

EUROPEAN MICROWAVE WEEK 2015

SIX DAYS • THREE CONFERENCES • ONE EXHIBITION

PALAIS DES CONGRÈS, PARIS, FRANCE
SEPTEMBER 6 - 11, 2015

Exhibition Opening Hours:

- Tuesday 8th September: 9.30 – 18.00
- Wednesday 9th September: 9:30 – 17.30
- Thursday 10th September: 9:30 – 16.30

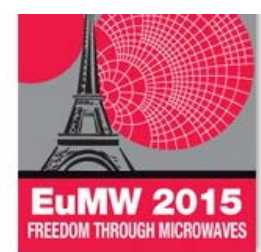
PMSE – DTT spectrum sharing

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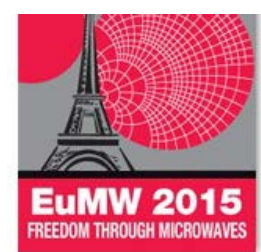
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WM08 - PMSE Workshop at EuMW2015



I will speak about

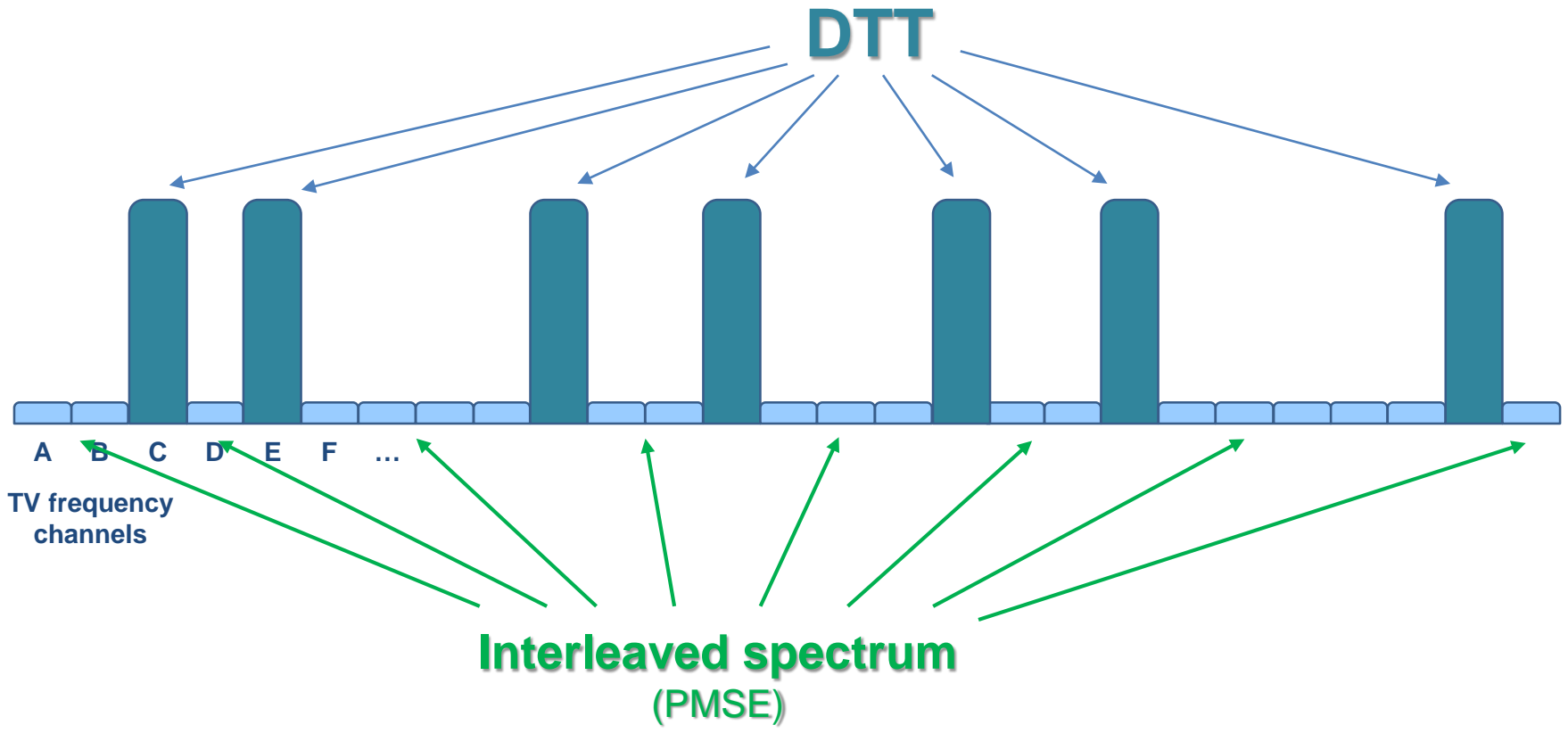
- Terrestrial broadcasting
- Spectrum sharing between DTT and PMSE
 - How does it work?
 - Why is this model in danger?
- Possibilities to meet the PMSE spectrum requirements in the future.
- Way forward and some takeaways

