



Association of
Professional Wireless
Production Technologies

**The essential services
provided by PMSE need a
Frequency Management Plan**

PMSE = SAB/SAP



- Program Making and Special Events.
- Which are:
 - Radio microphones.
 - Conference systems.
 - Wireless camera's.
 - Wireless intercom.
 - Audio links (production).
 - Other wireless production tools (like effect control).
- Also known as:
 - SAB: Services Ancillary to Broadcasting.
 - SAP: Services Ancillary to Program making.

Wireless microphones are used in many applications



- Special Events:
Elections, Olympic Games, World Championships, Concerts, Theatres, Musicals, Musical Industry, Houses of Worship...
- Broadcast content production:
Broadcast Facility Centers, Press Rooms, Motion Picture, Live Concert, DVD recording, and more...



PMSE = SAB/SAP



- Program Making and Special Events.
- Which are:
 - Radio microphones.
 - Conference Systems.
 - **Wireless camera's. (e.g. 2,6 GHz)**
 - Wireless intercom.
 - Audio links (production).
 - Other wireless production tools (like effect control).
- Also known as:
 - SAB: Services Ancillary to Broadcasting.
 - SAP: Services Ancillary to Program making.

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- UHF-TV band**
-

Wireless Microphones need protection



- We need protection – first part of the production chain.
.. for any Audio/Video production
- UHF TV-band is the core band due **it's** propagation characteristics.
- Every other part to the production relies on the performance of wireless microphones

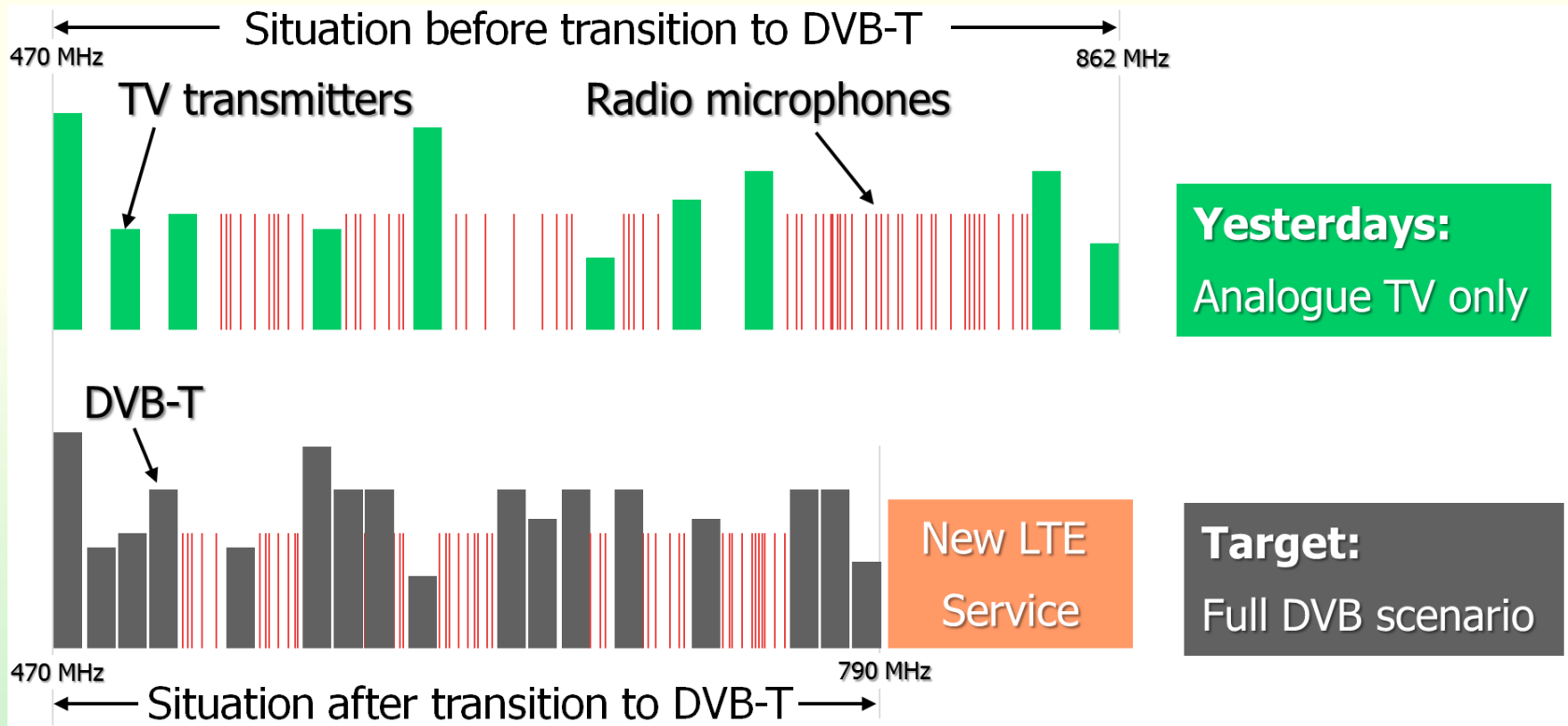
Digital Dividend Review

790 – 862 MHz; ? 694 – 790 MHz ?



