



SHURE

WRC-23 AI 1.5

From a PMSE Perspective

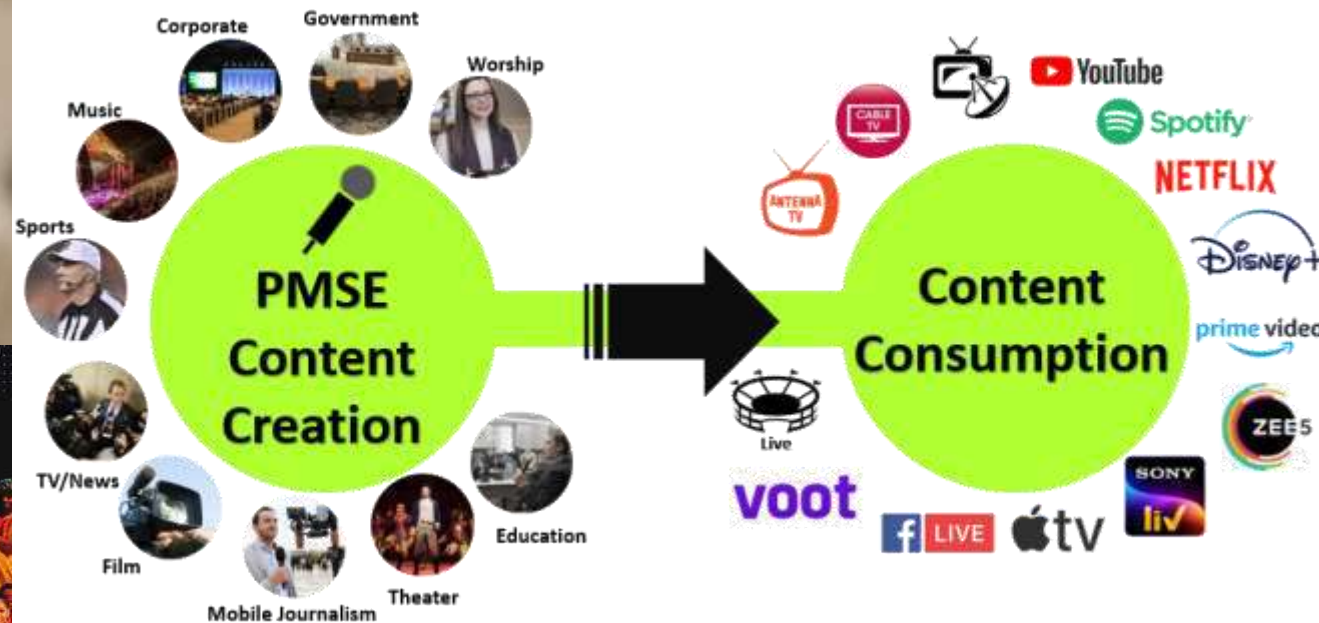
Nada Abdelhafez, Head of Spectrum and Regulatory Affairs, MEA

October 2023

Program Making and Special Events

PMSE devices include:

- wireless microphones
- in-ear monitoring systems
- talk-back systems
- wireless video cameras



