Your response

Introduction

This response reflects our day-to-day operational experience as a UK PMSE supplier working across live, broadcast, and large-scale event productions. We also fully support BEIRG in its representation of the sector, and the importance of a clear, joined-up industry voices in this process.

While we recognise the broad trends identified in Ofcom's analysis, a consistent theme throughout our response is the gap between how spectrum use is modelled and how it actually works in practice.

Wireless audio systems, particularly radio microphones and in-ear monitors (IEMs), sit right at the heart of modern productions. They are mission-critical, with zero tolerance for failure, and are deployed in environments that are often complex, congested, and unpredictable. Because of this, systems are designed around real-world conditions, not theoretical efficiency. In practice, demand is driven by peak requirements and risk management, rather than averages, and this naturally leads to more cautious spectrum use to ensure reliable delivery.

The PMSE sector has already adapted significantly to reduced UHF spectrum availability. Advances in technology, along with more disciplined coordination and planning, have allowed continued growth within a smaller spectrum footprint. However, much of the available efficiency has already been realised, and there is now limited scope for further gains without increasing operational risk. Alternative bands and emerging technologies have a role to play, but they are not yet capable of replacing UHF for large-scale, high-reliability applications.

We also highlight some practical issues within the current licensing framework, particularly around user education, licence selection, and the visibility of enforcement. Addressing these would improve both spectrum management and overall compliance across the sector.

Ultimately, from an operational perspective, the 470–694 MHz UHF band remains irreplaceable.

As demand continues to grow and the sector's significant contribution to the UK's creative economy, there is a strong case for ensuring long-term, secure access to this spectrum, including consideration of a more protected status for PMSE use.

This introduction should be not taken as our full response to Ofcom's Call for Input.

Our answers to the individual questions are below.

Question	Your response

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

The current licensing and coordination approach is well understood by frequent users and generally effective. Arguably, the online booking portal is one of the best available and widely respected internationally. For those who understand how clever the back end is, they and we defend it when criticised.

For frequent users the online booking system is straightforward to use, turnaround times are typically reasonable for non-urgent applications, and the coordination process itself is something that the professional industry knows how to work within. That consistency has real value, particularly for those managing complex events.

However, novice users lack the knowledge, experience and have no official outlet to educate themselves on how the portal works or how to go about obtaining a suitable license fit for purpose, whether that be a 48-hour license, a fixed-site license or shared PMSE license.

Due to that lack of education and guidance offered by Ofcom, there's often a reluctancy from these users to see the process through and obtain a license at all and therefore they transmit illegally.

The wider effects of this risks the accuracy of Ofcom's data, reduces visibility on how spectrum is actually being used, and ultimately results in a loss of revenue to Government. More importantly, it weakens the overall integrity of the licensing framework by allowing real-world use to sit outside of it.

Holding a more comprehensive data set based off of real-world licenses issued, would place Ofcom in a unique position.

Had Ofcom interpreted their own data correctly, which we believe they haven't for the reasons mentioned above, Ofcom would then hold a broad and detailed evidence base of real-world usage across the 470–694 MHz UHF band in the UK.

An insight that could meaningfully inform European and global regulatory discussions. However, how published evidence has been interpreted has raised some concern within the industry during this Call for Input.

For example, Ofcom's assumption that 10 radio mics and 4 IEMs per 8 MHz feels like a very simplistic summary, even when real-world examples and licenses associated with those examples are to the contrary. This assumption risks misrepresenting both actual demand and how spectrum is used in practice

Where pressure is starting to show is not so much in the process, but in what the process is having to manage. As spectrum availability becomes more constrained, coordination is naturally becoming more complex and, at times, more fragile. For larger events or those with short lead times, the challenge is less about accessing the system and more about whether there is sufficient viable spectrum to coordinate in the first place.

Question	Your response
	In terms of improvements, there is likely some value in continuing to refine tools and data visibility, particularly where it helps users better understand the RF environment they are operating in. We referenced “professional industry” because there’s a genuine knowledge gap in other PMSE users within the industry, which Ofcom could better engage with by offering education and guidance around licensing in general, and how to use the portal if you’re a first-time user. Engaging with users at the point of entry whether through guidance upon purchasing or through modules taught at academic levels at NFTS, LIPA or Ravensbourne, giving presentations at trade shows such as PLASA and ABTT, or to industry facing groups such as IPS, AMPS and BAFTA, would all have the biggest impact and ensure correct licensing behaviour is adhered to across the sector. At present, novice users can obtain a shared PMSE licence without sufficient guidance or validation, creating a risk of inappropriate licence selection in cases where a fixed site licence would be more suitable. Introducing clearer guidance or a basic validation step could help ensure more appropriate use of the spectrum. There is a growing trend of radio mic and IEM users relying on informal online forums for spectrum guidance, where advice is often anecdotal and not grounded in coordination, site specific spectrum availability or licensing requirements. For example, a recent query made on an online forum asked: “What can I tune to at Wembley Stadium?” and received the response: “last time I worked there I used frequencies around 630 MHz and had no issues.” There is no way of knowing whether the individual then went on to obtain a licence from Ofcom or simply proceeded to operate illegally, or believed their PMSE Shared license, if they have one, covers them due to the lack of education. The concern is that, in too many cases, equipment is operated illegally, with this type of anecdotal guidance being repeated and normalised within online user forums and communities. If we happen to see it, and misguided information is communicated we step in with proper guidance, but it’s not always possible. Ofcom has a clear statutory responsibility under the Wireless Telegraphy Act 2006 and to ensure the efficient and effective use of spectrum. This necessarily includes a responsibility to ensure that licensing frameworks are sufficiently clear, robust, and guided to minimise misuse, particularly where less experienced users may otherwise rely on informal or incorrect sources of information. At the same time, there’s very little to no visible Ofcom enforcement in practice, either from the PMSE team or the Spectrum Compliance team. There’s little evidence of Ofcom actively policing events or taking action against those operating without appropriate licences, and if

Question	Your response
	Ofcom are taking action, they should be publicising it to raise awareness within the industry. This lack of on-site visibility risks undermining the entire licensing framework and contributes to a perception that the requirement to hold a license is not consistently enforced. For those who do comply with the regulations, in our case, approximately £34,000 in licensing fees over the past year, this lack of visibility risks undermining confidence in the system and creates an uneven playing field. Education is key to this successfully being enforced. The use of drones in the UK is subject to licensing requirements that are actively enforced, supported by structured education and, where necessary, certification. Users are made aware of their responsibilities at the point of entry, and there is a clear framework that underpins compliance. There are multiple ways in which drone regulations are enforced in the UK, one of which could be readily adapted to the PMSE sector: the drone registration system (DMARES). As newer radio mic and IEM technologies increasingly rely on cloud-based connectivity, there is a clear opportunity to integrate a licence registration or verification process into that connection, effectively, no registration, no RF output. **Ofcom Comms:** Since COVID, there has been a noticeable shift towards more remote working within Ofcom's PMSE team, which at times has had a detrimental impact on end users who need to deploy equipment in spectrum congested areas, or within tighter timeframes than the standard 3–5 day turnaround indicated by automated email responses, or whom require guidance when coordinating in ever more RF-dense environments. Sadly, for us professional users, the ability to pick up the phone and have a conversation with a team member promptly seems to have been lost because of remote working and should be reassessed internally. This was particularly evident when the booking portal went offline just before Christmas 2024 and did not return until early January 2025, during which there was zero communication from Ofcom to the industry on how to proceed with licensing or even acknowledgement that an issue existed. We and others in the sector were repeatedly chasing for information from the PMSE team. This change in team dynamics and lack of communication has raised ongoing concerns across the industry that the PMSE team are under resourced to cope with their responsibilities and obligations to the sector.

