, particularly during high-demand touring periods. Can we find an example?
Question 5: What factors could drive further changes in the demand for audio PMSE applications in the future, and what will this mean for future demand, specifically for: a) coordinated wireless microphones and IEMs, particularly the peak number of simultaneous assignments used at the largest events?	Confidential? – N **The demand for PMSE applications is likely to grow** The theatre sector has strong and sustained growth potential and has been identified by Government as a key contributor to the UK's creative industries, one of eight priority growth sectors for the coming decade. Audience demand has rebounded strongly post-pandemic, with

Question	Your response
b) national wireless microphone licences (UHF channel 38 and VHF)? c) talkback, fixed audio links and ADS licences?	record attendance and revenue levels driven by West End performances, regional touring, international productions and new immersive formats. Theatre also generates significant spill-over benefits for local economies through tourism, hospitality and supply chains, supporting regional growth and economic resilience. Continued access to reliable PMSE spectrum, including UHF, is therefore essential to enable the sector to innovate, scale productions, and maintain its contribution to UK growth and global competitiveness. **Theatre industry requires stability and certainty in relation to spectrum access** Uncertainty regarding spectrum access is a threat to the theatre industry which requires stability and confidence to grow. PMSE needs to be recognised for its economic value and cultural significance as a key tool in the theatre production process. SOLT & UK Theatre ask that Ofcom commits to exploring solutions with industry before making changes to spectrum availability that would damage an already fragile ecosystem.
Question 6: Do you agree that, given the trends, we are right to focus on wireless microphones/IEMs?	Confidential? – N Fundamentally yes, however we would like to draw attention to our earlier comments on Ofcom's analysis, which we believe would be strengthened by a deeper consideration of the theatre industry's requirements. If the theatre sector is to realise its full growth potential, our members require certainty with regard to spectrum access as outlined above. As outlined by BEIRG in their response to this consultation, the sector operates however for practical reasons, it is not always possible to apply the simplistic logic of what are most channels that can be squeezed into the smallest amount of spectrum. **Despite strong audience demand for live performance, the theatre ecosystem is fragile** As outlined in SOLT & UK's Theatre in the UK report, the strong demand for live performance does not automatically translate into financial resilience. Real-terms ticket prices have fallen

Question	Your response
	since 2019: theatres have absorbed inflation rather than pass it on fully, sustaining access at the cost of margins. Staffing, energy, maintenance, and employment tax costs continue to rise. More than a third of organisations forecast operating deficits this year, rising to over half among subsidised theatres where pricing flexibility is most limited and public funding has not kept pace with inflation. Given these challenging factors, our members are often not able to afford additional technical resources such as a dedicated spectrum planner. It is therefore critical that Ofcom engages thoroughly with the theatre industry before making changes that alter spectrum access.
Changes in the take-up of bands already available **Question 7:** What factors have driven the take-up of different bands for wireless audio? What are the barriers to greater use of the DME band?	We defer to BEIRG.
Question 8: What actions could enable greater take-up of the DME, DECT and licence exempt bands in the future?	We defer to BEIRG.

Question	Your response
Changes in spectrum availability **Question 9:** Which potential additional bands might be suitable for wireless audio applications, particularly microphones and IEMs at the largest events and venues?	We defer to BEIRG.
Question 10: To what extent do the characteristics of different audio applications drive their requirements for spectrum – for example particular requirements for latency, resilience or capacity?	Confidential? – N **UHF PMSE spectrum (470–694 MHz) remains essential for professional theatre use** The characteristics of different audio applications strongly determine their spectrum requirements, particularly with respect to latency, resilience and reliability. Live theatre productions rely on near-zero latency and highly resilient wireless links to support rapid vocal exchange, tight musical synchronisation and complex choreography. Even brief interference or dropouts can disrupt performances with immediate financial and reputational consequences. Regional producing theatres across the UK regularly host large touring musicals requiring dozens of simultaneous wireless microphones and in-ear monitoring channels, often operating six or seven days a week. In receiving houses in cities such as Bristol, Nottingham and Newcastle, overlapping rehearsals and performances mean systems must function reliably for extended periods, with little tolerance for retuning or loss of service. Wireless systems in theatres must also perform reliably in challenging indoor environments where signals are affected by performers' bodies, sets, costumes and dense building materials.

Question	Your response
Changes in efficiency of spectrum use **Question 11:** What changes in spectrum use (technology, working practices, different bands, etc) have enabled audio wireless growth to be accommodated to date, particularly the increased use of wireless microphones and IEMs at the largest events and venues in the context of reduced UHF spectrum availability?	Confidential? – N **Theatre sector growth in the use of wireless microphones and in-ear monitoring has been accommodated largely through improvements in technology and working practices** despite significant pressure caused by the nearly 50% reduction in available spectrum that the PMSE sector has experienced since 2012. Venues such as the Birmingham Hippodrome routinely host large touring musicals requiring extensive channel counts. Productions of this kind have adapted by adopting more spectrally efficient digital wireless systems and by relying on detailed advance coordination within licensed PMSE bands. In dense theatre clusters, such as London's West End, coordination has become increasingly complex as multiple venues operate simultaneously with limited scope for frequency reuse.
Question 12: What technologies are currently available or are being developed which can improve audio spectrum efficiency in the future, particularly in the use of wireless microphones and IEMs at the largest events and venues?	Confidential? – N It is important to note that private 5G networks do not provide a solution for all audio and video PMSE due the latency (time delay). This means that even if they were more affordable, they do not provide a viable solution. There is a lack of data on the extent to which Wireless Multi-Channel Audio Systems (WMAS) will provide solutions for the theatre industry.
Question 13: Are there any barriers to adopting more efficient technologies for audio applications, particularly for wireless microphones and IEMs at the largest events and venues? What could industry do and what could Ofcom do to facilitate greater use of those technologies?	Confidential? – N We welcome Ofcom's consideration of the theatre industry's needs as part of this review. Some members have expressed concern regarding potential changes to the availability of UHF spectrum. They have pointed out that theatres and performing arts venues are not able to

