TRAI Consultation Paper on Assignment of Additional Spectrum to Indian Railways for its Safety and Security Applications

Dear Sir/Ma'am,

"We appreciate TRAI's initiative in addressing the challenges and opportunities outlined in the consultation paper on Additional Spectrum to Indian Railways for its safety and Security Applications. Tejas welcomes the opportunity to contribute to this crucial aspect of technological advancement by submitting our response. We trust that our feedback will be valuable in formulating effective policies and frameworks for Additional Spectrum to Indian Railways for its safety and Security Applications."

Q1. Whether an additional 5 MHz (paired) spectrum in the 700 MHz band should be assigned to Indian Railways (IR) in order to meet its requirement for safety and security applications? Kindly provide a detailed response with justification.

Response: Yes, Indian railways safety and security applications are uplink centric which requires cumulative uplink capacity ~40Mbps. To achieve this throughput, minimum spectrum would be 10MHz.

Q2. In case your response to Q1 is negative, -

(a) In what manner, the requirement of the IR for safety and security applications may be fulfilled?

(i) Specifically, whether it would be appropriate to devise a framework under which the 10 MHz (paired) spectrum [5 MHz (paired) assigned to IR, and 5 MHz (paired) reserved for NCRTC and other RRTS/ Metro rail network] in the 700 MHz band may be used by all types of rail networks on shared basis, subject to the outcome of the field trial recommended by the Authority in its recommendations on 'Spectrum Requirements of National Capital Region Transport Corporation (NCRTC) for Train Control System for RRTS Corridors' dated 28.12.2022? If yes, please suggest the key features which should be included in such a framework?

(ii) Any other suggestion may be provided with detailed justification.

(b) In case your response to Q(2)(a)(i) is affirmative, whether a frequency spectrum of 10 MHz (paired) in the 700 MHz band would be sufficient to meet the requirement of different rail networks in India particularly in overlapping zone? Kindly provide a detailed response with justification.

Response: Yes, 10 MHz (paired) in 700 MHz would be sufficient to meet requirement of different rail networks in India. In overlapping zone, MOCN based sharing model is recommended for ensuring best utilization of spectrum resources, i.e., Single RAN (eNodeB) network connecting multiple Core(EPC) networks of respective rail networks.

Q3. In case it is decided to assign an additional 5 MHz (paired) spectrum in the 700 MHz band to IR, whether there is a need for harmonization of spectrum in the 700 MHz band to make

the spectrum assigned to IR, and NCRTC and other RRTS/ Metro Rail Networks contiguous? Kindly provide a detailed response with justification.

Response: Yes, Harmonization of spectrum is preferred in 10MHz. It will make efficient utilization of complete 10MHz spectrum across different services like, Kavach, MCPPT and on-board Video Surveillance. In case spectrum is not harmonized, LTE system will radiate 2 frequencies at same time in 700MHz band in same direction, which requires tedious efforts in radio optimization and respective frequencies locking for services like Kavach, MCPTT/PTV and Video Surveillance, which will increase the complexity across various network elements during deployment.

Regards

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