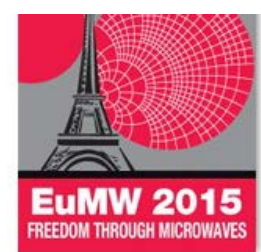


Terrestrial broadcasting is a success story

- The largest TV platform in Europe
 - More than 40% of the primary TV sets, many more secondary sets
- Near-universal coverage
 - Exceeds 98% of the population for public service programmes
 - Supports national, regional, and local services
- Free-to-air in all countries, like no other platform
- Low cost for broadcasters, guaranteed quality
 - Well under 1€ per TV channel per household / year
 - Supports HDTV, demonstrated also for UHD TV
- Efficient use of the spectrum, sharing with PMSE, WSD
- Key pillar for European content creation
 - 80% of the European content is financed by FTA broadcasters

DTT - PMSA spectrum sharing

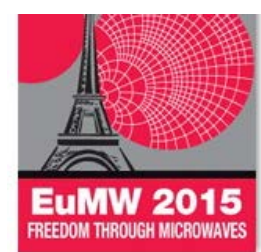




A bit of history

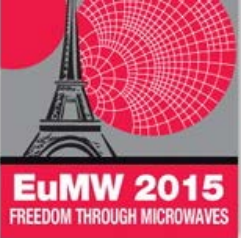
The first:

- TV-related patents early 1900s
- Patent for a wireless microphone 1917
- TV transmissions late 1920s
- Use of wireless microphones late 1940s
- TV frequency plan Stockholm 1961



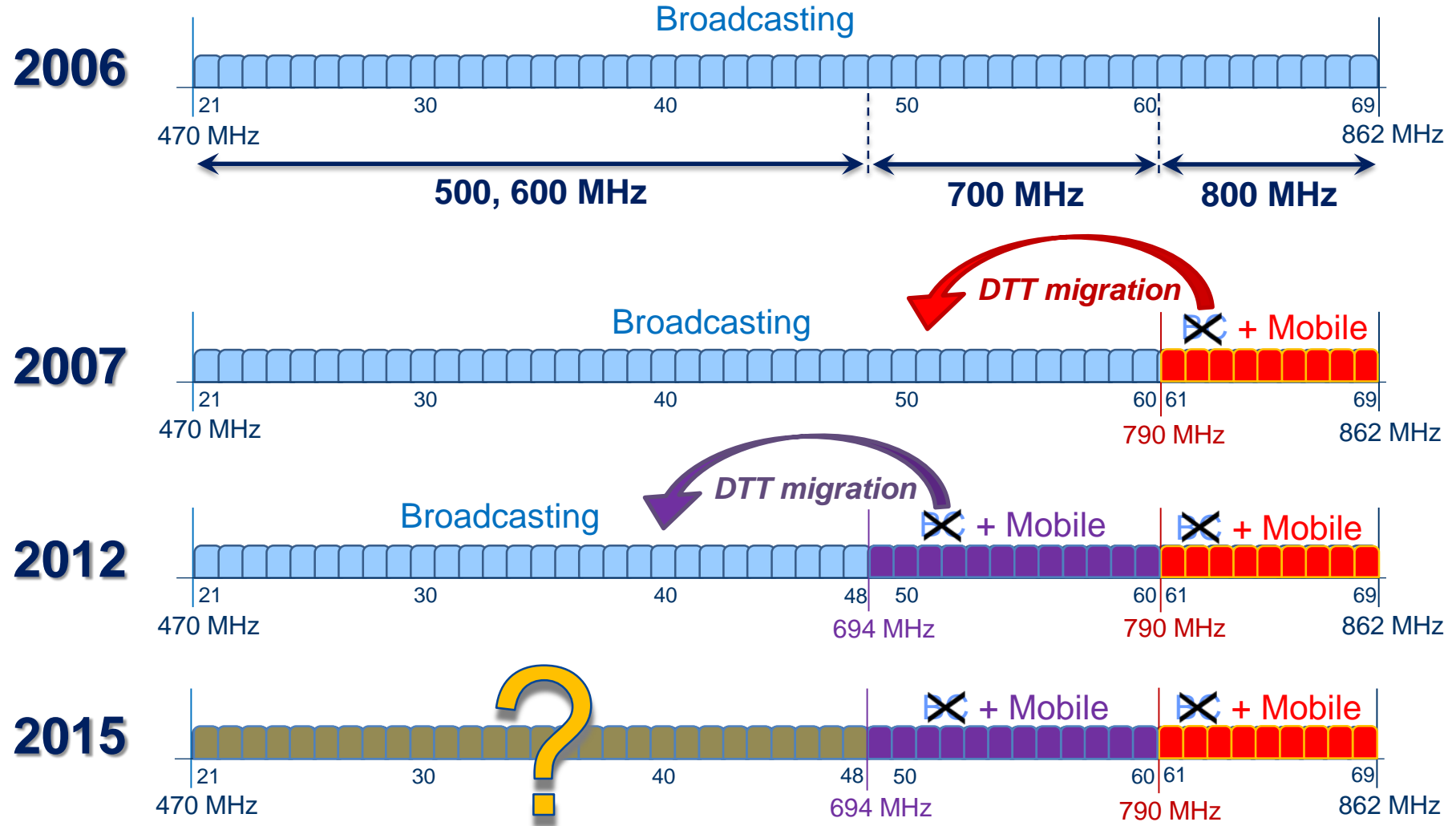
The problem (1)

