PRO AUDIO

Future demand for indoor spectrum: PMSE

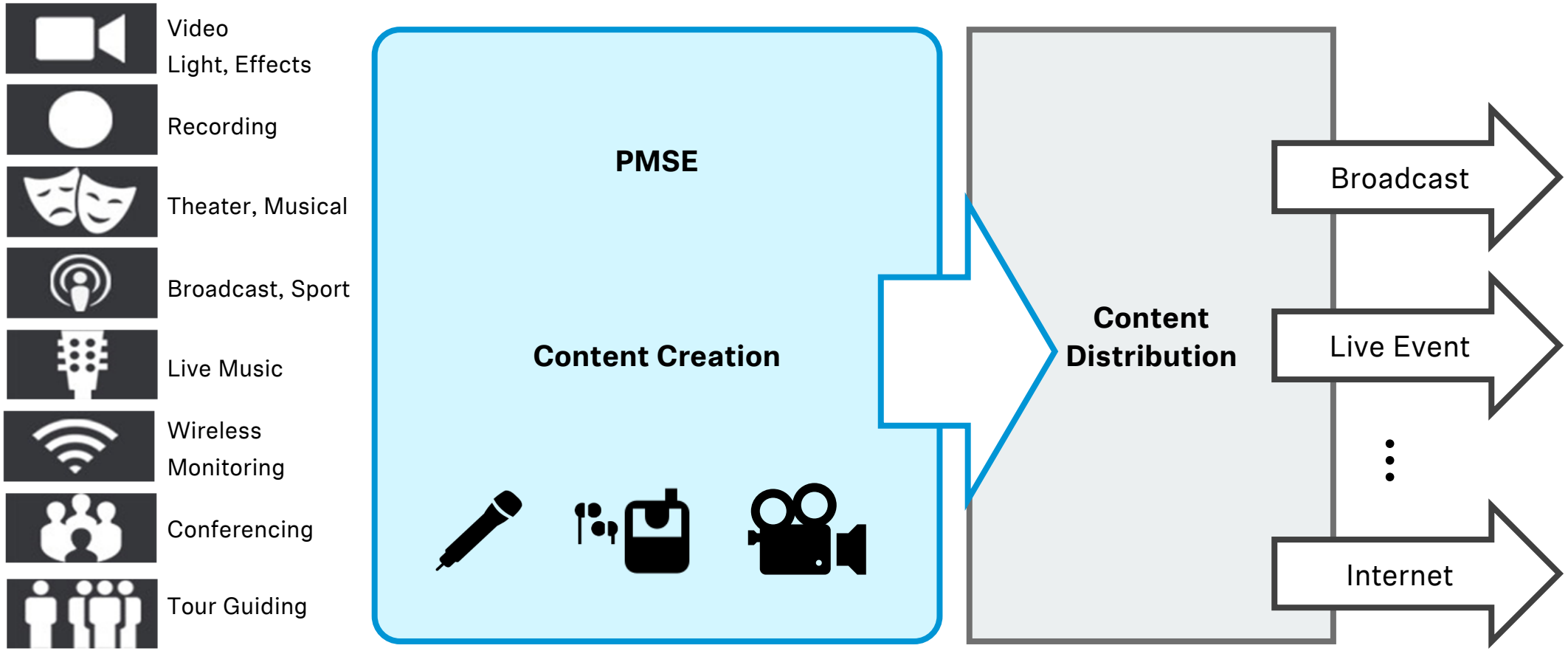
SENNHEISER

Unconscious bias

- When people say “wireless connectivity”, what do you think of?