Question	Your response
	Similarly, there remains concern across the sector regarding the confidentiality of reporting misuse to Ofcom. Past experiences, where the identity of those raising issues has become apparent, has led to friction within the industry and created hesitation around reporting.
## 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 The analysis broadly reflects the direction of travel in terms of increasing demand, but it does not fully capture how that demand presents itself in real-world deployments. In practice, wireless microphone and IEM requirements are not defined purely by steady-state or centrally coordinated scenarios, and there is a risk that this approach overstates how efficiently spectrum can be used. A significant proportion of use takes place in more fragmented environments, where multiple users operate independently, often without visibility of each other or the ability to coordinate. In these situations, spectrum must be managed more conservatively, with greater channel spacing, contingency planning, and allowance for the unknown. This is a fundamental part of how systems are deployed reliably, rather than an inefficiency that can be engineered out. There is also a gap between what is captured in assignment data and what is actually required on-site. Real-world demand includes spare channels, backup systems, and flexibility to respond to last-minute changes or interference, none of which are fully reflected in licensing datasets. As a result, peak demand is likely understated, while apparent efficiency is overstated. A more representative way of characterising demand would be to place greater weight on these operational realities. This could include better accounting for unmanaged and partially coordinated environments, as well as recognising that demand is often defined by peak, risk-managed requirements rather than average use. Without this, there is a risk that conclusions are drawn from a model that does not fully align with how the spectrum is used in practice.
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?	N/A

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

a)

The increase in coordinated wireless microphones and IEMs, particularly at the largest events, is being driven by a combination of creative expectation and operational necessity. Productions are simply bigger and more complex than they were even a few years ago, with larger casts, more contributors, and a growing expectation that everything is individually mic'd and monitored via IEMs.

IEM use in particular has expanded significantly, not just for performers but across wider production roles where cueing, timing, and communication are critical.

IEMs were first introduced in the late 1980s for a number of reasons: primarily to control high stage sound pressure levels (SPL), improve audio quality for both performers and audiences, enable greater freedom of movement on stage, and reduce physical clutter such as loudspeakers and cabling.

Their adoption accelerated significantly throughout the 1990s, particularly within the PMSE sector, driven in part by increased awareness of hearing protection and the need for improved SPL management. Today, IEMs are considered a fundamental component of both semi-professional and professional live production workflows.

Alongside this, there is far less tolerance for failure. Live, broadcast, and hybrid events are now expected to deliver consistently high production standards, often with no margin for error. That naturally drives higher channel counts, as systems are designed with appropriate resilience, coverage, and flexibility built in. Peak demand at major events is therefore not an outlier, but a reflection of how these productions are now routinely delivered.

Technical faults, particularly audio-related, are often the first to be called out and are not always correctly attributed. In an environment where audiences can immediately critique via social media, production teams face an increasingly low tolerance for failure. Issues can rapidly trend, attract negative attention, and cause lasting reputational damage.

From our perspective, a hire company supporting many high-profile "shiny floor" productions, the phrase "we are only as good as our last show" has never been more relevant.

b)

The decline in the number of national wireless microphone licences does not necessarily indicate a reduction in use, but more likely reflects a shift in how spectrum is being accessed, managed and policed by the Ofcom's PMSE and Spectrum Compliance teams.

In practice, many users have moved towards more localised or event-specific licensing, which better aligns with how equipment is actually deployed.

Question	Your response
	There has also been a broader shift in operational models, with more reliance on short-term hires, touring productions, and coordinated event-based use, rather than holding national licences as a standing requirement. As a result, the overall extent of use may not have reduced in any meaningful way but is instead being captured differently within the licensing framework or may not be licensing at all. There's also a strong likelihood that a new or novice user doesn't know that the requirement to hold a Shared PMSE or Fixed Site license is necessary. Circling back on knowledge gaps and educating RF operators to the importance of licensing. We strongly believe that any piece of RF equipment sold in the UK should be supplied with clear guidance, carrying Ofcom branding, setting out how to obtain the appropriate licence, whether shared or fixed site, and why licensing is important, beneficial and a legal requirement. This should be made mandatory and supported through legislation, with clear backing from Ofcom and DCMS. There is already a clear precedent for this approach. The use of drones in the UK is subject to licensing requirements that are actively enforced, supported by structured education and, where necessary, certification. Users are made aware of their responsibilities at the point of entry, and there is a clear framework that underpins compliance. There are multiple ways in which drone regulations are enforced in the UK, one of which could be readily adapted to the PMSE sector: the drone registration system (DMARES). As newer radio mic and IEM technologies increasingly rely on cloud-based connectivity, there is a clear opportunity to integrate a licence registration or verification process into that connection, effectively, no registration, no RF output. Ofcom Notices of Variation (NoVs) could support this by incorporating a verification code or QR code, allowing systems to link directly to a valid licence at the point of use. Small change, huge impact. This approach would improve awareness, encourage and enforce correct licensing behaviour, and help ensure spectrum is used more responsibly and effectively. There is also a clear issue around scale and how licensing is currently being applied in practice. Across the UK there are tens of thousands of schools and educational establishments, a substantial number of universities and colleges, thousands of gyms and fitness venues, and many thousands of places of worship. In many cases, these users are operating under Shared PMSE licences, despite their use being entirely site-based. This represents a misalignment between how spectrum is licensed and how it is actually used. It reduces Ofcom's visibility of demand at specific locations, undermines