Preferences in how content is consumed are evolving rapidly

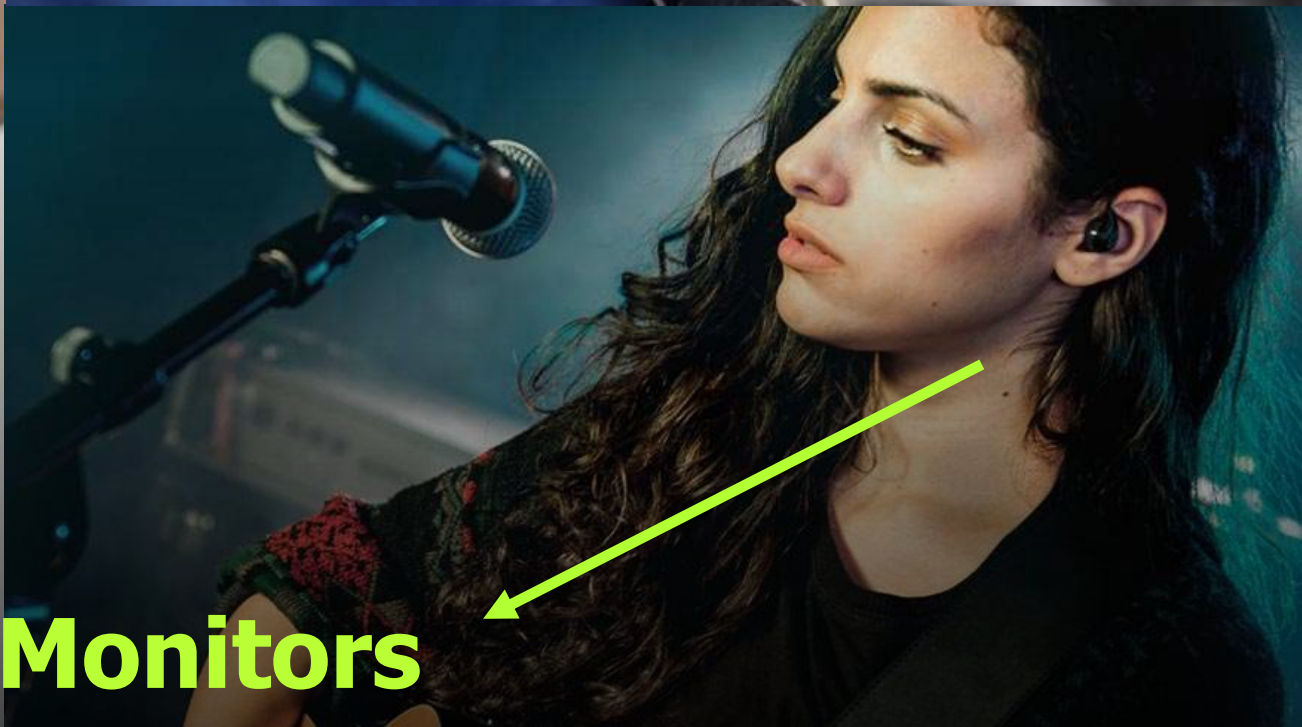


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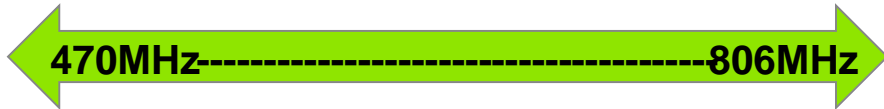
In Ear Monitors

Bodypack Transmitter



PMSE Spectrum Access- Breaking point reached in the U.S.?