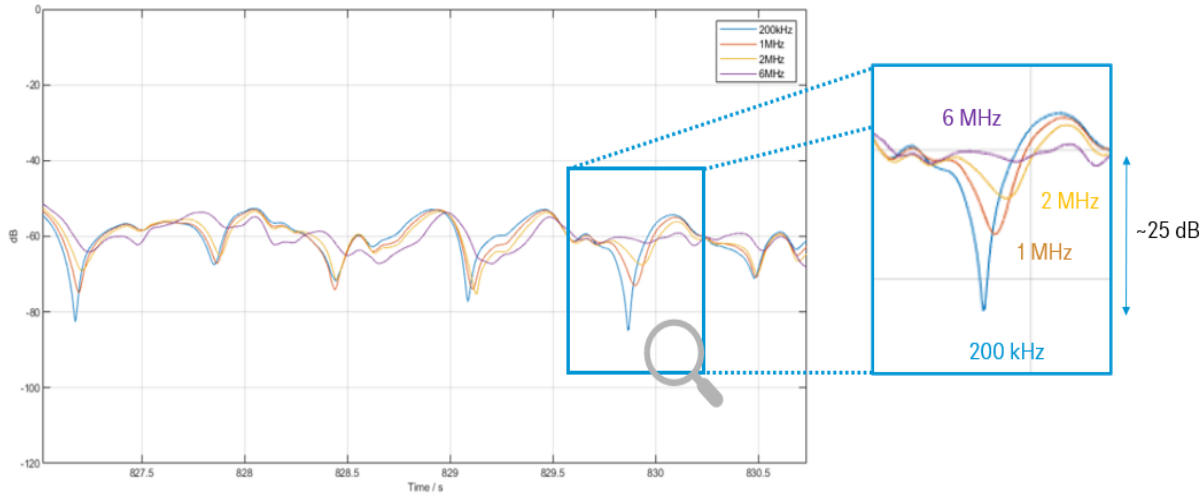
- These all represent wireless connectivity. And each has its own particular requirements and quality of service demands

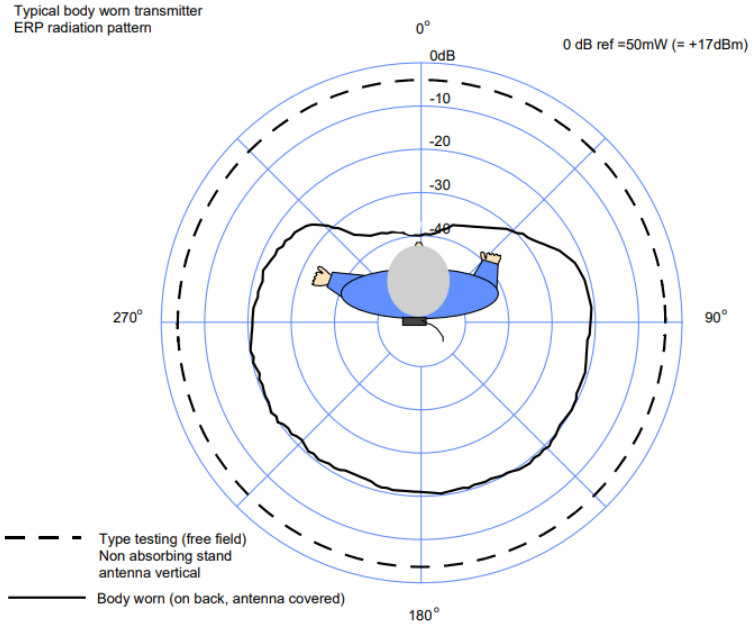
Content Creation is the first step of the culture & media value chain