Question	Your response
	adopt solutions that large stadiums can due to financial or practical constraints. This means that investing in 5G or private networks are not viable solutions for theatres. Some have referenced previous decisions to auction off radio frequency to mobile companies and fear they will face a further narrowing of the spectrum available to them. It is important to distinguish between audio and video when considering private networks. There are no viable private networks available for live PMSE audio applications at all, as the latency is too high. Please see recommendations for Ofcom at top of our response.
Question 14: What changes to working practices and spectrum planning could improve audio spectrum efficiency in the future, particularly in the use of wireless microphones and IEMs at the largest events and venues?	Confidential? – Y / N
Question 15: Are there any barriers to adopting working practices that could enable more efficient use of spectrum by audio applications, particularly for wireless microphones and IEMs at the largest events and venues? What could industry do and what could Ofcom do to facilitate those efficiencies?	Confidential? – N Theatres and performing arts venues do not generally operate on the scale of large sporting venues and are not in a position to invest in private networks.

Question	Your response
## Wireless video ### Drivers of demand **Question 16:** What factors (such as more complex events and use of higher resolution equipment) have driven the demand for wireless video bandwidth, in particular for: a) the increased bandwidth required for the largest sporting events such as Formula 1 at Silverstone and The Open Championship? b) the bandwidth required for nationally important state events such as The Coronation? c) the slow growth or decline in bandwidth used at horse racing fixtures?	N/A
Question 17: What factors could drive further changes in the demand for wireless video bandwidth in the future, and what will this mean for future demand, in particular for: a) the bandwidth required for the largest sporting events like Formula 1 at Silverstone and The Open Championship? b) the bandwidth required for nationally important state events such as The Coronation? c) the bandwidth used at horse racing fixtures and other major sporting events?	Confidential? – N We anticipate continued growth due to: • Increasing channel counts in touring musicals. • Greater use of wireless control systems. • Continued expansion of immersive and technically sophisticated productions. • More flexible staging formats requiring untethered performers. This includes an increase in productions such as the electrifying Cabaret at the Kit Kat Club at London's Playhouse Theatre's in-the-round auditorium. • An increase in the number of theatres such as Troubadour's Canary Wharf, Wembley Park Theatres and soon to be opened Greenwich Peninsula Theatre. Other develop-

Question	Your response
	ments include the Shubert Organisation and Trafalgar Entertainment's ground-breaking new flagship, 1,575 seat Olympia Theatre. It will be the largest new theatre of this scale to open in London since The National Theatre in 1976. • An increase in non-conventional venues, such as Oscar at the Crown from ROYO, an 'immersive musical dance party' which took place in a custom-built bunker in Tottenham Court Road. • Growth in accessible performance provision (assistive listening, captioning support systems). Future pressures are likely to include: • Higher density channel use within a single venue. • Increased coordination complexity in urban and multi-venue areas. • Financial pressure on smaller venues if equipment must be replaced more frequently due to band changes. • Risk that reduced spectrum availability could limit the scale of productions able to tour.
Potential news bands **Question 18:** What factors have influenced the degree of take-up of existing bands used by wireless video applications, particularly the growth in take-up of the 7 GHz band?	Confidential? – Y / N
Question 19: Which potential additional bands might be suitable for video PMSE applications, particularly at the largest events and venues?	Confidential? – Y / N

Question	Your response
Question 20: To what extent do the characteristics of different video applications drive their requirements for spectrum – for example particular requirements for resilience or capacity?	Confidential? – Y / N
Changes in efficiency of spectrum use **Question 21:** What technologies are currently available or are being developed which can improve wireless video spectrum efficiency in the future?	Confidential? – Y / N
Question 22: Are there any barriers to adopting more efficient technologies for wireless video? What could industry do and what could Ofcom do to facilitate greater use of those technologies?	Confidential? – Y / N
Question 23: What types of video demand could realistically be supported by private (for example 5G) networks?	Confidential? – N Private networks such as 5G are out of reach for many of our members due to financial and/or practical constraints which are outlined above. As outlined in our answer to question 13, it is important to distinguish between audio and video when considering private networks. There are no viable private networks available for live PMSE audio applications at all, as the latency is too high.
Question 24: What changes to working practices and spectrum planning could improve video spectrum efficiency in the future, particularly in the use of wireless microphones and IEMs at the largest events and venues?	Confidential? – Y / N

Question	Your response
Question 25: Are there any barriers to adopting working practices that could enable more efficient use of spectrum by wireless video? What could industry do and what could Ofcom do to facilitate those efficiencies?	Confidential? – N Our industry would welcome compensation to help with any future spectrum access changes.
## Other comments **Question 26:** Do you have any other comments or views on the issues raised in this document?	Confidential? – N Our members have highlighted that even small changes to the availability of radio frequency bands can have significant consequences for the industry. About Us: The Society of London Theatre (SOLT) & UK Theatre are the membership organisations representing theatre producers, managers, owners, and operators across London and the UK. Our members span commercial and subsidised organisations, as well as independent not-for-profit charities.

Please tell us how you came across about this consultation.

BEIRG informed SOLT & UK Theatre about this call for information.

Please complete this form in full and return to liz.hall@ofcom.org.uk.