SHURE

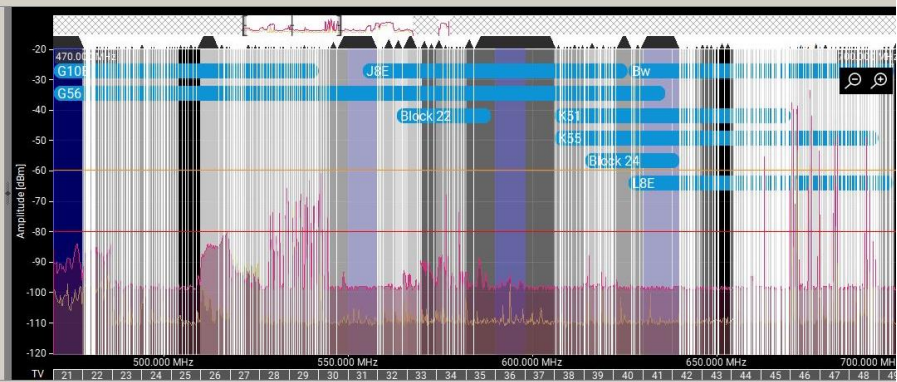# Efficiency in Action:
Innovative Spectrum Sharing Solutions for PMSE

Nada Abdelhafez, *Head of Spectrum and Regulatory Affairs, MEA & India*
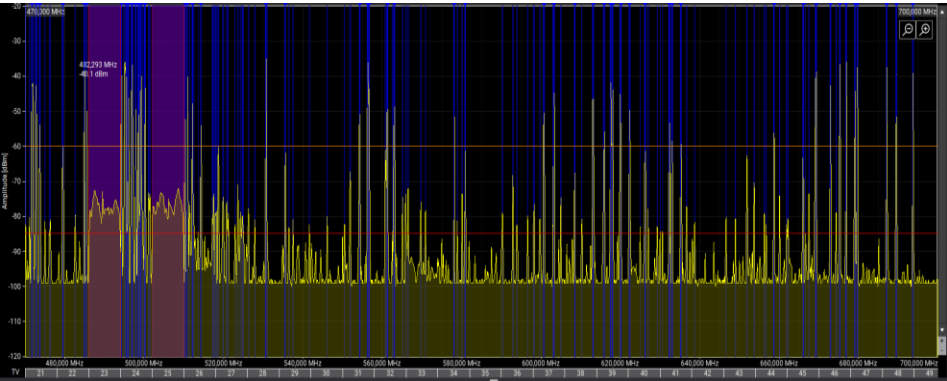**abdelhn@shure.com**

Growing PMSE Needs Globally….

UAE World Expo 2020

- Almost all of 470-710 MHz range was used at UAE Expo (few TV channels)
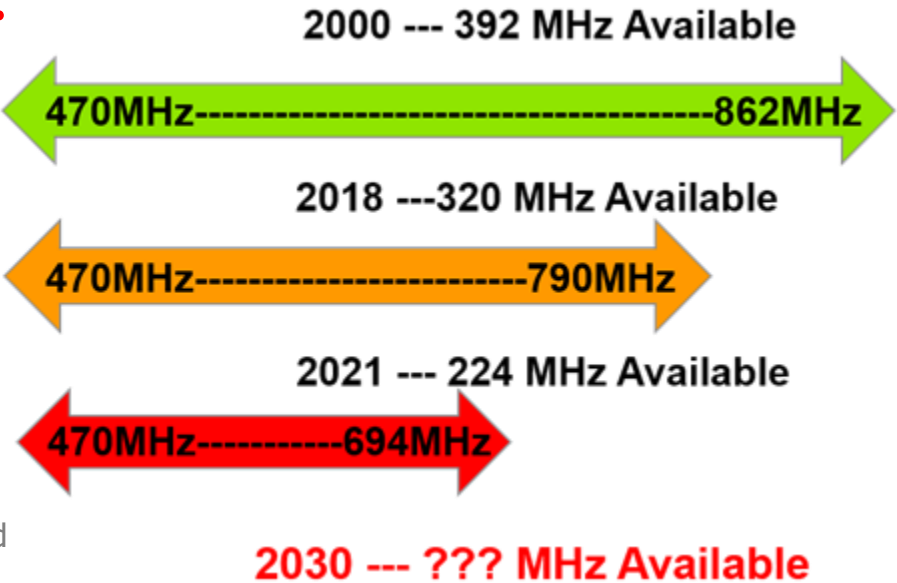
FIFA World Cup Qatar 2022

- **422** Temporary Licenses were issued to be used by wireless mics and In Ear Monitor Systems.