Challenges for audio PMSE

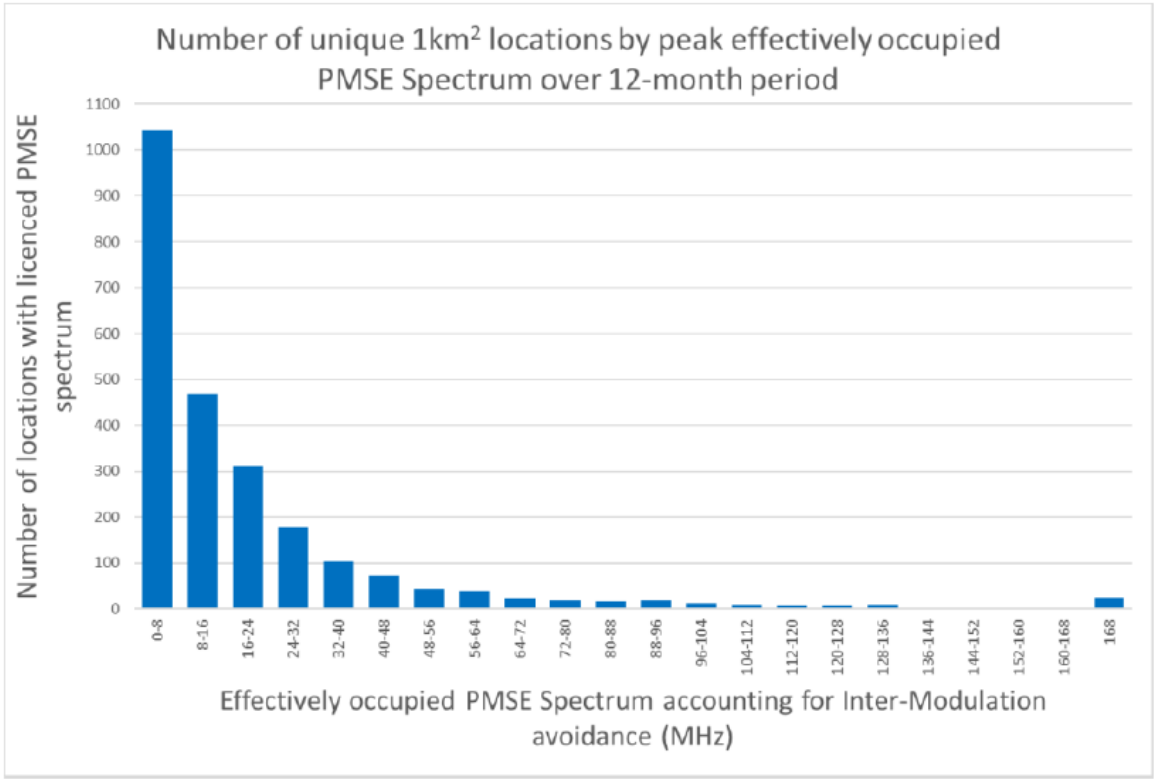
- It’s a tough RF environment – particularly indoor
- Different venues have different challenges – studios, theatres, media parks, stadiums
- Multiple interference sources, including other users, intermodulation, video walls and other sources of electrical noise
- Fading and multipath
- Body effect/loss





Spectrum demand for Audio PMSE

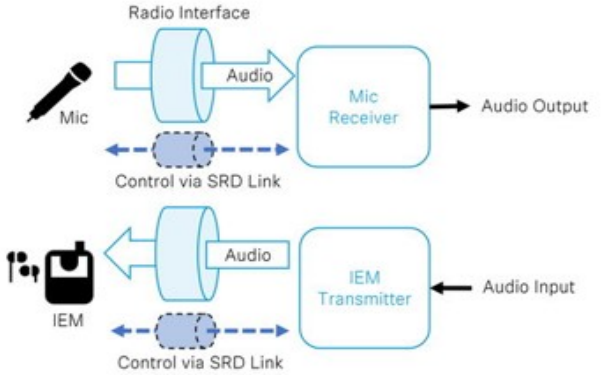
- As consumer demand for larger events and better audio quality grows, so does the demand for spectrum
- Demand for spectrum is local, may be time limited, and is shared with other users (DTT)
- Quality requirements are exceptionally high to provide high-quality audio with low latency
- PMSE manufacturers continue to innovate to satisfy demand and deliver the high degree of quality needed, but have to have regulatory certainty



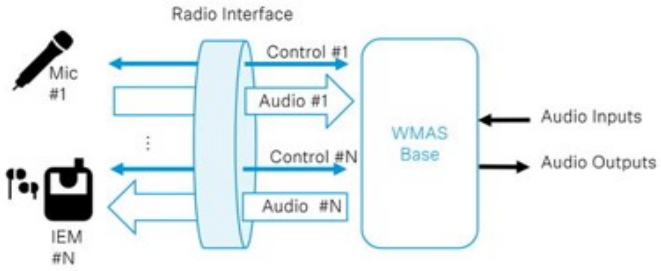
Source: Ofcom and Coleago

Developments in technology

- **WMAS (Wireless Multichannel Audio System)**
  - RF bandwidth larger than coherency bandwidth of the wireless channel
  - Less fade margin (10-15 dB compared to 40-50 dB with narrowband) enabling higher QoS at same transmit power and range
  - Lower power spectral density enabling earlier re-use of resources and improving coexistence
- **DECT NR+**
  - classic DECT is used for conferencing, A4V, intercoms, talkback and mics for presentations and lectures
  - DECT NR+ will enable further use cases by delivering a higher QoS for some professional audio applications
  - DECT NR+ is a 5G technology (ITU-R Rec M.2150-1)



Standard Narrowband Systems



WMAS Technology

Vaughan John
Spectrum Policy and Standards Manager
vaughan.john@sennheiser.com