

## Your response

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<p>Section 3 –Spectrum use by the PMSE sector in the UK</p> <p><b>Question 1:</b> What are your views on how our processes work - for example our online booking system, turn-around times, and event coordination. Do you think the current approach works well? How could we improve it?</p>	<p>Confidential? – No</p> <p>Ofcom’s coordination framework is critical to the successful delivery of complex events. From a rental company perspective, current booking tools and co-ordination timelines can be increasingly misaligned with modern production practices. Equipment inventories must often be specified, prepared, and committed well in advance, which is significantly hindered by late allocation of frequencies. This is particularly difficult when delivering concurrent projects which include post Brexit shipping documentation requirements, and in some cases before spectrum certainty is available. Earlier engagement, forward reservation capability, and clearer confirmation milestones would help reduce the operational and commercial risk currently borne by rental providers supporting UK events.</p>
<p>Section 4 – PMSE historic trends</p> <p><b>Question 2:</b> 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?</p>	<p>Confidential? – No</p> <p>The analysis broadly reflects the sustained growth in coordinated microphone and IEM demand experienced by rental companies. In our experience, this growth appears structural and inventory driven, with higher channel counts increasingly becoming the baseline expectation across a wider range of productions. Demand is most accurately assessed based on peak concurrent deployments and venue density rather than licence volumes alone. The characterisation is true of large scale, PMSE managed events, but is not reflective of far more common small-scale projects that rental companies deal with daily.</p>
<p><b>Question 3:</b> 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?</p>	<p>Confidential? – No</p> <p>The assessment of wireless video demand aligns with rental experience, particularly in the context of major sporting and large-scale national events. Rental providers are increasingly required to supply higher channel counts, greater bandwidth, and additional redundancy as standard. Greater differentiation between broadcast critical and non-critical video applications may improve the accuracy of demand</p>

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	assessment, given the significantly different resilience and quality requirements involved.
<p>Section 5 – Future trends and opportunities</p> <p>Wireless audio</p> <p>Drivers of demand</p> <p><b>Question 4:</b> What factors have driven changes in the demand for audio PMSE applications, specifically for:</p> <ul style="list-style-type: none"> <li>a) the increased use of coordinated wireless microphones and IEMs, particularly the peak number of simultaneous assignments used at the largest events?</li> <li>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?</li> <li>c) the declines in talkback, fixed audio links and ADS licences?</li> </ul>	<p>Confidential? – No</p> <p>Growth in coordinated microphones and IEMs is driven by production scale, performer expectations, and operational resilience. Wireless solutions are now the norm for tenders and quotes and as a rental company we must respond to these requests to remain competitive. Declines in national licences reflect reduced usefulness rather than reduced demand, with UHF solutions no longer delivering the quality of audio expected, even at an intercom-only use case. Talkback and fixed links are being absorbed into managed RF ecosystems supplied by rental companies.</p>
<p><b>Question 5:</b> 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:</p> <ul style="list-style-type: none"> <li>a) coordinated wireless microphones and IEMs, particularly the peak number of simultaneous assignments used at the largest events?</li> </ul>	<p>Confidential? – No</p> <p>Further growth in coordinated microphone and IEM demand appears likely and will continue to influence rental inventory strategy. National licences are expected to become progressively less relevant for largescale productions, while talkback and fixed links are likely to continue migrating toward converged platforms where spectrum availability permits.</p>

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<p>b) national wireless microphone licences (UHF channel 38 and VHF)?</p> <p>c) talkback, fixed audio links and ADS licences?</p>	
<p><b>Question 6:</b> Do you agree that, given the trends, we are right to focus on wireless microphones/IEMs?</p>	<p>Confidential? – No</p> <p>Yes, the need to focus on protecting PMSE spectrum the wireless microphone/IEM systems is correct. Wireless microphones and IEM systems represent some of the most significant capital investments made by rental companies and are fundamental to the reliable delivery of live events and broadcast productions. Continued regulatory attention on these applications is therefore essential.</p>
<p><b>Changes in the take-up of bands already available</b></p> <p><b>Question 7:</b> What factors have driven the take-up of different bands for wireless audio? What are the barriers to greater use of the DME band?</p>	<p>Confidential? – No</p> <p>Band takeup is strongly influenced by equipment availability, predictability of access, and end user confidence. The DME band, for example, faces adoption barriers including higher costs, limited cross compatibility, and client reluctance to adopt unfamiliar solutions, all of which rental companies must carefully manage when supporting live events. Further to this, the additional investment in compatible cabled, filtering and isolation adds to the cost of adoption.</p>
<p><b>Question 8:</b> What actions could enable greater take-up of the DME, DECT and licence exempt bands in the future?</p>	<p>Confidential? – No</p> <p>Greater takeup of alternative bands would require long-term regulatory certainty from Ofcom, visible manufacturer commitment, and sustained industry education. The DECT band has increased in popularity in recent years, driven by demand for wireless intercom systems offering high channel counts and audio quality. However, at major events, DECT deployments are already operating close to and sometimes beyond practical capacity limits due to finite timeslot availability. In addition, interference from high-power out-of-band sources, including nearby 5G infrastructure, has added operational complexity. We have already invested in custom modification of equipment to further filter interference due to</p>