- Spectrum demand for PMSE is increasing (more complex productions, increasing quality requirements, increasing number of events).
... while the available spectrum is shrinking.
- New entrants compete with PMSE for the interleaved spectrum
 - White space devices
 - Mobile supplemental downlink
- Lack of certainty for the future
 - Where to direct the investments?

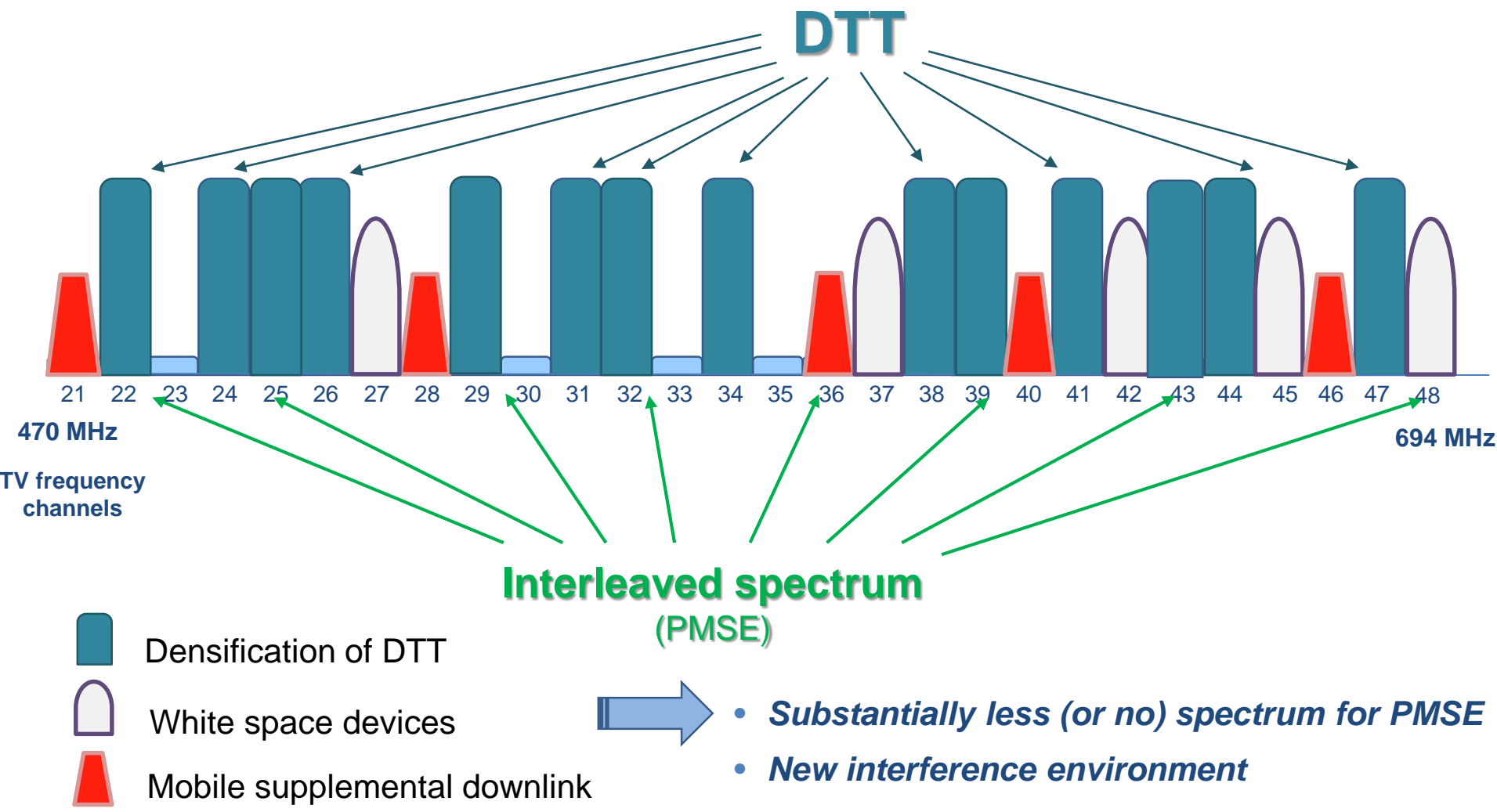


The problem (2)

The UHF TV band



The problem (3)



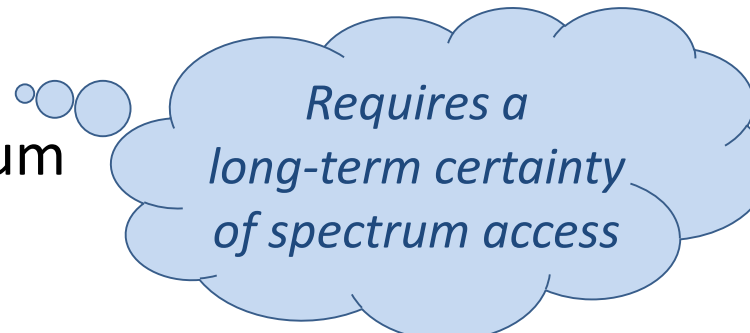
Possible solutions

Spectrum management

- Preserve access to the UHF band for PMSE
- Find additional spectrum for PMSE
 - Take account of the operational requirements and constraints
 - Intelligent sharing to ensure interference-free operation
 - Tuning ranges are only half of the solution, the other half is making sure that enough spectrum is available for PMSE applications

Technology development

- Efficient use of the available spectrum
- Improved resilience to interference

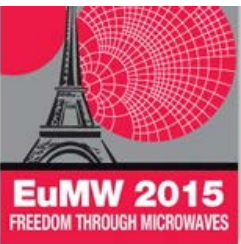


Requires a long-term certainty of spectrum access

Operational arrangements

- Improved coordination of event and programme productions

Audio PMSE frequency bands



Currently available

- The VHF band (174-216 MHz)
- The UHF band
 - Interleaved spectrum in 470-694 MHz
 - The 700 MHz band – guard band and duplex gap
 - The 800 MHz band – duplex gap
- 1785-1805 MHz (duplex gap in the 1800 MHz IMT band plan)