- IMT does not offer sharing techniques. PMSE needs to leave these bands.
- DVB-T transmitters in TV channels 61 to 69 are re-allocated below 790 MHz (= less available white space). .. and might be relocated below 694 MHz in the future?
- All equipment above 790 MHz (694 MHz) becomes redundant and in most cases wireless microphone and IEM user will not receive compensation.

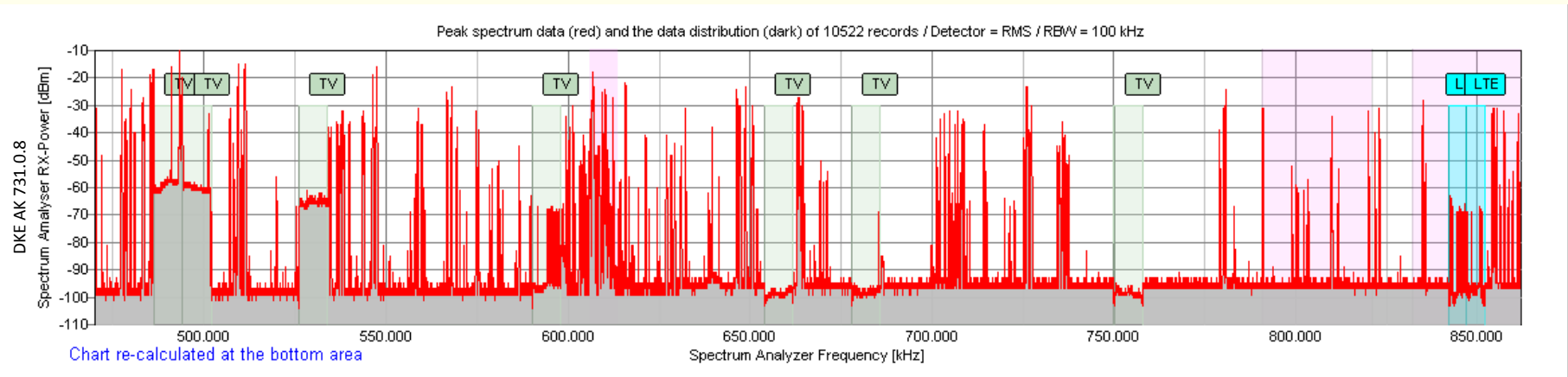
The use of UHF-TV band becomes more complex



PMSE usage – real scans

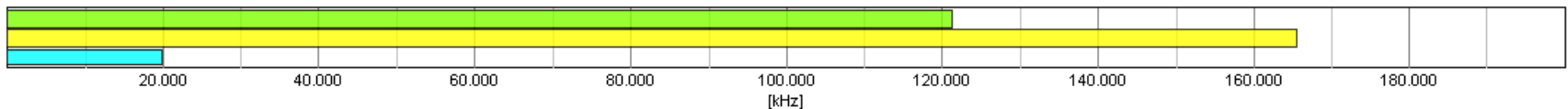


Lower Saxony state election, Hannover 2013



Estimation: required spectrum in a 600 kHz channel grid

Estimated spectrum resource for narrowband links (gr = recorded carrier, ye = coord. carrier 1, coord. carrier 2)