Question	Your response
	effective local coordination, and allows spectrum use to sit outside of a more appropriate licensing framework. It also points to a material loss of licensing revenue at scale. When considered across the volume of these establishments nationally, the cumulative impact is likely to be significant. This is not simply a question of revenue, but of ensuring that spectrum is properly accounted for, planned, and managed in a way that reflects real-world use. There is a clear opportunity here for Ofcom to address this through stronger guidance and more active intervention at the point of application, ensuring that fixed-site use is licensed as such. Doing so would improve both spectrum management outcomes and the integrity of the licensing regime. c) The decline in talkback, fixed audio links, and Audio Distribution Systems (ADS) licences is likely linked to changes in technology and how systems are deployed, rather than a reduction in underlying need. In many cases, functions that were previously delivered via dedicated links are now being absorbed into wider system architectures, including integrated digital workflows and alternative communications platforms. There has also been a degree of consolidation, where fewer, more flexible systems are able to deliver multiple functions that previously required separate licences. That said, these changes should not be interpreted as a simple reduction in demand. The requirement for reliable communication and audio transport remains but is increasingly being met through different technical approaches. i.e. DECT and 2.4GHz bands For those reasons alone, the DECT and 2.4GHz bands are not suitable alternatives for the loss of more UHF spectrum to PMSE audio users. The DECT band is congested with comms kit, i.e. Reidel / ClearCom etc at large events, and those products were developed to mitigate the loss of the 800MHz and 700MHz bands over the last 15 years. DECT usage examples from productions we've supplied: Eastenders 40th Anniversary LIVE show 2025: 180 Bolero Beltpacks in DECT Brit Awards 2026: 180 Bolero Beltpacks in DECT TV Centre: 144 Bolero Beltpacks (across 3 studios) in DECT Elstree Film Studios: 72 Bolero Beltpacks (across 5 studios) in DECT We also are led to believe the British Grand Prix uses in excess of 200 Bolero in DECT. Following on from DECT, the same underlying issues apply to 2.4 GHz, but in many cases, they are even more pronounced.

Question	Your response
	The 2.4 GHz band is heavily congested and fundamentally unpredictable. It is a licence-exempt band used by a wide range of consumer and industrial devices, Wi-Fi, Bluetooth, IoT equipment, all competing in the same space with no coordination or protection. There are also clear technical limitations. Compared to UHF, 2.4 GHz has poorer propagation characteristics, reduced range, and significantly worse performance in terms of body absorption and building penetration. This becomes a real constraint in live environments where performers are moving, stages are complex, and line-of-sight cannot be guaranteed. Maintaining stable, consistent coverage requires more infrastructure, increases costs to productions, and introduces additional points of failure. Capacity is another issue. While 2.4 GHz can support a number of devices, it does not scale well for the high channel counts required at larger events, particularly in congested environments. As more devices are introduced, both within the production and from external sources, performance can degrade quickly. Latency and audio quality can also be impacted, depending on how systems are designed to operate within such a contested band In practice, 2.4 GHz can be useful for lower-risk applications or supplementary systems, but it does not provide the reliability, scalability, or predictability required to replace UHF spectrum. As with DECT, it may play a supporting role, but it is not a viable alternative for large-scale, mission-critical wireless audio.
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? b) national wireless microphone licences (UHF channel 38 and VHF)? c) talkback, fixed audio links and ADS licences?	Confidential? – N a) The underlying drivers behind increased use of coordinated wireless microphones and IEMs are not slowing down, and if anything, are becoming more embedded in how productions are designed. Expectations around production value continue to rise across live events, broadcast, and hybrid formats, with audiences and clients now treating high channel counts and seamless delivery as the standard rather than the exception. There is also a continued shift towards more complex and immersive productions, where audio plays a central role in the overall experience. This naturally drives higher channel counts, particularly at the top end of the market. At the same time, the need for resilience remains critical. Systems are not designed to theoretical minimums, but to operate reliably in challenging and often unpredictable RF environments. As a result, peak demand at the largest events is likely to continue increasing, both in absolute terms and in terms of the level of coordination required to deliver it. b) Demand for national wireless microphone licences is likely to continue

Question	Your response
	evolving in line with how the industry operates, rather than following a simple upward or downward trend. There has already been a shift away from holding national shared PMSE licences as a default, towards more flexible, event-led access to spectrum. That trend is likely to continue, particularly as productions become more mobile and project based. However, this should not be interpreted as a reduction in overall demand. The underlying requirement for spectrum remains but is increasingly being expressed through different licensing behaviours. If anything, the importance of having access to reliable, predictable spectrum across multiple locations will become more critical, even if it is not always reflected in the number of national shared PMSE licences held.
Question 6: Do you agree that, given the trends, we are right to focus on wireless microphones/IEMs?	Confidential? – N 100% Ofcom are right to focus on the use of wireless microphones and IEMs in the UHF band, they're mission-critical to modern productions. They are the tools used to deliver the high level, large scale and culturally important events that the UK has become a world leader in. They are essential not only for performance but also for cueing, safety, and communications. Any further UHF spectrum loss to the PMSE sector would have a severe impact on not only the entertainment industry but to the UK's growth. According to official UK economic estimates, the creative and cultural industries (CCI) contributed approximately £124 billion in gross value added to the UK economy in 2023 (about 5.2 % of total Gross Value Added (GVA)). These industries have grown significantly faster than the UK economy overall in recent years, with GVA rising around 4.6 % in 2023–24 compared with about 1 % for the UK economy, a rate roughly four times faster[i] However, it is important that this focus does not become too narrow. As noted, wireless microphones and IEMs do not operate in isolation but within a wider ecosystem of communications, control, and audio distribution. While these supporting elements are less visible in the data, they are critical to reliable and safe operation and excluding them risks overlooking dependencies of equal operational importance. Although wireless microphones and IEMs represent the most visible area of pressure, a balanced view that also accounts for these supporting systems will give a more accurate picture of overall spectrum demand.

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?	Confidential? – N The sole factor that has driven the take-up of different bands for wireless audio is the loss of access to UHF spectrum PMSE users once had but lost due to two major Digital Dividend spectrum releases. The DME band was brought in specifically to offset the loss of 700 MHz, and it's done that job satisfactorily. Its rollout also lined up with a noticeable step forward in spectral efficiency across a lot of the major manufacturers' kit, somewhat masking the full detrimental impact of the 700MHz loss. When first proposed, the DME band appeared to represent a 204 MHz increase in available spectrum to the PMSE sector, mitigating against the loss of 102 MHz of the UHF band being sold off, based on the full range of the DME (960–1164 MHz) being repeatedly referenced during the build up to the sell-off. At first, it looked like a doubling of spectrum. In practice, it took some time for it to become clear that only three discrete blocks within the DME range were being made available, totalling 137 MHz However, even this figure can be misleading, as usable DME spectrum is highly dependent on location. For example, at Kelvin Hall in Glasgow it is possible to utilise up to twelve full 4 MHz DME blocks (48 MHz) (approx. 48% of the 700 MHz loss), whereas at Television Centre in West London only four full 4 MHz blocks (16 MHz) (approx. 16% of the 700 MHz loss) are typically accessible. This variation in availability has a direct impact on how useful the band is in different parts of the UK, how appealing it is to purchase equipment in the band, and creates an uneven picture of how the DME band mitigated the loss of 700 MHz For some, the clarity around the three available blocks happened after orders were placed and taken delivery of and plays in to our view of Ofcom developing, improving and implementing better comms and education. Whilst the DME band has proven to be a useful supplementary band and has helped to mitigate the loss of the 700 MHz spectrum for professional users, there remain clear barriers to its wider adoption. For many PMSE users, access is limited by the equipment ecosystem, only a small number of manufacturers currently support DME, and typically only within their flagship, top-tier, and most expensive product ranges. Until this is addressed at a manufacturer level, uptake of the DME band in the UK will remain a challenge, particularly for smaller users, those without access to high-end equipment and a bank balance that reflects their price point. We strongly believe there's enough evidence to support the opinion that Queen Elizabeth's funeral or the coronation of King Charles would have struggled to be delivered if only 470–698 MHz was available to the PMSE community. Similarly, studios complexes, such as Television Centre, Elstree Film Studios, Kelvin Hall, and others across the UK have opted to have their

