Your response

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? – Y / N I've found the team on the end of the phone incredibly helpful, full of knowledge and quick to respond and support. The website I always find clunky and slightly difficult to use. A better website interface would be brilliant. Even better than that would be an app that can be used on smart phones; but please don't replace the knowledgeable people on the phones.
### 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? – Y / N Working on set with RF has become harder and harder recently; as more devices (lighting controllers / iris controllers for example) output different frequencies within the UHF spectrum at possibly un regulated powers. The people using this kit often don't appreciate the implications of the RF output on radio microphones and IEMs as the output overloads the front end of the receivers. Also there is still not an acceptance within the film and bigger drama productions that wireless frequencies need to be co-ordinated in the same way that they are live events.
Question 3: Do you have any comments on how we have analysed and characterised wireless video demand, or suggestions for alternative ways of characterising wireless video demand?	Confidential? – Y / N

Question	Your response
## Section 5 – Future trends and opportunities ## Wireless audio ### Drivers of demand **Question 4:** What factors have driven changes in the demand for audio PMSE applications, specifically for: a) the increased use of coordinated wireless microphones and IEMs, particularly the peak number of simultaneous assignments used at the largest events? b) the slight decline in the number of national wireless microphone licences (UHF channel 38 and VHF)? Has the extent of use of these licences changed, and if so why? c) the declines in talkback, fixed audio links and ADS licences?	Confidential? – Y / N Television drama now demands that all actors wear an individual radio mic at all times. On a recent show this was often running at 8, up to a maximum of 17 on one particular day. These channels all ran in CH38, CH39 and Ch40 organised with the help of PMSE. There is a trend starting for some actors to wear 2 systems for redundancy. Wireless boom microphones and now far more common on set, increasing health and safety (removal of cables and trip hazards) and speed of working; but also then taking up radio frequency space in CH 38. Always running at least 2 wireless boom as a minimum on each job. The additional requirements on set are that of comms (IEMS) that require an additional set of radio channels to communicate within the sound and production team. These already take up valuable space within the allocation of frequency band width from the coordinated frequencies. For music gigs, I'm finding that even small gigs now are using more RF than ever before. Small bands are requesting 4 IEM channel on independent frequencies as well as the increase in radio mics for vocals and instruments.
Question 5: What factors could drive further changes in the demand for audio PMSE applications in the future, and what will this mean for future demand, specifically for: a) coordinated wireless microphones and IEMs, particularly the peak number of simultaneous assignments used at the largest events?	Confidential? – Y / N The constant increase in cast numbers in TV drama and live performance for higher numbers and higher quality audio. We will require both co-ordinated frequencies and national licences using the existing equipment we have without having to replace high quality existing equipment.

Question	Your response
b) national wireless microphone licences (UHF channel 38 and VHF)? c) talkback, fixed audio links and ADS licences?	
Question 6: Do you agree that, given the trends, we are right to focus on wireless microphones/IEMs?	Confidential? – Y / N Yes
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? – Y / N Even with the increase of digital wireless, the request for more channels is simply driving the need for more channels with a good range in all environments, and wide enough bandwidth to allow for flexibility and agility increase of interference with intermodulation.
Question 8: What actions could enable greater take-up of the DME, DECT and licence exempt bands in the future?	Confidential? – Y / N
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? – Y / N
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? – Y / N The most modern equipment has a much wider frequency agility than that of only a few years ago; this ability does not impact at all on the quality of the audio transmitted and received. Wider Frequency agility is not required when only filming in the UK, but is used by people working around the world. Low latency is vital to integrate with other (potentially analogue) equipment. Resilience (Signal range and quality) is vitally important to maintain the quality of the signal. Newer systems also look to integrate encryption into this signal path.