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	<p>the allocated DECT spectrum already being swamped. These factors significantly constrain further growth, limiting the ability of rental companies to invest at scale without clear confidence in ongoing usability.</p>
<p><b>Changes in spectrum availability</b></p> <p><b>Question 9:</b> Which potential additional bands might be suitable for wireless audio applications, particularly microphones and IEMs at the largest events and venues?</p>	<p>Confidential? – No</p> <p>Any additional bands considered should support scalable rental business models, global equipment ecosystems, and predictable coordination processes. Fragmented or short-term spectrum solutions are unlikely to be commercially viable for rental stock that must serve a wide range of events over extended lifecycles. Shared access to spectrum would pose compliance issues for rental companies as our equipment could be used anywhere in the country. This could lead to equipment broadcasting on illegal frequencies by accident as it was sent from an area where the frequency was permitted to a project in a different area where the frequency is not permitted. In this instance, it is unclear who would be liable.</p>
<p><b>Question 10:</b> To what extent do the characteristics of different audio applications drive their requirements for spectrum – for example particular requirements for latency, resilience or capacity?</p>	<p>Confidential? – No</p> <p>Rental companies are required to support applications with extremely low latency and very high resilience. These requirements necessarily limit flexibility in band choice, as compromises on latency or reliability may increase the risk of service degradation during live events. If using technologies for PA timing alignment, frequencies need to be within similar bands to allow for the precision timing measurements to be taken. This requirement drives the need for close frequency allocations by PMSE.</p>

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<p><b>Changes in efficiency of spectrum use</b></p> <p><b>Question 11:</b> 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?</p>	<p>Confidential? – No</p> <p>Efficiency gains to date have been achieved through substantial investment by rental companies in coordination tools, staff training, and disciplined RF management practices. While incremental improvements may still be possible, many of the most significant efficiency gains have already been realised.</p>
<p><b>Question 12:</b> 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?</p>	<p>Confidential? – No</p> <p>Emerging digital systems, including cellular-based solutions and advanced coordination software, may offer future efficiency benefits. However, adoption is constrained by capital cost, mixed fleet compatibility, and client acceptance, particularly in high profile live production environments. Private 5G systems potentially offer some solutions for the future but the technology currently available to the rental sector is in its infancy. WMAS is being suggested as a way of more efficiently using spectrum, but in a live event environment it is not always practical and currently has little trust from clients. The cost of the additional equipment required to effectively use these systems is also a barrier to adoption.</p>
<p><b>Question 13:</b> 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?</p>	<p>Confidential? – No</p> <p>Key barriers include high equipment replacement costs, compatibility challenges across mixed technology fleets, and the risks associated with deploying unproven solutions in critical live settings. Rental providers would welcome technology evolution that is market-led and evidence-based; premature transitions without sufficient ecosystem maturity may introduce operational risk.</p>
<p><b>Question 14:</b> 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?</p>	<p>Confidential? – No</p> <p>Further efficiency improvements may be achievable through earlier production decision-making, clearer definition of technical scopes, and improved alignment between promoters, producers, and rental suppliers. Realistically this is out of our control as</p>

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	<p>the decisions are being made last minute by organisers and clients.</p>
<p><b>Question 15:</b> 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?</p>	<p>Confidential? – No</p> <p>Compressed timelines and competitive pressures often limit the scope for late technical changes. Ofcom may be able to assist the wider ecosystem by improving certainty in coordination outcomes and minimising late-stage adjustments wherever possible. Better access to enforcement may give the confidence that when or where a spot frequency has been recycled at a large-scale events, permitted transmit power and location is adhered to. Currently OfCom are only present at PMSE-managed events.</p>