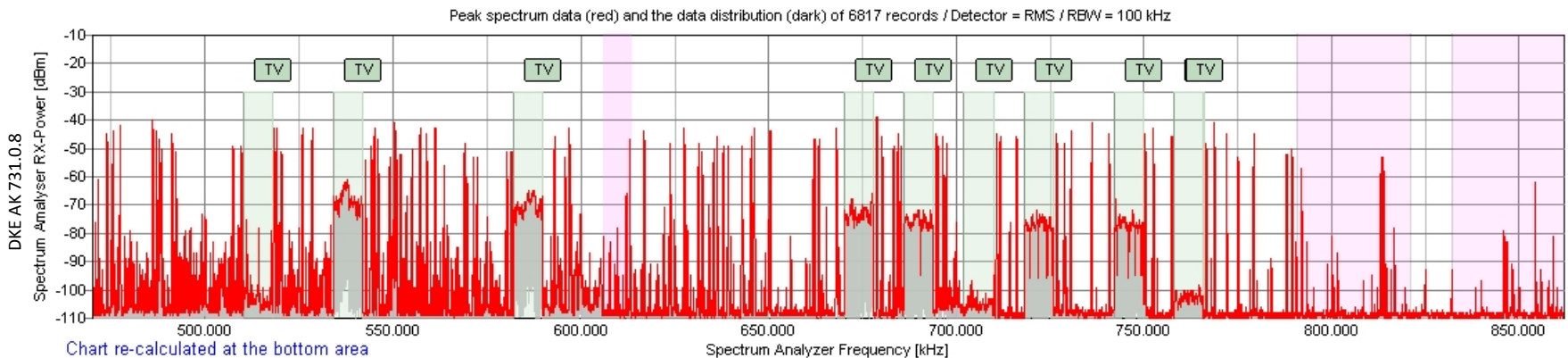


It should be noted: This estimated spectrum demand does not represent the real spectrum demand of PMSE; the real spectrum demand is significant higher.

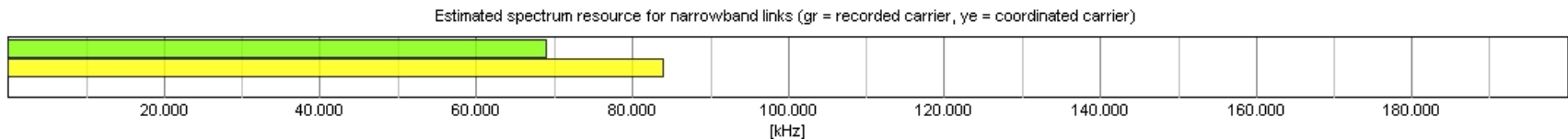
PMSE usage – real scans



Eurovision Song Contest



Estimation: required spectrum in a 600 kHz channel grid

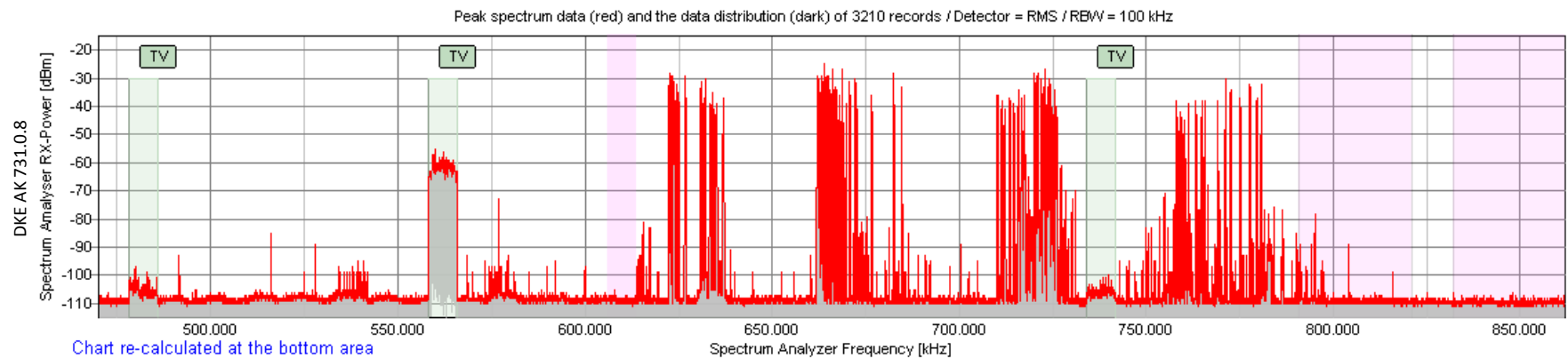


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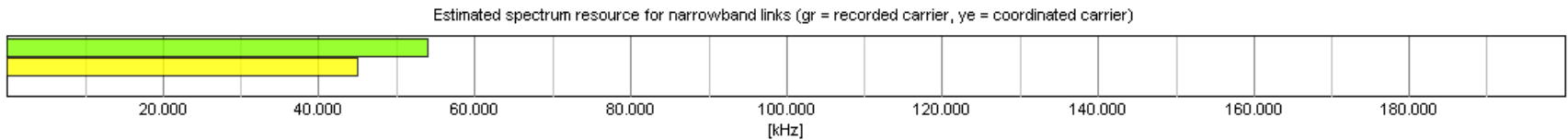
PMSE usage – real scans



Outdoor Theatre production, Einsiedler Welttheater (CH)