Paris Olympics 2024

- Frequencies requested for audio PMSE :
  - **10,657:** Olympic Games
  - **3,455:** Paralympic Games
- UHF Band was overloaded

Shrinking Spectrum Access….

2000 --- 392 MHz Available

470MHz---862MHz

2018 ---320 MHz Available

470MHz-------------------------790MHz

2021 --- 224 MHz Available

470MHz-----------694MHz

2030 --- ??? MHz Available

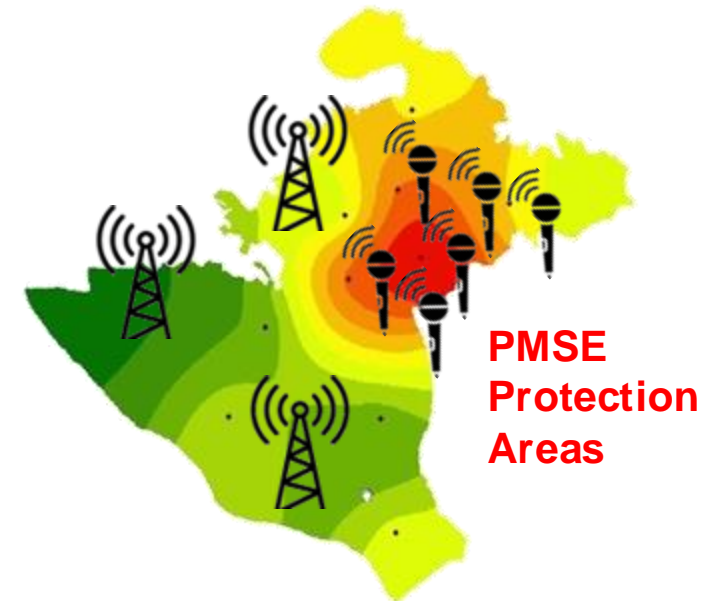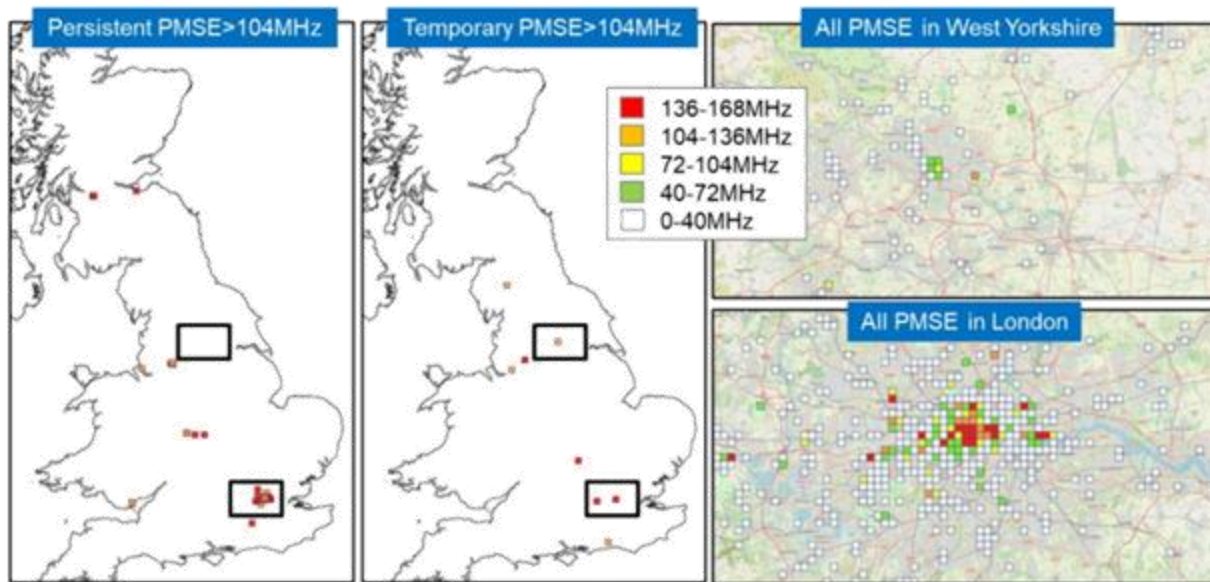**Increased demand for spectrum in TV-UHF band for major events**

*Source: ANFR: Spectrum lessons from the Paris Olympic and Paralympic Games

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Spectrum Sharing : Adoption of Geospatial Separation for Dual Use of the 600MHz Band

- UK Spectrum Policy Forum (SPF) commissioned a report from Coleago consulting on :

  - Future Utilization of the 470-694 MHz Band in the UK (UHF Study). *See: Report*

Licensed PMSE Spectrum over the period Oct 2021 – Sept 2022 in London

- Shure is collaborating with administrations on evaluating dual use of the 600MHz band through geospatial separation.