Question	Your response
Changes in efficiency of spectrum use **Question 11:** What changes in spectrum use (technology, working practices, different bands, etc) have enabled audio wireless growth to be accommodated to date, particularly the increased use of wireless microphones and IEMs at the largest events and venues in the context of reduced UHF spectrum availability?	Confidential? – Y / N Newer radio mic technology is far more agile across the frequency spectrums but is far more expensive to purchase. The older technology, which is still in wide spread use still provides incredible quality audio but have much more limited frequency agility. There is no requirement to replace the equipment unless frequency allocation changes. I have no current need for this agility so I've not changed my equipment.
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? – Y / N The Astral system from sound devices is incredibly capable and agile; but a huge investment to replace equivalent number of receivers and transmitters and all the associated equipment.
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? – Y / N The cost of changing over to the more frequency agile devices. This may have a much wider impact than just the RF equipment, as the newer equipment that is necessary to replace it may render other connecting equipment obsolete. (For example Dante only outputs)
Question 14: What changes to working practices and spectrum planning could improve audio spectrum efficiency in the future, particularly in the use of wireless microphones and IEMs at the largest events and venues?	Confidential? – Y / N A better pmse website and a smart phone app.
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	Confidential? – Y / N In my case cost.

Question	Your response
could industry do and what could Ofcom do to facilitate those efficiencies?	My current equipment works brilliantly with is narrow frequency agility; I regularly speak to psme to book additional frequencies when necessary and I speak to other sound recordists about organising frequencies when we are working in close proximity. Newer kit may well offer a more efficient spectrum use; but I cannot afford to upgrade the system with than ate of my business at the moment.
## 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? – Y / N
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?	Confidential? – Y / N

Question	Your response
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?	
Potential news bands **Question 18:** What factors have influenced the degree of take-up of existing bands used by wireless video applications, particularly the growth in take-up of the 7 GHz band?	Confidential? – Y / N
Question 19: Which potential additional bands might be suitable for video PMSE applications, particularly at the largest events and venues?	Confidential? – Y / N
Question 20: To what extent do the characteristics of different video applications drive their requirements for spectrum – for example particular requirements for resilience or capacity?	Confidential? – Y / N
Changes in efficiency of spectrum use **Question 21:** What technologies are currently available or are being developed which can improve wireless video spectrum efficiency in the future?	Confidential? – Y / N
Question 22: Are there any barriers to adopting more efficient technologies for wireless video? What could industry do and what could Ofcom do to facilitate greater use of those technologies?	Confidential? – Y / N

Question	Your response
Question 23: What types of video demand could realistically be supported by private (for example 5G) networks?	Confidential? – Y / N
Question 24: What changes to working practices and spectrum planning could improve video spectrum efficiency in the future, particularly in the use of wireless microphones and IEMs at the largest events and venues?	Confidential? – Y / N
Question 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? – Y / N

Question	Your response
## Other comments **Question 26:** Do you have any other comments or views on the issues raised in this document?	Confidential? – Y / N With the fragile nature of the work in the creative industries currently; I'm really worried about this consultation and its possible ramifications. I'm a single individual with my own company, and work has been incredibly sporadic since 2022 (as the entire TV drama industry has been). The cost implications of having to replace all my radio mic equipment would simply put my company out of business at the moment. My RF equipment is incredibly robust, and tried and tested in the field (literally). It provides incredibly high-quality audio on location in some of the most challenging environments. This would all need to be replaced (along with all the associated ancillaries) should this RF spectrum be replaced. I'm currently running 16 channels of lectrosonics wireless microphone receivers; 2 venue rack and 2 dual receiver pairs. This runs with 8 personal transmitters and 4 boom transmitters. The estimated cost to replace this would be with the Sound devices Astral system would be about £45000 + additional costs for rewiring all my person microphones and related ancillaries. My comms system is Sennheiser where I have over 20 in ear receiver systems, with multiple sets of transmitters and receivers for use on set for communication, for multiple channels, voice of god, car to car links, on stage IEM's. Estimated cost to replace would be about £10,000 again plus the cost of ancillaries.

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
- ☐x 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.