1997--- 330 MHz Available



2008--- 222 MHz Available--- **33% lost**



2017--- 140 MHz Available--- **58% lost**



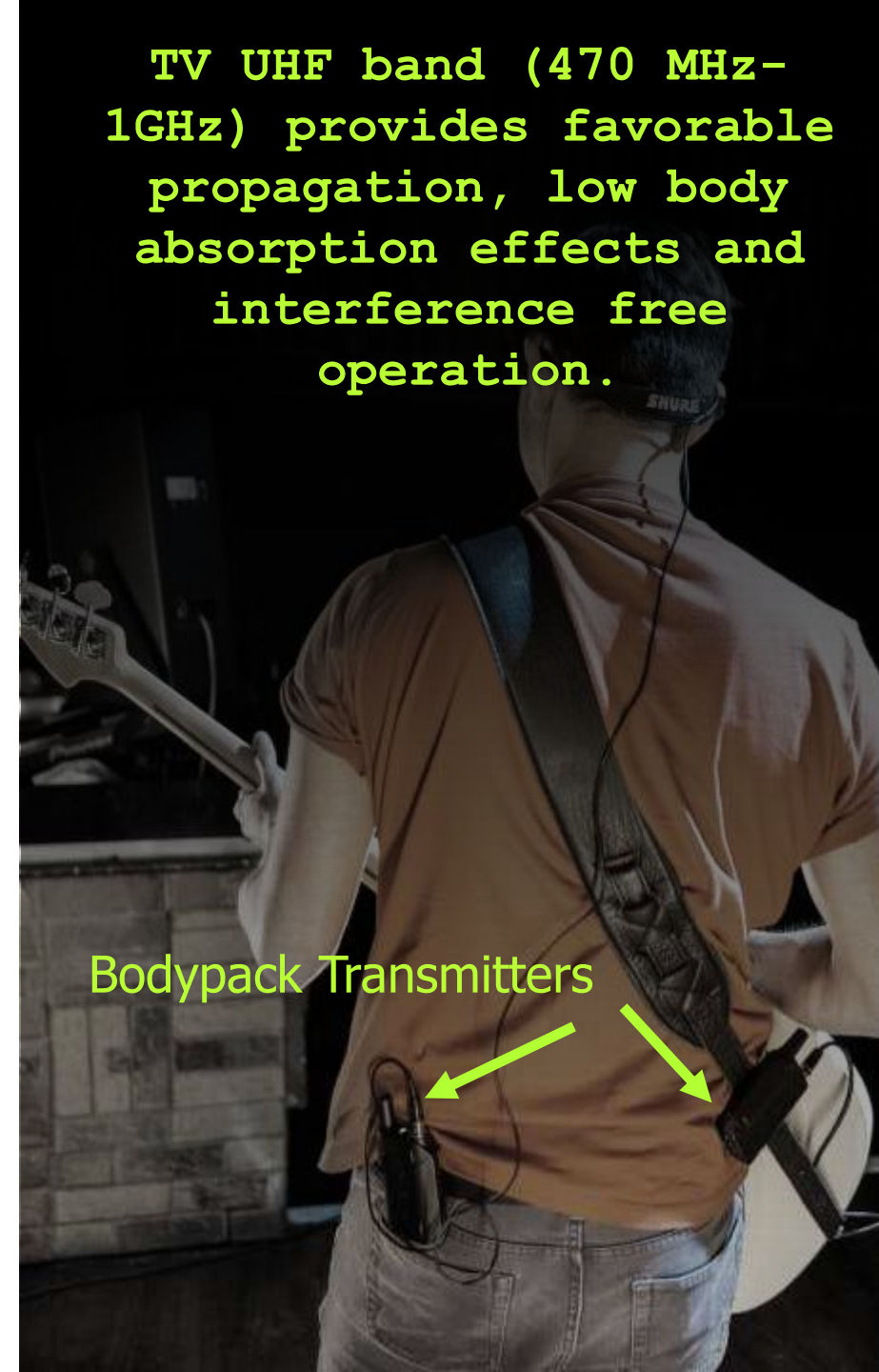
2030--- ??? MHz Available

Hard to find spectrum in TV-UHF band for major events like Super Bowl since the 600 MHz auction to mobile operators

See "[Super Bowl LVII: Phoenix, State Farm Stadium Raise RF Coordination to New Level](#)", By Dan Daley, Audio Editor, January 18, 2023.

TV UHF band (470 MHz-1GHz) provides favorable propagation, low body absorption effects and interference free operation.