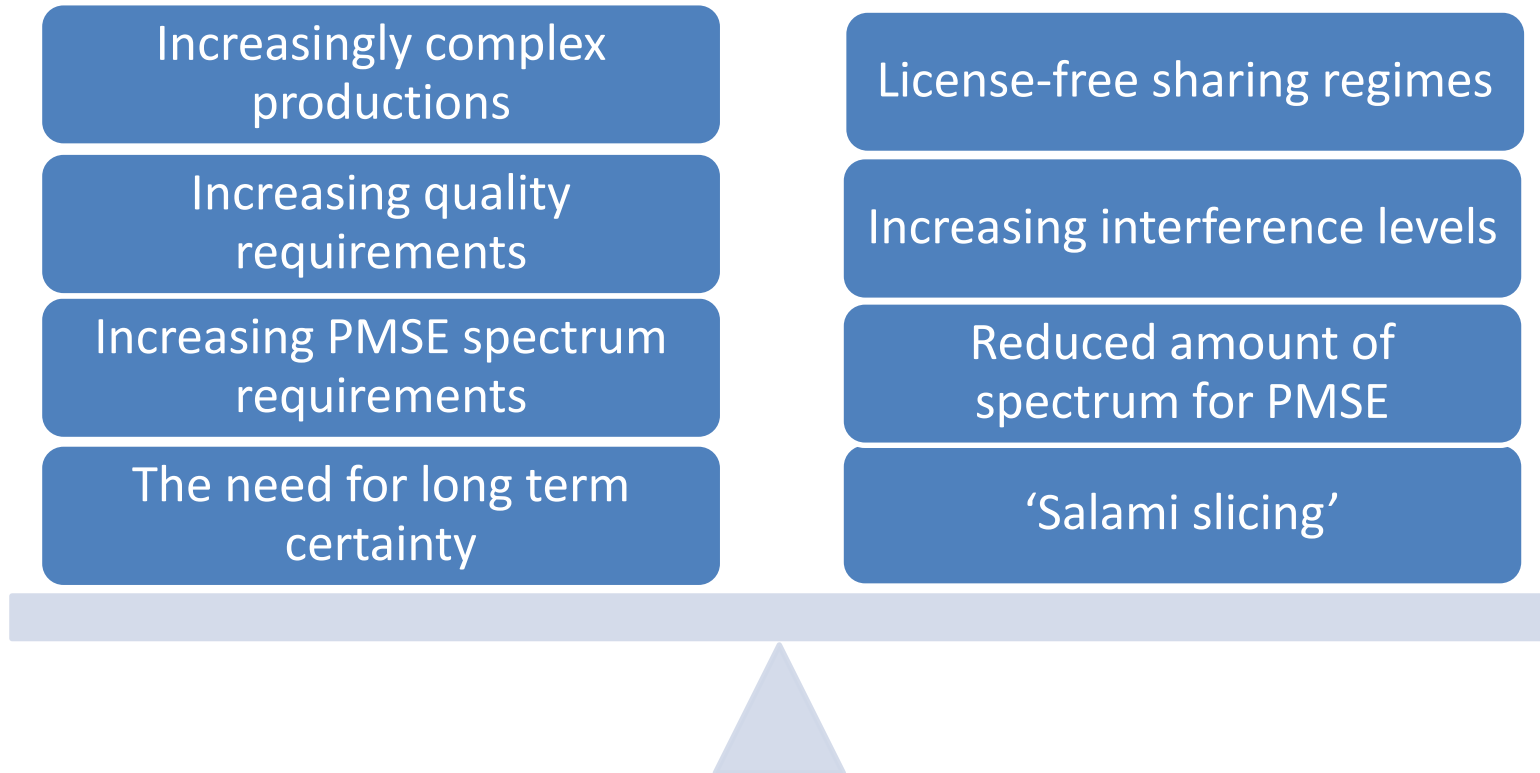
Under study

- 1350 – 1400 MHz
- 1492 – 1518 MHz
- 1518 – 1525 MHz

European Commission's Decision (2014/641/EU) harmonises a minimum amount of spectrum across the EU for wireless microphones including the 800 MHz and the 1800 MHz duplex gaps, and additional 30 MHz to be made available upon request.

Is the spectrum sharing between PMSE and broadcasting and 'obsolete model'?

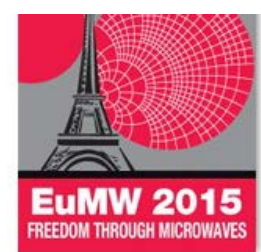
The sharing model remains viable but there are a number of issues that need to be addressed.





Way forward

- Preserve access to the UHF band for PMSE
- Identify and make available additional spectrum for audio PMSE below 2GHz (e.g. 1350-1400 MHz, 1492-1518 MHz)
- Ensure an interference-free environment for PMSE
- Better coordination of event and programme productions
- Long term certainty for investments into new technology and equipment
- Continuing and improved cooperation between the programme production and live performance sectors, the PMSE industry, broadcasters, standardisation organisations, administrations and policy makers.



Thank you

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