



Shure's Response to TRAI's Consultation Paper on the Auction of Radio Frequency Spectrum in the Frequency Bands Identified for International Mobile Telecommunications (IMT)

Dear Shri Akhilesh Kumar Trivedi,

[Shure Incorporated](https://www.shure.com) welcomes the opportunity to provide its response to the above-mentioned TRAI's public consultation. Shure is celebrating its 100th year as an iconic American brand in audio technology. Since 1925, Shure has been a leading global manufacturer and innovator of audio equipment known for quality, performance, and durability. Shure products (www.shure.com) are utilized worldwide in audio-Programme Making and Special Events (PMSE) an inclusive term by ITU that covers wireless microphones and in-ear monitors. Audio PMSE applications include deployments in industries such as live events, professional indoor and outdoor media content creation, broadcast and film production and, in addition to a variety of other civic, business, and special event contexts. These applications continue to grow annually in scale and density to meet the needs of event producers engaged in increasingly complex productions to meet audience expectations.

India's vibrant content creation sectors spanning Bollywood, music, and theatre are heavily reliant on high-quality audio production facilitated by wireless microphone systems. Operating within the 470-698 MHz spectrum range, audio PMSE plays a vital role in delivering extraordinary sound experiences to global audiences.

A notable example of audio PMSE's significance is seen in the extensive wireless installations at the Jio World Centre for the Reliance Group, demonstrating its role in executing large-scale events. While advancements in audio PMSE technology improve spectrum efficiency, they do not fully mitigate the challenges posed by diminishing spectrum availability due to reallocation to other services.

As TRAI and Department of Telecommunications (DoT) consider expanding cellular mobile services within the 600 MHz band, it is crucial to take into account the needs of current users in this spectrum. Ensuring a seamless transition and supporting ongoing operations for audio PMSE is vital to avoid any service disruptions.

Shure is pleased to provide comments on TRAI's Consultation on auction of radio frequency spectrum in the frequency bands identified for IMT in India.

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Please contact the undersigned if you have any questions.

A handwritten signature in black ink, appearing to read 'Rajesh', is written over a horizontal line.

Respectfully submitted,
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Shure is pleased to provide comments on TRAI's consultation regarding Chapter 1, Section B, which pertains to the aspects related to the auction of the 600 MHz band. Specifically, we address:

Question 13. Are there any other inputs/issues related to the auction of spectrum in the 600 MHz band for the forthcoming auction? Suggestions may be made with detailed justifications.

Shure kindly urges TRAI to evaluate the potential impacts of the auction on existing audio PMSE applications within the 600 MHz band. It is essential to address the following key issues:

1. Ensuring Uninterrupted Operations for Existing Audio PMSE Users in 600MHz Band

As TRAI navigates the process of auctioning the 600 MHz band for IMT, it becomes imperative to ensure that existing services in this band, particularly wireless microphone operations, are adequately supported during the transition.

The United States was the first country to clear the 600 MHz band from television and audio PMSE, utilizing a phased approach implemented by the Federal Communications Commission (FCC).

This strategy offers a valuable framework for balancing the introduction of new services with operational continuity. The gradual reallocation of the 600 MHz band in the United States provided audio PMSE users with sufficient time to transition to lower bands minimizing disruptions in their operations. Ensuring adequate access to the 600 MHz band during this transition period is crucial for the seamless execution of large-scale events.

a. Transition Plan for 600MHz: USA Example

The FCC has 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. Specifically, the FCC allowed users to continue operations on the 600 MHz service band under certain conditions until July 13, 2020.

Many frequencies in the TV bands that had been available for wireless microphone use prior to the auction will continue to be available after the transition period. These include:

- Certain frequencies in the 600 MHz guard band: 614-616 MHz.
- Certain frequencies in the 600 MHz duplex gap: 653-657 MHz for licensed use or 657-663 MHz for unlicensed use.
- Additional frequencies outside of the TV bands also are available for wireless microphone use.

Shure kindly recommends TRAI to consider implementing a transition strategy for audio PMSE users once the 600 MHz band auction decision is final. This approach would ensure seamless operations during the transition.

2. Strategic Utilization of the 600 MHz Band for Large-Scale Events

The dynamic yet predictable nature of audio PMSE offers a potential mechanism by which the needs of audio PMSE can continue to be met through careful spectrum coordination.

a. Special Temporary Approval in USA for Large Events

For extraordinary events, additional spectrum in addition to the recognized audio PMSE bands may be needed, for example the United States' FCC grants Special Temporary Authority (STA)¹ to permit immediate or temporary operation of certain radio facilities during urgent conditions.

STAs are granted with a fixed period (usually six months) necessary to cover a special event. STAs are not specific to the 600 MHz FCC routinely grants STAs for testing and other temporary use like for demos at a trade show, etc.

STAs may be granted in the following circumstances:

- In emergency situations, such as natural disasters.
- To permit restoration or relocation of existing facilities to continue communication service.
- For a temporary, non-recurring service where a regular authorization is not appropriate.
- In other situations, involving circumstances which are of such extraordinary nature that delay in the instruction of temporary operation would seriously prejudice the public interest.

An example is the FCC granting STAs for the use of 614-673 MHz for Super Bowl in Los Angeles in 2022 within one kilometer of the stadium. Additionally, STAs were granted for all NFL stadiums in different States in 2023 within 1.6 kilometers of the stadium.