- Minimizing interference requires careful mapping, distinct area assignments, and implementing protection criteria for PMSE applications separate from mobile services.

PMSE Protection Areas

Spectrum Sharing : Sharing with Military in Germany

- German military seeks two 8 MHz channels within frequencies for improved troop communication in 470-510 MHz.

- Coordination testing is ongoing to evaluate the feasibility and impact of the proposed frequency allocations and shared use.
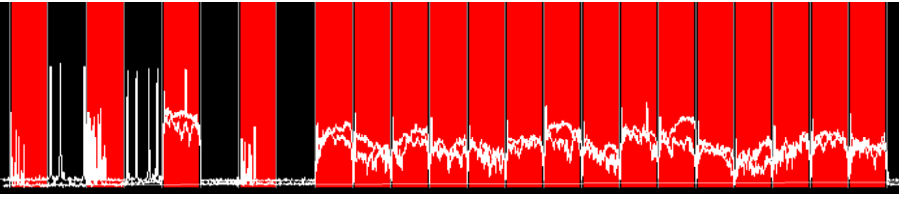
- **Allocating the lower spectrum to the military and the upper spectrum to mobile services creates a challenge, severely restricting the available spectrum for PMSE applications.**
- **PMSE will share the remaining spectrum with TV**
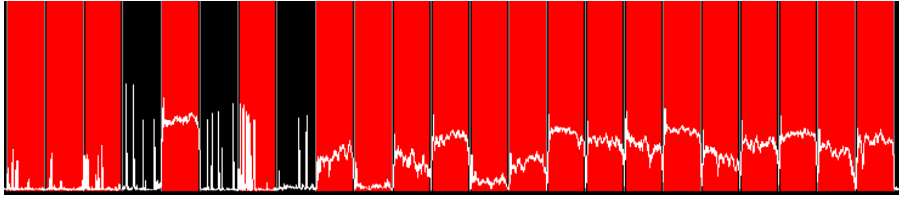
U.S. City Scans 470-608 MHz

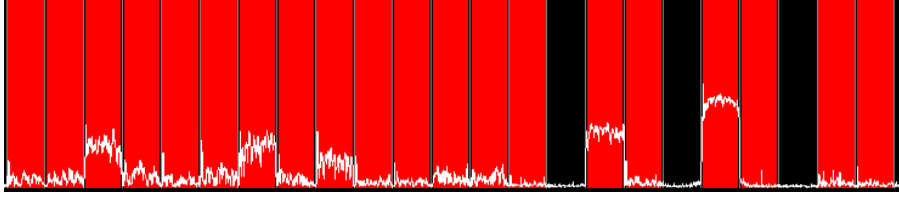**Red = 6MHz Unusable Spectrum (DTV/Noise)**
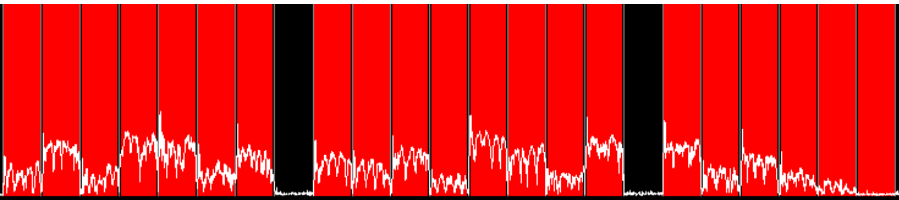
Phoenix, AZ – 6-12MHz Available (~10-20 Standard RF Mics/IEM)
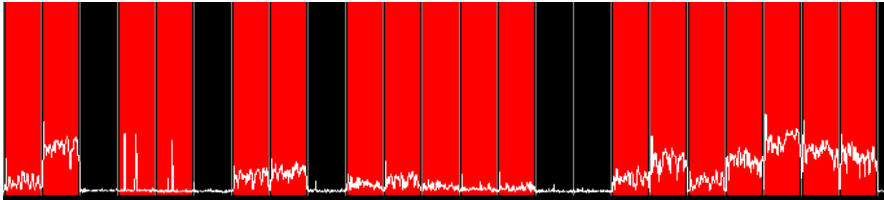