Bodypack Transmitters

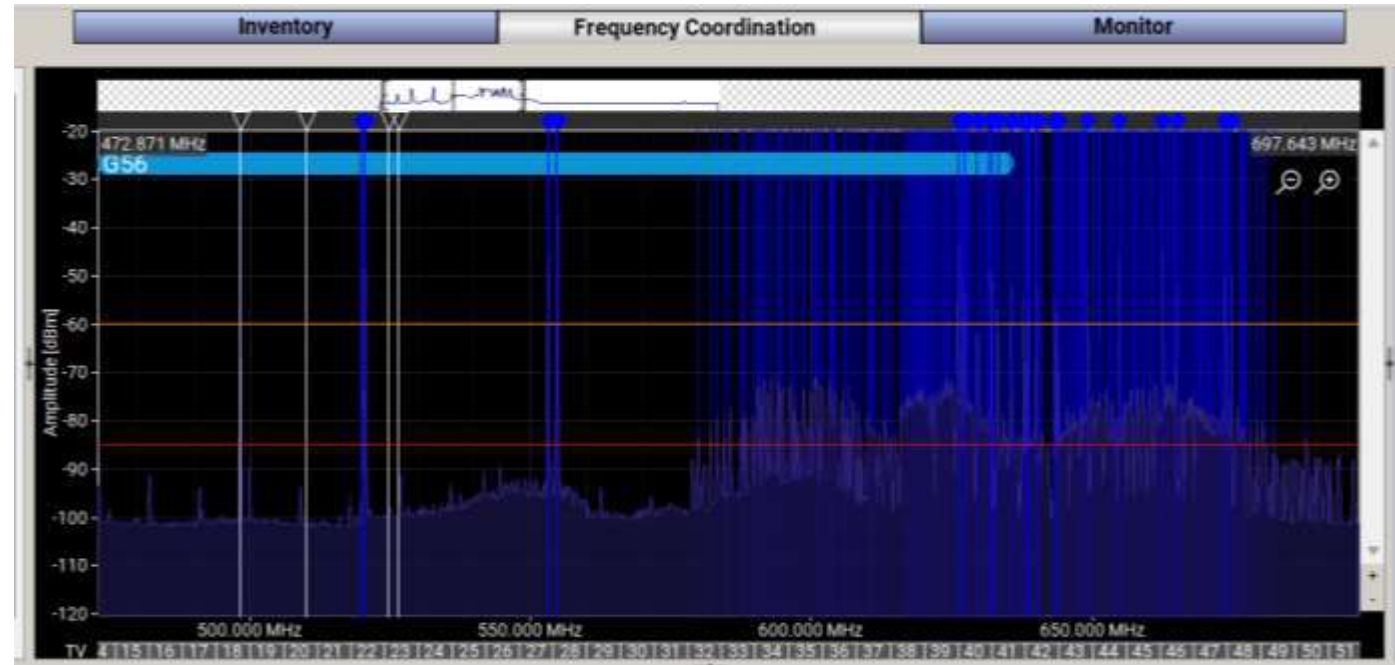


Notes:

- 6 MHz is subtracted for the Radio Astronomy channel 608-614 MHz which has never been available to PMSE.
- 616-617 MHz is a guard band-- not available for PMSE use (or any use) so subtracted that as well.
- This does not include the 653-663 MHz duplex gap.

Case Studies

Navaratri Celebration in Bhuj, India



Toronto, Canada



Global Events- Similar trends

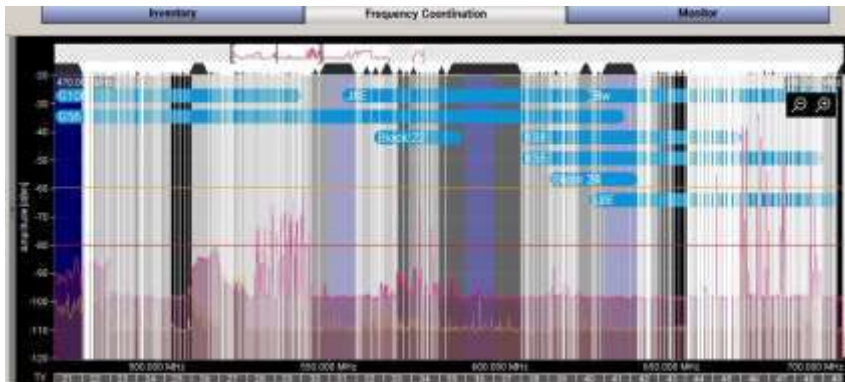
UAE World Expo 2020



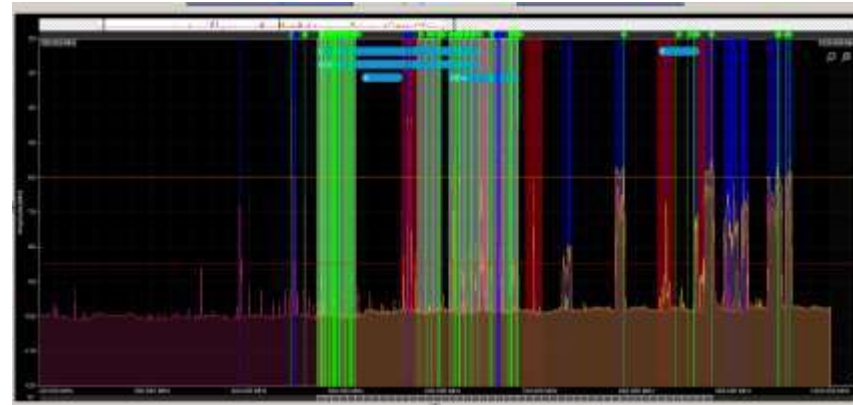
Indian Premier League 2023



Paris Olympics 2024



- Almost all of 470-710 MHz range was used at UAE Expo (few TV channels)