Question	Your response
	"house kit" in the DME band, leaving the UHF band available for incoming artists, productions, hire companies and individuals that couldn't afford to factor in DME equipment into their inventory or require Europe harmonised kit because they're touring with their own equipment. To give a practical example of channel demand, at Television Centre, at the time of writing, there are 192 individual frequencies in use across three studios and two additional filming areas, all 5 filming areas are within a 100m radius of one another, operating in all available UHF TV Channels and DME bands. This averages out at 8 IEMs in an 8 MHz block and 12 Radio Mics in an 8 MHz block. This is already approaching operational capacity from a spectrum perspective. Of those, 95 frequencies are concentrated within a single studio for one reoccurring show. In two weeks' time a well-known American rock band is due perform on the show and has requested five UHF TV channels for their incoming equipment. Accommodating this within an already constrained environment will be challenging and is likely to require further compromise, careful re-planning and highlights how demand can grow very quickly within a single studio space. This approach reflects a broader, well-established mindset within the UK PMSE community, that spectrum is actively managed at these locations by on-site RF co-ordinators, shared, and prioritised to ensure it delivers maximum value across the widest possible user base. In practice, this means users are continually seeking ways to optimise their own footprint while safeguarding access for others operating within the same environment. Studio complexes wouldn't be able to deliver the content they produce at the high standards and expectations we as audiences have become accustomed to, if only 470–698 MHz was available to the PMSE sector. I'd like to draw attention to Ofcom's use of the Glastonbury Festival in its analysis. The data is useful in showing what peak PMSE demand can look like, but there's a risk it's being used to support wider conclusions about spectrum sufficiency that don't reflect the reality for most users. This demonstrates that demand is not evenly distributed, but highly concentrated within a very small number of large-scale events. Using Glastonbury as a benchmark therefore risks treating an extreme case as representative of typical usage. Ofcom's own licensing data indicates that Glastonbury Festival is a unique PMSE example, with peak demand reaching 772 assignments in a single day, rather than a truer reflection of day-to-day PMSE operations. Analysis of Ofcom's wider dataset shows that approximately 95% of similar production types operate at less than 10% of this level, so using fewer than 77 assignments.

Question	Your response
	This analysis is flawed, due to coordination approaches that can be utilised at Glastonbury Festival, namely zoning, tightly spaced inter-leaved frequencies and stage time slots. It's also worth noting that Glastonbury benefits from conditions most users simply don't have, long distances between stages in excess of 1000m of one another, which is not the case with Television Centre. Glastonbury is in a rural location with relatively low RF congestion, and it's supported by highly managed, bespoke coordination, including direct Ofcom involvement. That level of control just isn't available in most real-world scenarios, especially in busy urban environments where spectrum is tighter and less predictable. There's also a question around how peak demand is interpreted. Events like Glastonbury rely on careful, time-based spectrum reuse across multiple stages and areas. That allows very high peak numbers, but it doesn't necessarily mean the same level of simultaneous, sustained demand could be supported elsewhere under the same constraints. At the same time, demand at these already extreme events is still growing. Glastonbury's peak has increased by over 30% in recent years, which suggests the headroom in UHF is getting tighter, even in ideal conditions. In practice, this points to a growing reliance on coordination complexity rather than any real increase in available capacity. Finally, while alternative bands like DME are mentioned, Ofcom's own data shows they make up only a tiny fraction of overall use. That suggests there's not yet a meaningful or scalable way to ease pressure on UHF. Taken together, this points to Glastonbury being a best-case, tightly managed scenario that's already pushing the limits, rather than something that reflects what's achievable across the wider sector. Using it to support broader conclusions risks underestimating the challenges most users face and overestimating how robust the current spectrum model really is. Whilst the DME band has been a useful supplementally band and mitigated the loss of the 700 MHz band, for many PMSE users there are barriers for greater use of the it. 1. It's not harmonised spectrum across Europe. Making it unattractive to touring artists and productions. 2. Only a few manufacturers have developed equipment for the DME band, they are the high-end brands and command a price point that is often unachievable or unjustifiable to many users. 3. Since access to the DME band was opened to the UK PMSE sector, there has already been a reduction in its availability within DME Band 1, with the loss of access to 977 MHz–979

Question	Your response
	MHz externally for CAA drones and "electronic conspicuity". Until that point, DME Band 1 was the cleanest, consecutively available and most widely geographically available portion of DME spectrum within the UK. 4. Shure's DME Axient product only has a limited tuning range, 960–1000 MHz, so the loss in DME Band 1 has been detrimental and problematic for RF coordinators, as they're potentially required to coordinate their entire show around one manufacturer. 5. The potential for further changes within the DME band, with little consultation or consideration for PMSE users, makes the DME band less favourable and therefore affects its take-up and use. 6. Body absorption plays into the lack of appeal for the DME band. Body interference increases at higher frequencies. This causes unwanted directional effects to occur. The artist may end up in dead spots while moving around on stage. Physically, the wavelength must be longer than the diameter of the body. At higher frequencies, like DME band, this is less optimised and is further exacerbated in the 1350-1400 MHz, 1435-1525 MHz and 1240–1260 MHZ bands. 7. Radio waves in the UHF spectrum can penetrate stage structures better than they can in higher bands. Ccomplicated steel or aluminium set constructions strongly impair the transmission of radio waves. Radio waves are transmitted and spread so well in the UHF range that they reach the receivers undisturbed by such setups. At higher frequencies, like DME band, this is less optimised and is further exacerbated in the 1350-1400 MHz, 1435-1525 MHz and 1240–1260 MHZ bands. 8. When operating in the DME band, antenna infrastructure is more susceptible to increased losses within cabling. As a result, additional gain is often required at the antenna stage to compensate for these losses and achieve a balance in performance relative to UHF systems.
Question 8: What actions could enable greater take-up of the DME, DECT and licence exempt bands in the future?	Confidential? – N Greater take-up of the DME band, is likely to depend less on awareness, and more on whether they can meet the same practical and operational requirements that currently keep users anchored to UHF i.e. European harmonisation, manufacturer's offering equipment in the

