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, turna-round times, and event coordination. Do you think the current approach works well? How could we improve it?	Confidential? – N The online booking system generally works well, alt-hough it's not entirely use-friendly or intuitive to use. It's easier than it should be to unwittingly make booking errors. When it crashed and was completely out of use for many weeks, it caused chaos. The PMSE team are brilliant to deal with – very friendly and helpful – a credit to your organisation.
### Section 4 – PMSE historic trends **Question 2**: Do you have any com-ments on how we have analysed and characterised wireless microphone and IEM demand, or suggestions for alternative ways of characterising this demand?	Confidential? – N I cannot answer this question as I have no knowledge/experience of booking these frequencies.
Question 3: Do you have any com-ments on how we have analysed and characterised wireless video demand, or suggestions for alternative ways of characterising wireless video demand?	Confidential? – N This is outside the scope of my knowledge.

Question	Your response
## Section 5 – Future trends and opportunities ## Wireless audio Drivers of demand **Question 4:** What factors have driven changes in the demand for audio PMSE applications, specifically for: a) the increased use of coordinated wireless microphones and IEMs, particularly the peak number of simultaneous assignments used at the largest events? b) the slight decline in the number of national wireless microphone licences (UHF channel 38 and VHF)? Has the extent of use of these licences changed, and if so why? c) the declines in talkback, fixed audio links and ADS licences?	Confidential? – N I am not involved in any way in wireless audio booking.
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 I am not involved in any way in wireless audio booking

Question	Your response
Question 6: Do you agree that, given the trends, we are right to focus on wireless microphones/IEMs?	Confidential? – N No – why would you do that? It does not reflect the trends regarding video and seriously impairs our ability to deliver the quantity and quality the broadcasters and their viewers expect and demand at ever-increasing levels.
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 I do not have the knowledge to answer this.
Question 8: What actions could enable greater take-up of the DME, DECT and licence exempt bands in the future?	Confidential? – N This action would seriously jeopardise the ability of outside broadside providers to secure/use the spectrum we need. Our work is already compromised by those who operate without a licence. Licence exempt bands would exacerbate the problem.
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 I am not qualified to answer this.
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 I am not qualified to answer this.

Question	Your response
Changes in efficiency of spectrum use **Question 11:** What changes in spectrum use (technology, working practices, different bands, etc) have enabled audio wireless growth to be accommodated to date, particularly the increased use of wireless microphones and IEMs at the largest events and venues in the context of reduced UHF spectrum availability?	Confidential? – N I am not qualified to answer this.
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 I am not qualified to answer this.
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 I am not qualified to answer this.
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 I am not qualified to answer this.
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 I am not qualified to answer this.

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 In the 8 years I've been with NEP, wireless cameras have continued to develop and been in ever-greater demand from broadcasters. The technology and quality has continued to advance, in terms of resolution, high speed video, and types of specialist cameras, allowing broadcasters to utilise RF cameras in more inventive and creative ways – and using RF cameras to replace cabled cameras. For globally significant events, such as Royal weddings/funerals, the ability for us to secure necessary bandwidth is vital, particularly when non-UK broadcasters are in attendance in large numbers. I book the RF camera frequencies for all our ITV Racing horse racing fixtures to the best of my knowledge I have not seen any decline in the bandwidth required.
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 In our experience, no broadcaster/production would accept a reduction in quality or quantity in wireless video bandwidth – we are seeing the exact opposite.

Question	Your response
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? – N In the same way the Government encouraged people to spend their money on diesel cars, Ofcom's policy of 7 GHz being preferred band for wireless video PMSE has driven the increase in investment and use of 7GHz. It is now the relied upon operational frequency band. Should the availability of this band become uncertain, this would result in unacceptable risk to investment and operational capability.
Question 19: Which potential additional bands might be suitable for video PMSE applications, particularly at the largest events and venues?	Confidential? – N While manufacturers can adapt, given sufficient time and funding, higher frequency bands would require specific guarantees on regulatory commitment over and long-term period.
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 Video is mission-critical and requires a high level of reliability, performance, quality, and secure protected access. It does not tolerate inference or latency.
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 Developments are evolutionary, but no technology either now or in the future can ever replace the necessity for dedicated spectrum in sufficient quantity.
Question 22: Are there any barriers to adopting more efficient technologies for wireless video? What could indus-	Confidential? – N Yes – and they include the substantial cost of replacing equipment and the long CAPEX cycles this would involve.

Question	Your response
try do and what could Ofcom do to facilitate greater use of those technologies?	Our industry is always constrained by the budgets of our clients, which are not under our control. Any uncertainty in regulation around long-term spectrum availability will have a negative impact for long-term investment. It is vital we have the commitment of Ofcom to guarantee the future and security of 2GHz and 7GHz.
Question 23: What types of video demand could realistically be supported by private (for example 5G) networks?	Confidential? – N Non-critical broadcast work, but we have not yet seen equipment that can replace the current provision to broadcasters, especially with regard to latency and robustness.
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? – N Outside my area of knowledge.
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 There are no changes to working practices that could compensate for the loss of spectrum availability. Current video spectrum is carefully managed. We co-ordinate with other providers, and where practical use cabled cameras.

Question	Your response
Other comments **Question 26:** Do you have any other comments or views on the issues raised in this document?	Confidential? – N It is extremely concerning that having previously identified 7GHz as the preferred bandwidth, that supports public service broadcasting, significant cultural and international events, if Ofcom is even considering making such significant changes to the detriment of the broadcast industry and how it operates. The sector supports hundreds of highly skilled Engineers and has made significant financial investment based on the decisions Ofcom make. The industry has already had to accept and evolve to accept migration from 2GHz to 7GHz. Such a retrograde step would have a profound impact on our ability to deliver what our clients and the public expect us to deliver and undermine the future investment potential in this significant and world-class UK sector.

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)

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