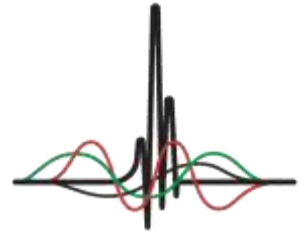


- 470-694 MHz range was used during IPL opening ceremony

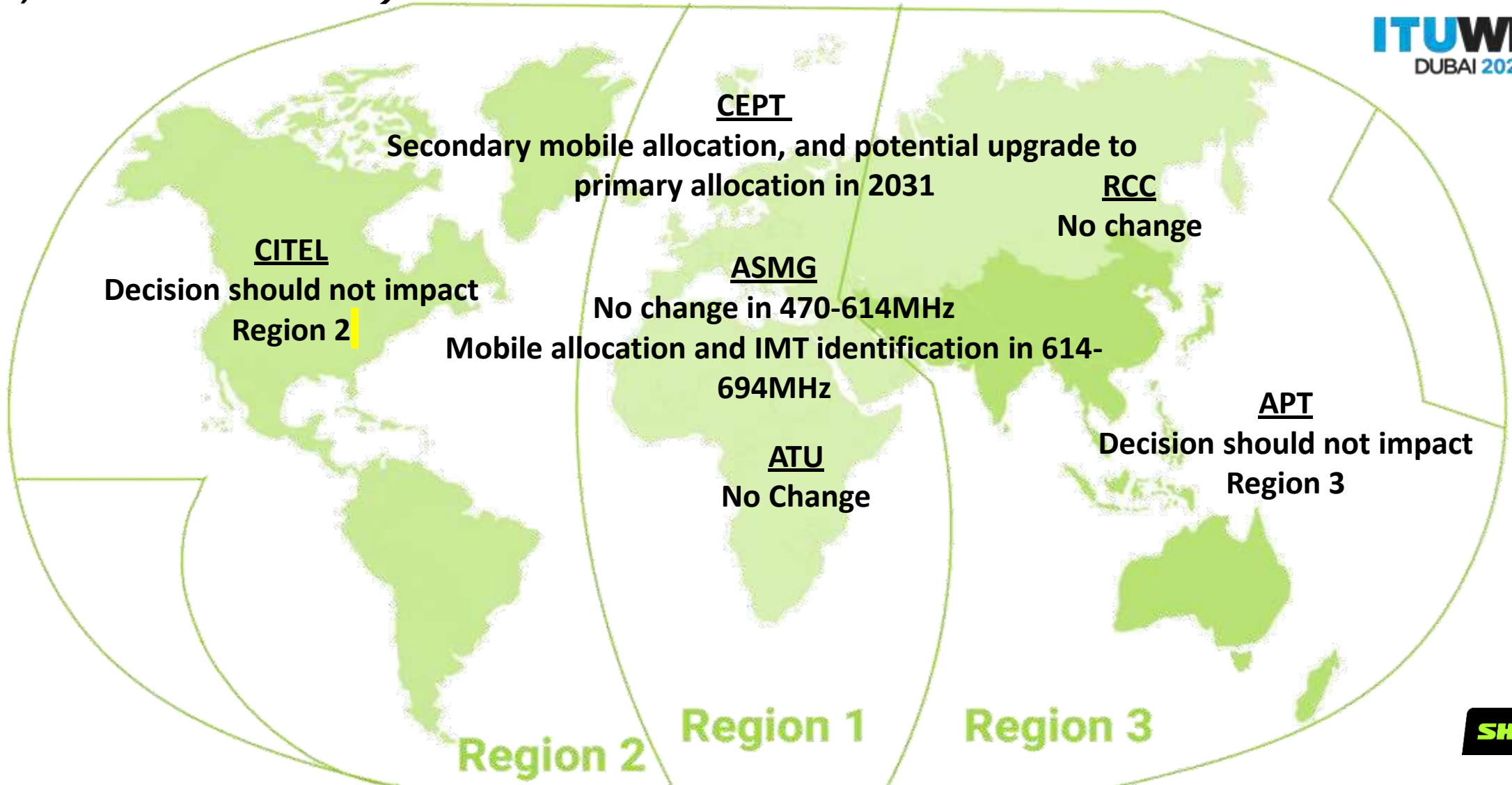
- Not enough spectrum for **PMSE** in TV-UHF (470-694 MHz) band.
- Open **1240-1260 MHz & 1350-1400 MHz** for wireless mics.
- [Spectrum planning](#) document recommends using **wired communication system wherever and whenever possible.**