Question	Your response
	full DME tuning range, body absorption and set building considerations. Therefore, wider adoption will largely be driven by improvements in the equipment ecosystem and a reduction in the manufacturers pricing structures. Currently only a small number of manufacturers support and distribute DME products, and typically only within their flagship, top-tier, and most expensive product ranges. Until this is addressed at a manufacturer level, uptake of the DME band will remain a challenge, particularly for smaller users and those without access to high-end equipment. As mentioned, the DECT band (1.9 GHz) is heavily used by wireless comms solutions like Riedel Bolero, ClearCom and others. Those brands developed their systems in the DECT band because of spectrum availability in the UHF band becoming increasingly compressed due to spectrum sell-offs. The DECT band is no longer a viable supplementary band for wireless mics and IEMs, as its heavily congested with productions using an industry standard go-to solution like Riedel Bolero. DECT has a number of benefits over the 2.4 GHz band, it's a regulated, protected and dedicated spectrum for "cordless voice" It also benefits from reduced interference than the 2.4 GHz band, which is saturated with devices mentioned in our response to Question 4 within this Call for Input, i.e. Wi-Fi, Bluetooth, IoT equipment Therefore, we do not view DECT and license exempt bands as substitutions for the 470–698 MHz UHF band. License exempt bands are unappealing to users, like us, who regularly deploy large channel counts, due to them being so small in bandwidth and more importantly the fact they're uncoordinated. A contributing factor here is that many users surrendered the kit capable of tuning to these bands in the last two sell-offs; to either bolster the impact of the funding scheme around the 800 MHz sell-off or to fund DME equipment during the 700 MHz sell-off, as the benefits of the DME band outweigh the tiny portions of any licensed-exempt band many times over. An important operational aspect plays at part here too. New antennae, RF combiners and RF distribution units needed to be developed, particularly around the last sell-off to filter out 700 to 800 MHz but allow the DME band to pass through. In the build-up to the last sell-off, we ourselves assisted Wisycom in the development of a new filtering model which effectively tunes 470–698 MHz, blocks out 700–959 MHz and opens again at 960–1164 MHz

Question	Your response
	With spectrum being sold to the International Mobile Telecommunications (IMT's) we and the industry had to limit, and factor in the impact a 1000-person audience plus production crew, all with mobile phones in their pockets, would have on a shows RF landscape and noise floor. Mobile phones have a fluctuating RF output power, ranging from 0.12 Watts up to 2 Watts, which is dictated by their connection quality and proximity to the nearest base station. It's this very fluctuation that makes their resulting interference less predictable and incompatible with PMSE users in the UHF band. Deep in the bowels of a venue like the O2 in Greenwich, mobiles phone will have a limited or cloaked connection between a base station repeater, and the likelihood for them to increase their power in search of one is greatly increased. Ironically, there's very little traffic in the 700 MHz band at the venues and studio complexes we work at, which begs a question in itself. Therefore, it's worth questioning whether IMT users are utilising UHF spectrum as intensively and efficiently as the PMSE sector is required to. The PMSE community has consistently demonstrated an ability to maximise use within constrained spectrum, often under highly demanding conditions. There is some concern in the PMSE sector that some IMT spectrum holdings are not being utilised sufficiently and that whether strategic positioning is playing a role between competitors. With ongoing IMT deployment of more satellite connectivity and their exploration of using the upper 6GHz band for expansion, their thirst to acquire more of the UHF band will hopefully now subside. It would benefit, Ofcom, DCMS and the IMTs to remember that much of the content carried over mobile networks is created using PMSE spectrum, without it, there is nothing to distribute.

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?	Confidential? – N In practice, there are very few bands that can be considered suitable in a like-for-like sense for large-scale wireless audio use, particularly for wireless microphones and IEMs at major events, based on the studies and research carried out upon the announcement of the 700 MHz sell-off. The requirements are quite specific; predictable propagation, the ability to support high channel counts, low latency, body absorption, and consistent performance in complex and often congested environments. At present, UHF remains the only band that reliably meets all those criteria in combination. It would be appropriate, as part of this information gathering process, to consider whether the PMSE sector's designation as a secondary user remains justified, or whether a more primary, protected status should now be explored in recognition of its enduring and growing spectrum requirements. Ensuring access to reliable, interference-free UHF spectrum should be an integral part of Ofcom and DCMS supporting the sector going forward. This should be considered at Government level in the context of long-term value, rather than short-term financial return of selling spectrum to IMT's once. The PMSE sector underpins a significant and ongoing contribution to the wider economy and creative industries, providing sustained annual value through employment, production, and associated activity. A longer-term view of spectrum policy would better reflect this, rather than focusing on one-off revenue generation. Higher frequency bands are often put forward as potential alternatives, but they tend to come with clear trade-offs. Reduced range, poorer building penetration, and a greater reliance on line-of-sight all introduce additional complexity into system design. In controlled environments these challenges can be managed to some extent, but at the scale and variability of large events, they quickly become limiting factors. There are also practical considerations around ecosystem and interoperability. Any new bands would need broad manufacturer support, sufficient equipment availability across the rental market, and the ability to integrate seamlessly with existing workflows. Without that, even technically viable options become difficult to deploy in real-world scenarios, particularly where systems need to scale quickly and reliably. As a result, while there may be opportunities for certain bands to play a supplementary role in specific use cases, there is currently no clear candidate that offers a direct replacement for UHF in high-demand environments. The more realistic expectation is that additional bands, where viable, would help to relieve pressure at the margins rather than fundamentally change how large-scale wireless audio is delivered. From an operational perspective, the 470–694 MHz band is irreplaceable.

Question	Your response
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 The characteristics of different audio applications are fundamental in determining how spectrum is used, and in practice they drive requirements far more strongly than any theoretical model of efficiency. Latency, defined as the "round trip" time for an artist's voice to be captured via a wireless microphone, processed through a monitor console, and returned to their IEMs, is a fundamental and critical factor. This is particularly acute in applications where audio is effectively making a complete round trip through multiple stages of digital processing, including wireless transmission, DSP, and monitoring systems. In practice, acceptable latency budgets are extremely tight. For many professional performers, end-to-end latency approaching or exceeding 10 ms begins to introduce perceptible timing disruption, loss of musical tightness, and a reduced sense of connection with the ensemble or monitor mix. In higher-precision or highly exposed monitoring scenarios, such as vocalists, orchestral performers, or theatrical lead roles, performance can become compromised at even lower thresholds, with sub-5 ms latency increasingly regarded as the aspirational benchmark for transparent monitoring. Even small increases in latency can therefore render systems effectively unusable in real-world deployments, particularly in live, high-stakes environments. This creates a hard operational ceiling that is not easily mitigated against, and it places clear constraints on the architecture of wireless systems, digital processing chains, and, critically, the suitability of different spectrum bands when deployed at scale. It is well established, and widely evidenced, that human perception is significantly more sensitive to latency in audio than in video; even very small delays in audio are immediately perceptible and disruptive, whereas delays in video are generally tolerated. Resilience is equally important. In many cases, especially in live or broadcast environments, failure is immediately visible and cannot be recovered from. As a result, systems are designed with redundancy, spare capacity, and conservative coordination built in. This is not an optional layer, but a direct response to the operational risk. It also means that spectrum requirements are often defined by worst-case conditions rather than average use. Capacity is driven not just by the number of devices, but by how they need to operate together. High channel counts in dense environments require careful frequency planning, separation, and stability over time. In fragmented or partially coordinated environments, this becomes even more challenging, and additional spectrum is often required to maintain reliable operation. What this highlights is that different applications cannot be treated as interchangeable in terms of spectrum demand. The combination of low latency, high reliability, and scalable capacity, particularly for wireless microphones and IEMs, creates a set of requirements that