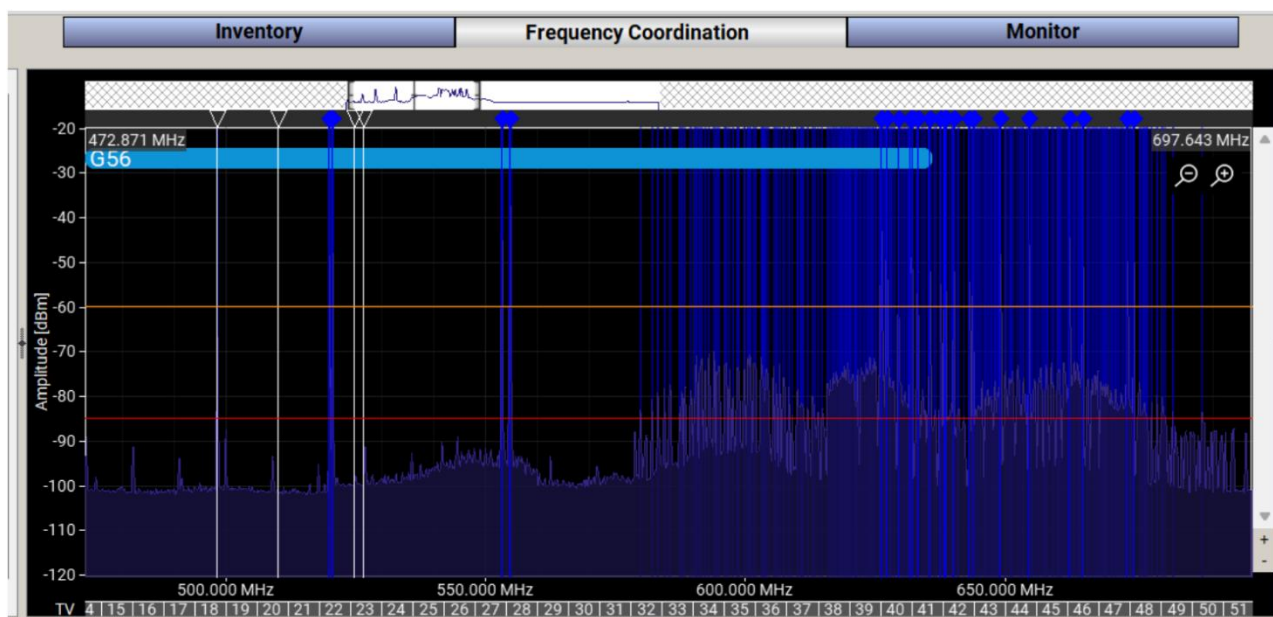
Application for an STA can be done on the [FCC website](#) (See: [Link](#)) where one can download fee information in any of several formats.

Furthermore, the FCC permits the use of the entire duplex gap as a dedicated area for audio PMSE, effectively segmenting it to maximize efficiency. Licensed wireless microphones are allocated the lower segment (653-657 MHz), while unlicensed wireless microphones utilize the upper segment (657-663 MHz).

¹ [STA Licensing](#)

b. Special Annual Events in India

Audio PMSE serves as a predictable application that can be effectively managed, especially during annual events that depend on the 600 MHz band in regions like Bhuj, Gujarat. Despite its proximity to the sensitive border with Pakistan, Bhuj continues to host the Navratri Festival, highlighting the importance of reliable audiovisual experiences to preserve cultural traditions. However, accessing the lower bands of UHF is not possible, likely due to military usage, complicating audio PMSE application deployment in such areas. To illustrate this, the following figure presents the frequency management plan generated using Shure's Wireless Workbench Software for the Navratri Festival.



Spectrum for Navratri Celebration in Bhuj

The thin blue lines illustrated in the figure represent 200 kHz audio channels. During the event planning, it was observed that the spectrum below 580 MHz appeared to be blocked. Approximately 100 MHz of spectrum in the 600 MHz band was necessary to meet the festival's requirements.

To ensure the continued success of such festivals, case-by-case coordination may be required for audio PMSE to operate in the 600 MHz band in specific locations. This offers a balanced solution to address spectrum scarcity while ensuring uninterrupted audiovisual experiences, thereby maintaining the integrity and success of the Navratri Festival in Bhuj.

In the event that the 600MHz band is auctioned to mobile services, Shure suggests that the 600 MHz band remain accessible for wireless microphone use, on case-by-case basis and specific event needs through coordination.



Conclusion

Shure is fully committed to supporting the audio PMSE sector, its operations, and the entertainment media industry in India. Recognizing this industry as a crucial contributor to the nation's economy, society, and cultural landscape. In light of potential changes to IMT spectrum auction, we respectfully urge the TRAI to consider implementing a transition period similar to the approach adopted in the United States during the 600 MHz band auction. This strategic move would help facilitate an orderly transition. Additionally, we request that TRAI explore granting case-by-case approval for specific events within the 600 MHz band, ensuring adaptability and consistently delivering exceptional sound experiences for special events.

In reference to ongoing discussions within the National Frequency Allocation Plan (NFAP) review committee, it was decided to include wireless microphones in the 470-612 MHz bands. Shure kindly request the TRAI, DoT and WPC to support the audio PMSE industry by issuing a temporary permit allowing wireless microphone activities within these licensed bands until the final regulatory provisions are established. Given that the regulatory provisions will take time to be finalized, continued operations and sales of wireless microphones are essential to avoid interruptions in critical daily events across India.