Pasadena, CA – 24MHz Available (~24 Standard RF Mics/IEM)

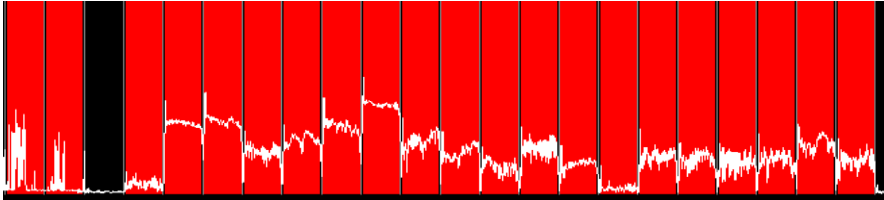Los Angeles, CA – 18MHz Available (~30 Standard RF Mics/IEM)

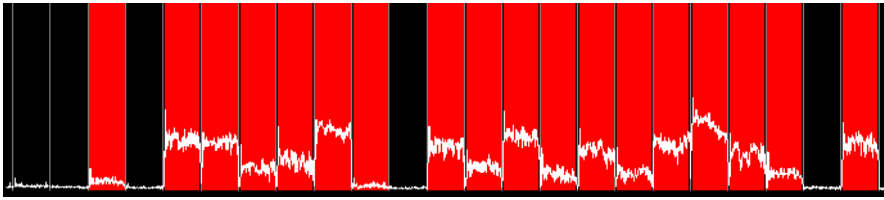Las Vegas, NV – 18MHz Available (~30 Standard RF Mics/IEM)
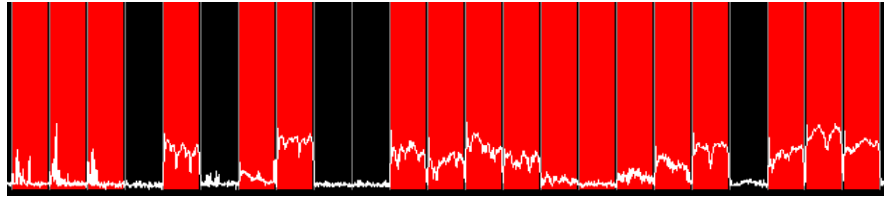

Washington D.C. – 30MHz Available (~50 Standard RF Mics/IEM)

Chicago, IL – 6-12MHz Available (~10-20 Standard RF Mics/IEM)

Atlanta, GA – 30MHz Available (~50 Standard RF Mics/IEM)

New York City – 30MHz Available (~50 Standard RF Mics/IEM)

Reliance on Special Temporary Authority (STA) grants by the FCC to support large and medium-sized events is not a viable long-term solution.

Spectrum sharing frameworks for temporary, dynamic, and flexible spectrum access for local private network

Spectrum sharing frameworks for temporary, dynamic, and flexible spectrum access for local private networks

- Study addresses technical approaches for automated spectrum access to support dynamic, temporary, and flexible spectrum sharing.

- Designing and implementing appropriate dynamic spectrum sharing frameworks would provide a solution to the current issues of scarcity and usability of spectrum in different regions of the world.

- ETSI/WInnForum White paper, June 2023

- ETSI Technical Specification. Reconfigurable Radio Systems (RRS); Dynamic Spectrum Allocation Service (DSAS); System Requirements, July 2024

1st Edition – June 2023

Authors:
Axel Schmidt, Colby Harper, Edgar Reihl, Jens Pilz, Luca Rose, Maria Dolores Pérez Guirao, Mark Gibson, Markus Mueck, Masoud Olfat, Prakash Moorut

Objective: Focus on spectrum for scalable private networks and "on-demand" access

Key Take-Aways

- **Economic Impact:** PMSE is vital for a country's creative content sector and significantly contributes to it economy.

- **Policy Integration:** PMSE should be a fundamental part of spectrum policy, not an afterthought.

- **Spectrum Reallocation Planning:**
  - **Temporarily reallocating spectrum from IMT600 to PMSE in high-demand locations.**

  - **IMT600 can be excluded from deployment in specific areas with persistent high PMSE demand.**

- **Designing and implementing dynamic spectrum sharing frameworks can address the current issues of spectrum scarcity and usability globally.**

Need to secure long-term adequate spectrum for PMSE

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Thank you