Question	Your response
	are both stringent and non-negotiable. In turn, this limits how far demand can be compressed or shifted without impacting real-world performance.

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 The industry has already adapted significantly to accommodate growth within a reduced UHF footprint, and much of that progress has come from a combination of technology improvements and more disciplined spectrum management. All born out of necessity due to previous sell-offs. The fortunate have adapted, invested and continued to contribute to the sector, whilst others have been forced to step back and take a new direction. On the technology side, the move to more spectrally efficient digital systems has been a key factor. Wider tuning ranges, improved front-end filtering, and better coexistence between devices have all helped increase the number of usable channels within a given block of spectrum. Coordination tools have also improved, allowing more informed planning and more stable deployments, particularly in high-density environments. Working practices have evolved alongside this. There is now a much greater emphasis on detailed pre-planning, early engagement with coordination processes, and the use of experienced RF specialists on larger productions. Channel plans are built more carefully, and there is a clearer understanding across the industry of how to operate within tighter constraints. At the top end, this has enabled very high channel counts to be delivered within a smaller spectrum footprint than would previously have been possible. Many of these new technologies require specialist engineers to set up and operate because of their complexity. In moving towards greater improvement and capacity, the industry has lost some of the simplicity and plug-and-play practicality that used to exist, and the scales tip backwards. At some point, the laws of physics cannot be manipulated further. This additional specialist requirement adds a crew cost to a production, which is often hard to justify, until it goes wrong of course and they're required to solve the underlying issue. The DME band has provided additional capacity and, in doing so, has helped to alleviate spectrum pressures for a limited group of PMSE users. However, for the wider demographic affected by the loss of 102 MHz of UHF spectrum in the last sell-off, the benefits have been uneven. Adoption of DME-based solutions is typically limited to higher-end or specialist applications, reflecting factors such as cost and increased system complexity. Consequently, the majority of users continue to rely on UHF spectrum. Taken together, these changes have delivered real gains, and much of the available efficiency has already been realised. What is important to recognise is that this has not come from a single step change, but from incremental improvements layered over time, combined with increasingly careful system design. As a result, there is now less scope for further gains of the same magnitude, particularly without introducing additional risk into live environments.

Question	Your response
	The PMSE sector is working efficiently and sweating the UHF bands to capacity. Trends and "giving the audience what they want" is positively growing and not going to change, which in turn means wireless audio is going to increase significantly, not decline over the foreseeable future.
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 New technologies are promising and we support their development. The main technologies that could improve spectrum efficiency going forward are already visible. The most significant development is Wireless Multichannel Audio Systems (WMAS). Unlike traditional narrowband systems, WMAS uses a wideband approach to combine multiple microphones and IEMs into a single RF channel, allowing a higher number of audio links to operate within the same spectrum footprint. In principle, and if taking the marketing headlines at face value, it offers a meaningful increase in spectral efficiency, particularly for large-scale productions where channel counts are highest. However, it is important to recognise the limitations and consider the factors that aren't in those headlines. Sennheiser's WMAS Spectera solution has some fundamental shortcomings, and one could argue was launched prematurely, which has subsequently translated across the sector to the winners of the "we got there first" race. It's currently an incomplete solution; it launched without a handheld transmitter, a plug-on transmitter, PSC battery receiver or a bodypack that's only one direction, which has been asked for by some users due to the systems high price point, or the ability to support substantial multizone antenna coverage. All of these are necessities in the broadcast and live industries. There is little mention in the manufacturer headlines of the practical trade-offs involved in achieving high channel counts within an 8 MHz block. For example, factors such as system latency, battery life, audio compression, and transmitter output power are often not clearly addressed. These are not minor details; they are fundamental to real-world deployment. Output power, in particular, becomes critical when covering large or complex environments such as dance floors on shows like Strictly Come Dancing, football pitches, or stadiums. In these scenarios, antenna systems often need to be positioned further away than would normally be ideal, which introduces additional challenges. This is further compounded by increasingly hostile RF environments. LED video walls, moving lighting fixtures, and the mass of mobile phones all contribute to an elevated noise floor, reducing available

Question	Your response
	headroom and making stable operation more difficult. These factors are rarely reflected in the headline performance figures, but they have a direct impact on how systems perform in practice. The reality is that to achieve the coverage, latency and the battery life required to achieve a like-for-like comparison arguably brings the Sennheiser WMAS solution in line with current non-WMAS solutions. The Sennheiser system can't be connected into a "typical" wireless RF system where a distributed antenna system is essential to the production, i.e. a large studio complex, like Television Centre or on a flagship charity TV show where they cut away to an outside element or a stunt on the roof, all requiring RF coverage, seamless comms and clean visual segways. A recent deployment of a Sennheiser Spectera system during a rehearsal for the Eurovision Song Contest further illustrates limitations. The setup consisted of a single performer using a prototype handheld transmitter and one IEM bodypack, equating to just two channels of RF. However, operation of the system required us to license an entire 8 MHz UHF TV channel, and in effect hogging 8 MHz for 2 devices. This cannot reasonably be considered spectrally efficient. Furthermore, from a licensing perspective, the requirement to secure a full TV channel for such a limited channel count is difficult to justify to productions companies footing the bill. Sennheiser only developed the system in the UHF range and won't comment on a roadmap to developing a DME variant. Sennheiser have never developed a product in the DME band as they viewed the UK as too small a market. Perhaps now the DME band is being adopted by other administrations that will be readdressed. Sennheiser's WMAS Spectera is an island solution currently. Shure's WMAS solution, AD-PSM, is currently an IEM solution only as they haven't opted to develop a bidirectional system. Instead, they have adopted a different approach, building on the fundamentals of what users currently have in the inventory and deploying every day, rather than offering a complete overhaul in stock and working practices. Shure are yet to share their road map with the sector for further progression within WMAS technology. Even with WMAS, other emerging technologies, and varying user perspectives, the fundamental requirement remains unchanged: access to suitable, interference-free spectrum for the PMSE sector. For PMSE applications, the 470–694 MHz UHF band continues to provide the most robust, reliable, and operationally suitable solution. These technologies are not yet sufficiently mature or widely deployed to replace existing systems for large-scale, high-risk productions.