Estimation: required spectrum in a 600 kHz channel grid

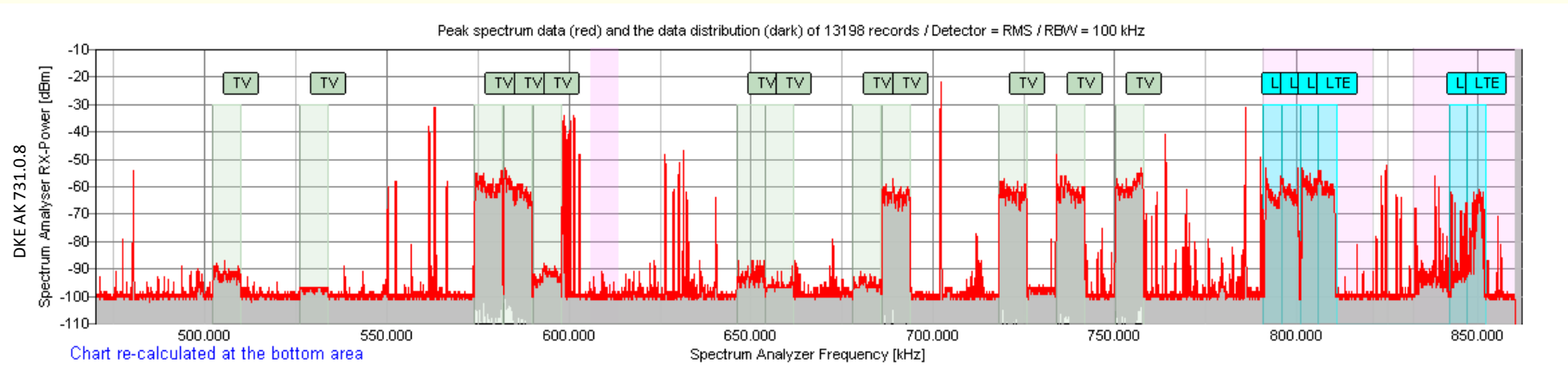


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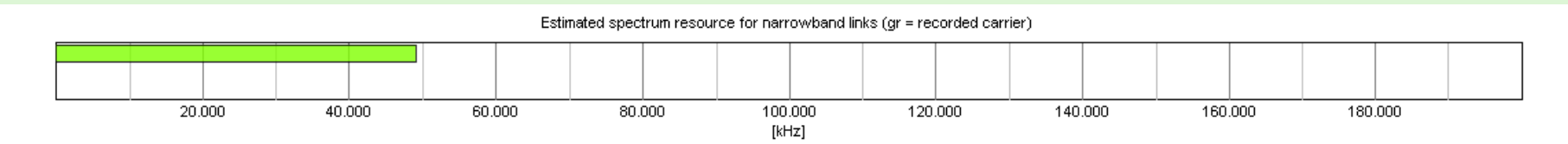
PMSE usage – real scans



180th Munich Oktoberfest



Estimation: required spectrum in a 600 kHz channel grid



It should be noted: This estimated spectrum demand does not represent the real spectrum demand of PMSE; the real spectrum demand is significant higher.

PMSE needs ~ 100 MHz interference free spectrum for daily work



- **Further erosion of PMSE spectrum will hurt the PMSE community in the basis of their existence!**
- Big broadcast productions can no longer be produced the same way (Olympics, WorldsCups, elections, Eurovision Song Contest).
- Social-cultural cohesion will erode, and freedom of speech will be effected.
- 80% of broadcast productions are using PMSE equipment
Eurovision Song Contest uses 270 MHz (UHF-TV band)and
delivers to IMT providers more than € 200.000.000 SMS turnover.

Frequency bands to be considered



- Harmonised access / bands for PMSE:
 - UHF TV-band
 - L-band (still in discussion)
 - LTE 800 MHz duplex centre gap
(LTE interference? Is it usable for PMSE?)
 - 1,8 GHz band duplex centre gap
(LTE interference? Is it usable for PMSE?)
 - VHF band
(some spectrum records show significant man made noise)

PMSE manufacturers will support



- Improving spectrum efficiency
 - Going digital is not THE solution
- Supporting new frequency bands
 - Development time need to be considered
- Implementing new technologies
 - Cognitive technologies are in development

PMSE asks for:



- PMSE need protection
(secondary user + higher protection = primary)
- New services should offer sharing technologies.
IMT cannot share with other services / users
- Additional Frequency bands need to be assigned for PMSE usage
... in a harmonized regulatory framework.

PMSE needs:



Frequency Management Discussions

finding solutions securing the essential services provided by PSME

Happy to answer your questions



Your questions and comments.