WRC-23 Agenda Item 1.5

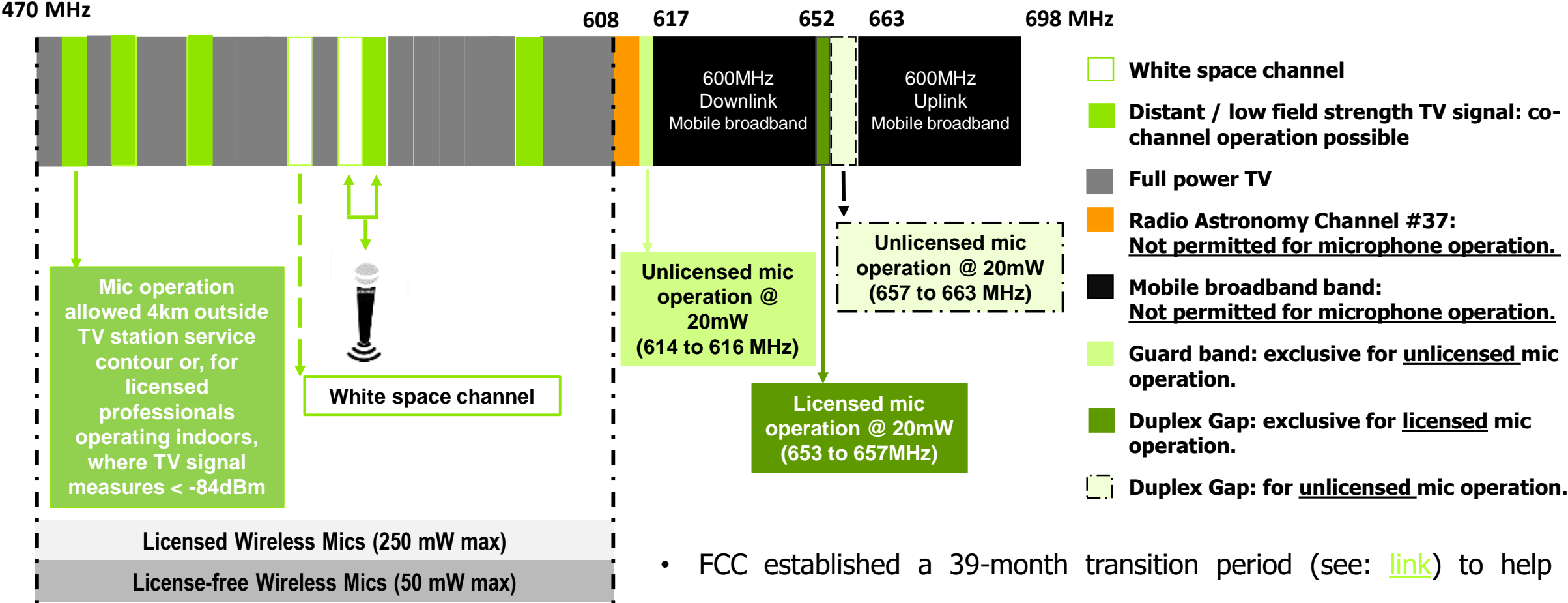
Agenda Item 1.5 to consider regulatory actions in 470-694 MHz in ITU-R Region 1 (Europe, Middle East & Africa)



ITUWRC
DUBAI 2023



U.S. Regulations (1/2)



- FCC established a 39-month transition period (see: [link](#)) to help smooth the transition of wireless microphone operations out of the 600 MHz service band to other available frequencies.
- FCC allows operations in 600 MHz mobile band under Special Authorizations.

U.S. Regulations (2/2)


- Most wireless microphone users operate **on an unlicensed basis** in the TV-UHF band spectrum.
- **Licensed use:** certain eligible users can obtain licenses if they routinely use 50 or more devices for most events or productions. Ex: broadcast programs, motion pictures, and major events or productions.
- **Additional spectrum** outside of TV-UHF band.



Key Take-Aways

- PMSE needs continued access to reliable TV-UHF Spectrum (e.g., 470-612 MHz, guard bands, duplex gap) after IMT auction of 612–652 MHz/663–703 MHz.
- Additional spectrum in 1-2 GHz (e.g., on a shared basis with incumbents) to compensate for loss of spectrum to IMT below 1 GHz.
- **For major events:**
 - Administrations need to identify and allocate additional spectrum in addition to recognized audio PMSE bands.
 - Get special access to mobile IMT spectrum blocks in the event's geographical area.

**India's Spectrum Policy should Address
Spectrum Needs for Audio Content Production
(PMSE)**



**PMSE contributes to the
economy and provides an
important service for
cultural life and
content production.**

SHURE

Thank you



<https://www.shure.com/en-US/about-us/press/324-channels-of-shure-axientr-digital-powers-fete-des-vignerons>



<https://youtu.be/9UnbcmVVKD8>