Question	Your response
	Proven resilience and operational familiarity take time to establish.
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 There are clear benefits to more efficient technologies, but the barriers to adoption are largely practical and reflect the realities of how these systems are used in live environments. At the top end of the industry, reliability is the overriding factor. Wireless microphones and IEMs sit in the critical path of a production, and failure is immediate and highly visible. As a result, new technologies need to be proven in real-world conditions over time before they are trusted at scale. This naturally slows adoption, particularly where there are trade-offs around latency, audio quality, or system behaviour under pressure. Technical faults, particularly audio-related, are often the first to be called out and are not always correctly attributed. In an environment where audiences can immediately critique via social media, production teams face an increasingly low tolerance for failure. Issues can rapidly trend, attract negative attention, and cause lasting reputational damage. I call upon the phrase; “we are only as good as our last show” once more. Viewer figures based around live Television broadcasts, the sector we heavily support, outweigh those of untelevised performances, whether that be a recorded TV show or arena concerts. For example, Comic Relief 2026, peaked at 2 million viewers and the King’s Coronation Concert peaked at 12.3 million viewers. In the latter case, tolerance for failure at absolute zero and that standard is the expected performance level across all PMSE audio deployments. Whilst technical faults are unfavourable to all aspects of PMSE audio, ones that are televised live carry the most scrutiny given their scale, visibility, and public impact. Even for programmes with relatively modest live viewing figures, the wider reach of content is often realised in the days that follow. Social media and on-demand platforms can significantly amplify audiences well beyond the initial broadcast. Saturday Night Live UK demonstrates this clearly; one episode attracted around 120,000 live viewers, the “cold open” segment alone received over a million views on YouTube within just a few days. Whichever way the content is ultimately consumed, it is created using PMSE spectrum. It is also worth considering the flip side. Where content performs well technically, it reaches those audiences seamlessly. However, if there were a technical failure, the resulting attention could be amplified even further, often drawing significantly

Question	Your response
	larger audiences through press coverage and online circulation. This underlines the importance of maintaining reliable, resilient systems at all times. Reiterating once more our perspective, a hire company supporting many high-profile productions, “we are only as good as our last show”. Cost and lifecycle are also significant factors. Equipment is typically held and used over long periods, and large inventories already exist across rental, production companies and individuals. Transitioning to new technologies requires substantial investment, usually in the form of bank finance where the equipment only starts to make a profit for the business once the finance has been paid off. In many cases, systems need to coexist with existing equipment during that transition. Interoperability therefore becomes critical, and where it is limited, adoption is further constrained. There is also an element of operational familiarity. Engineers and crews need to be confident in how systems behave, particularly in complex or high-risk environments. Established workflows around planning, coordination, and deployment are built on years of experience, and any shift away from those introduces additional risk unless it is carefully managed. From an industry perspective, adoption will be driven by continued real-world use, shared experience, and the gradual building of confidence in new approaches. Demonstrating consistent performance in demanding environments is key, as is ensuring that new systems integrate cleanly into existing workflows. From an Ofcom perspective, the most valuable action would be to provide clarity and stability. That means rules that let new technologies grow without unnecessary hurdles, sufficient clean and uninterrupted UHF spectrum for proper testing and deployment. A steady, managed and supported transition, rather than sudden shifts, will let efficiency improvements evolve without risking reliability.
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? – N Working practices and spectrum planning have already evolved significantly, particularly at the top end of the industry, and most large-scale productions are now planned and delivered with a high degree of discipline. Detailed pre-coordination, early engagement, and the use of experienced RF specialists are already standard practice where the demands are highest. As a result, the PMSE sector is already working efficiently and sweating the UHF bands to capacity. There is scope for continued refinement in how systems are designed and deployed. This includes more consistent use of best practice around coordination, antenna design, and system separation, as well

Question	Your response
	as making better use of available tools. However, these are largely extensions of what is already being done, rather than fundamentally new approaches. It is important to recognise that working practices are ultimately shaped by operational risk. Systems are not planned to theoretical minimums, but to deliver reliable performance under real-world conditions. This means that some apparent inefficiencies, such as spare capacity, conservative spacing, or duplicated systems, are in fact necessary safeguards. Any changes to planning practices need to respect that balance, otherwise efficiency gains on paper may translate into reduced reliability in practice. Technical faults, particularly audio-related, are often the first to be called out and are not always correctly attributed. In an environment where audiences can immediately critique via social media, production teams face an increasingly low tolerance for failure. Issues can rapidly trend, attract negative attention, and cause lasting reputational damage. I call upon the phrase; “we are only as good as our last show” once more. In that context, while incremental improvements are possible, there is no clear step change available through working practices alone. The industry is already operating close to practical limits, particularly in high-demand environments, and further gains are likely to be marginal rather than transformative. Efficiency gains end where operational risk begins.
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 There are barriers to adopting more efficient working practices, but they are largely structural and reflect how the industry operates, rather than a lack of awareness or willingness to improve. We stress here that the PMSE sector is already working efficiently and sweating the UHF bands to capacity. At the largest events, efficiency is being maximised by skilled coordinators and well-established processes. Outside of that, many productions do not have access to the same level of expertise, which limits how far best practice can be consistently applied. This is not due to a lack of intent, but often dictated by budgets, and specialist knowledge. There are also practical challenges around coordination. In fully managed environments, efficiency gains are achievable because there is a clear overview of all users and the ability to plan accordingly. In more fragmented or mixed-use environments, that visibility often does not exist. Multiple independent users may be operating without awareness of each other, which makes tightly optimised planning difficult and pushes deployments towards more conservative approaches. Time pressure is another factor. Many productions are working to increasingly tight turnaround times, which reduces the opportunity for detailed planning and coordination. In those situations, systems are

Question	Your response
	designed to be robust and flexible rather than optimised to theoretical limits, which is a rational response to the conditions rather than an inefficiency. From an industry perspective, continued sharing of best practice and investment in skills will help, but this is likely to deliver incremental improvements rather than a step change. The fundamentals of how productions are delivered, often under time pressure and in complex environments, are unlikely to change significantly. From Ofcom's side, facilitating better access to coordination support, improving visibility of spectrum use where possible, and maintaining a stable and predictable framework would all help. However, it is important to recognise that even with these measures, there are limits to how far working practices alone can drive efficiency. In many cases, what may appear as inefficiency is in fact necessary resilience built into systems to ensure reliable delivery. Ofcom could better engage with the sector by offering education and guidance around licensing in general, and how to use the portal if you're a first-time user. Engaging with users at the point of entry whether through guidance upon purchasing or through modules taught at academic levels at NFTS, LIPA or Ravensbourne, giving presentations at trade shows such as PLASA and ABTT, or to industry facing groups such as IPS, AMPS and BAFTA, would all have the biggest impact and ensure correct licensing behaviour is adhered to across the sector. With education comes protection. You can optimise for efficiency, or you can guarantee delivery, not both.