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<p>Wireless video</p> <p>Drivers of demand</p> <p><b>Question 16:</b> What factors (such as more complex events and use of higher resolution equipment) have driven the demand for wireless video bandwidth, in particular for:</p> <ul style="list-style-type: none"> <li>a) the increased bandwidth required for the largest sporting events such as Formula 1 at Silverstone and The Open Championship?</li> <li>b) the bandwidth required for nationally important state events such as The Coronation?</li> <li>c) the slow growth or decline in bandwidth used at horse racing fixtures?</li> </ul>	<p>Confidential? – No</p> <p>Major sporting and state events increasingly require materially higher wireless video bandwidth due to production complexity and resilience requirements. By contrast, certain event sectors, such as horse racing, have remained comparatively stable due to established production models. Wireless cameras are no longer cost-prohibitive and are becoming the norm as more dynamic content styles are being driven by the 'mobile phone' generation.</p>
<p><b>Question 17:</b> 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:</p> <ul style="list-style-type: none"> <li>a) the bandwidth required for the largest sporting events like Formula 1 at Silverstone and The Open Championship?</li> <li>b) the bandwidth required for nationally important state events such as The Coronation?</li> <li>c) the bandwidth used at horse racing fixtures and other major sporting events?</li> </ul>	<p>Confidential? – No</p> <p>Rental demand for wireless video systems is expected to continue increasing at flagship events, driven by higher resolution standards, redundancy expectations, and contingency planning requirements. Resolutions over UHD such as 8k will inevitably increase the requirement for spectrum. The cost of cable installation and infrastructure has also increased make RF solutions more appealing.</p>

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<p><b>Potential new bands</b></p> <p><b>Question 18:</b> 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?</p>	<p>Confidential? – No</p> <p>Growth in the 7 GHz band reflects reliable coordination processes and strong manufacturer support, both of which are key factors influencing rental company investment decisions.</p>
<p><b>Question 19:</b> Which potential additional bands might be suitable for video PMSE applications, particularly at the largest events and venues?</p>	<p>Confidential? – No</p> <p>Higher-frequency bands may offer capacity benefits for shortrange applications; however, these benefits must be balanced against the need for reliability and manageable operational complexity in live event environments. Uptake in the rental market will be entirely driven by manufacturers releasing products that operate in any new/proposed band.</p>
<p><b>Question 20:</b> To what extent do the characteristics of different video applications drive their requirements for spectrum – for example particular requirements for resilience or capacity?</p>	<p>Confidential? – No</p> <p>Broadcast video applications require high quality, exceptional resilience, and predictable performance. Rental companies must guarantee these outcomes regardless of cost or technical complexity, particularly for live and high-profile productions.</p>
<p><b>Changes in efficiency of spectrum use</b></p> <p><b>Question 21:</b> What technologies are currently available or are being developed which can improve wireless video spectrum efficiency in the future?</p>	<p>Confidential? – No</p> <p>Advances in compression and IP transport may offer efficiency gains, but also introduce additional latency and systemic dependencies that must be carefully managed within rental deployments. As we are not a manufacturer, we are reliant on announcements of re-release NDA information to plan investments in our rental inventory.</p>
<p><b>Question 22:</b> 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?</p>	<p>Confidential? – No</p> <p>Cost, interoperability challenges, and client risk aversion remain significant barriers to adoption. Trial-based and incremental approaches are generally preferable to regulatory compulsion in this context.</p>
<p><b>Question 23:</b> What types of video demand could realistically be supported by private (for example 5G) networks?</p>	<p>Confidential? – No</p> <p>Private networks may provide value for certain non-critical monitoring or ancillary applications. However,</p>

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	they are unlikely to represent a suitable substitute for dedicated PMSE spectrum in core broadcast and live event production contexts. Service providers are already struggling to provide access for existing 5G for services, far more so in the UK than Europe, making this solution difficult to organise for temporary events.
<p><b>Question 24:</b> What changes to working practices and spectrum planning could improve video spectrum efficiency in the future?</p>	<p>Confidential? – No</p> <p>Efficiency improvements are most realistically achieved through better planning, coordination, and reduction of duplication rather than through further technical compression alone.</p>
<p><b>Question 25:</b> 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?</p>	<p>Confidential? – No</p> <p>Live production risk and contractual liability significantly limit appetite for experimentation. Consequences arising from non-delivery can be severe for rental providers, and policy approaches should reflect this operational reality.</p>
<p><b>Other comments</b></p> <p><b>Question 26:</b> Do you have any other comments or views on the issues raised in this document?</p>	<p>Confidential? – No</p> <p>Equipment rental providers play a central role in enabling the UK's PMSE ecosystem through long-term capital investment and specialist operational expertise. Regulatory certainty is therefore an important factor in sustaining the availability and quality of PMSE services that underpin major UK events, broadcasts, and cultural activities. We would welcome continued engagement with Ofcom to ensure future spectrum policy reflects both efficiency objectives and the operational realities of live event delivery.</p>

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