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?	Confidential? – N 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 N/A

Question	Your response
Potential new 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? – N N/A
Question 19: Which potential additional bands might be suitable for video PMSE applications, particularly at the largest events and venues?	Confidential? – N N/A
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? – N N/A
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? – N N/A
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? – N N/A
Question 23: What types of video demand could realistically be supported by private (for example 5G) networks?	Confidential? – N N/A
Question 24: What changes to working practices and spectrum planning could improve video spectrum efficiency in the future?	Confidential? – N N/A
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 N/A

Other comments

Question 26: Do you have any other comments or views on the issues raised in this document?

Confidential? – N

The key point running through this response is that, whilst Ofcom's analysis captures broad trends, there remains a gap between how spectrum use is modelled and how it is actually deployed in practice.

Wireless audio systems, particularly wireless microphones and IEMs, are deployed in environments where reliability, low latency, and resilience are non-negotiable. As a result, systems are designed around real-world conditions, including uncertainty, interference, and time pressure, rather than theoretical minimums. This inevitably leads to more conservative spectrum use than might be suggested by modelling, but it is a necessary and deliberate approach to ensure consistent delivery.

This also plays into our point about education once more and to reiterate; novice users lack the knowledge, experience and have no official outlet to educate themselves on which license is fit for purpose, whether that be a 48-hour license, a fixed-site license or shared PMSE license.

Reiterating here once more the fact there's a clear issue around scale and how licensing is currently being applied in practice. Across the UK there are tens of thousands of schools and educational establishments, a substantial number of universities and colleges, thousands of gyms and fitness venues, and many thousands of places of worship.

In many cases, these users are operating under Shared PMSE licences, despite their use being entirely site-based, that's if they have a license at all. This represents a misalignment between how spectrum is licensed and how it is actually used. It reduces Ofcom's visibility of demand at specific locations, undermines effective local coordination, and allows spectrum use to sit outside of a more appropriate licensing framework. Ofcom should question why a venue such as a place of worship or a Sports Centre hold or are applying for a Shared PMSE licence rather than a fixed site licence, as part of the application process and seek to advise and educate applicants as part of a hand holding exercise.

The CH65 Duplex gap and other license exempt bands are unappealing to users, like us, who regularly deploy large channel counts, due to them being so small in bandwidth and more importantly the fact they're uncoordinated.

This points to a material loss of licensing revenue at scale.

It is also important to recognise that much of the efficiency gain available to the sector has already been realised. Advances in technology, combined with more disciplined planning and coordination, have allowed significant growth to be accommodated within a reduced UHF footprint. The scope for further gains of a similar scale, particularly through working practices alone, is now limited.

Alternative bands and emerging technologies will play an important supporting role, but they are not currently capable of replacing UHF spectrum for large-scale, mission-critical applications. Their adoption will depend on proven performance, ecosystem maturity, and the

Question	Your response
	ability to integrate into existing workflows without increasing operational risk. From an operational perspective, the 470–694 MHz band is irreplaceable. For over 60 years, PMSE users have operated as secondary users within the white spaces of UHF spectrum, consistently demonstrating an ability to adapt, share efficiently and share responsibly. This is equally true of the DME band, where access has been successfully managed without detriment to incumbent services. Each change in spectrum availability carries a very real cost to the industry. The impact of the two digital dividends, and more recently changes such as the reduction of DME Band 1, have required businesses to adapt repeatedly, often at short notice. That comes at a cost in many forms. There is the direct financial impact of replacing or upgrading equipment, but equally significant is the investment in people, time, and effort. Systems need to be redesigned, workflows rethought, and staff retrained to operate within new constraints. Planning becomes more complex, and additional resource is often required to maintain the same level of reliability. These are cumulative pressures. Each change may be manageable in isolation, but over time they place a growing burden on the sector. This is an important context when considering future changes, as the industry is not starting from a neutral position, but one where considerable change has already taken place, more than once. To repeat the importance of a previous point made, according to official UK economic estimates, the creative and cultural industries (CCI) contributed approximately £124 billion in gross value added to the UK economy in 2023 (about 5.2 % of total GVA). These industries have grown significantly faster than the UK economy overall in recent years, with GVA rising around 4.6 % in 2023–24 compared with about 1 % for the UK economy, a rate roughly four times faster[ii] With the future of DTT now under active review, there is a clear opportunity to reassess the long-term position of PMSE within the UHF band. It would be appropriate to consider whether continued designation as a secondary user remains justified, or whether a more primary, protected status should now be explored in recognition of the sector's enduring and growing spectrum requirements as part of this information gathering process. Any new or expanding users seeking access to the 470–694 MHz UHF band should be designated as secondary users, ensuring that existing services are not displaced or compromised. It's prudent to point out here that PMSE sharing the 470–694 MHz UHF band with IMT isn't a viable outlook, they're deeply incompatible.

Question	Your response
	The interference caused by IMT networks is one of the spurious interferences the PMSE sector has had to tackle against for some time, along with interference from LED walls, and is well documented in operational experience. In reference to DTT licence renewals in 2034, and ongoing discussion around the future shape of the DTT landscape, we would like to make the following observations. It is reasonable to assume that a reduced, but secure and resilient, terrestrial broadcasting service will be retained to support national requirements during periods of heightened tension, a DTT "night-light". In that context, there may be merit in considering a modest realignment of DTT within the 470–694 MHz UHF band. Positioning such services towards the lower end of the band, for example within TV channel 21 (470–478 MHz), could provide a natural separation guard band from PMSE operations. This would be particularly beneficial in reducing interaction between talkback systems and UHF radio microphones and IEMs, improving overall coexistence and operational reliability. Overall, future policy decisions should be grounded in operational reality, with an understanding that demand is driven by peak, risk-managed requirements rather than average use. Ensuring continued access to suitable, reliable UHF spectrum, alongside a stable and supportive regulatory framework, will be critical to enabling the sector to meet growing demand without compromising delivery. PMSE spectrum demand is defined by peak and risk-managed delivery not averages and policy that ignores that risks real-world failure.

Please tell us how you came across about this consultation.

- ☑ Email from Ofcom
- ☐ Saw it on social media
- ☐ Found it on Ofcom's website
- ☐ Found it on another website
- ☐ Heard about it on TV or radio
- ☐ Read about it in a newspaper or magazine
- ☐ Heard about it at an event
- ☐ Somebody told me or shared it with me
- ☐ Other (please specify)

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

[i] https://lordslibrary.parliament.uk/creative-industries-growth-jobs-and-productivity/

[ii] https://lordslibrary.parliament.uk/creative-industries-growth-jobs-and-productivity/