

## India's V2X Framework: Connected Mobility via Licence-Exempt Spectrum Regime

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### Introduction

The transition towards connected mobility received an impetus as on 10 June 2026 when the Department of Telecommunications (DoT) released the Use of On-Board Unit for Cellular Vehicle-to-Everything Communication in the 5.9 GHz band (Exemption from Licensing Requirements) Rules 2026 (Rules).

The Rules mark an important step towards enabling vehicle-to-everything (V2X) communication by exempting licensing requirements for specified vehicle communication equipment operating in the 5875-5905 MHz frequency band. V2X technology enables real-time communication between vehicles, road infrastructure and other road users, supporting applications such as collision warnings, emergency braking alerts, traffic management and other intelligent transport systems. The regulatory move aligns with global efforts to accelerate connected vehicle adoption and improve road safety outcomes.

### Key Features of the Rules

- The Rules provide a targeted exemption from licensing requirements for On Board Units (OBU) deployed as part of intelligent transport systems. An OBU includes radio equipment (including antenna) installed in, forming part of, or carried in relation to a vehicle for road transport purposes. The exemption applies on a non-interference, non-protection and non-exclusive basis. This means that while OBUs may operate without individual spectrum assignment, such devices will not be entitled to protection against interference and cannot claim exclusive access to the frequency band.
- The Rules also prescribe the technical parameters for operation, including maximum power spectral density of 23 dBm/MHz, maximum equivalent isotropic radiated power of 33 dBm for in-band emissions, and limits on out-of-band emissions. Further, OBUs must comply with standards notified by the Bureau of Indian Standards or the Government. In the absence of notified Indian standards, relevant international standards will be applicable. Accordingly, while the Rules provide a licensing exemption for deployment of OBUs, the exemption does not dispense with technical compliance requirements. OBUs must continue to conform with applicable standards and DoT oversight.
- The Rules also introduce an equipment type approval mechanism. Manufacturers or applicants must seek approval for each equipment type through the prescribed portal, unless approval for the relevant equipment type has already been granted and published.
- The Government has the authority to issue directions to users of exempted radio equipment where a licensed operator reports that its licensed system is experiencing harmful interference from such equipment. This is important as it preserves regulatory oversight over otherwise licence-exempt devices and enables DoT to intervene against interference-causing equipment even where such equipment is not operating under a traditional spectrum licence framework.

## Comments

The regulatory architecture reflects a deliberate policy choice which enables rapid deployment of safety-oriented connected vehicle technologies while avoiding the administrative-heavy compliances associated with individual spectrum licensing. Unlike traditional commercial telecom services, V2X safety applications require widespread interoperability between vehicles, manufacturers and infrastructure providers. A licence-exempt framework may therefore facilitate faster ecosystem development by allowing automobile manufacturers, technology providers and infrastructure operators to deploy compatible solutions without waiting for spectrum allocation processes.

However, the non-exclusive nature of the framework also places greater emphasis on technical coordination and interference management. The Rules recognise this by empowering authorities to issue directions where exempted equipment causes harmful interference to licensed systems, including measures such as relocation of equipment, reduction of transmission power or use of specified antenna types.

The Rules come amid a broader policy debate on the future allocation model for V2X spectrum. Telecom operators have argued that V2X services should be integrated within existing telecom networks and supported through licensed spectrum frameworks. They have also expressed concerns that fragmented spectrum access across multiple stakeholders could create interference management challenges, particularly given the safety-critical nature of V2X applications.

In contrast, other stakeholders have supported a shared-access model, stating that V2X should be treated as a public safety technology rather than a conventional commercial telecom service.

The 5.9 GHz V2X Rules represent a clear policy shift. By adopting a licence-exempt model for OBUs, the Government has accelerated ecosystem development and accelerated adoption of safety-focused vehicle communication technologies. The implementation success of this framework, however, will depend on effective technical standards, viability of shared spectrum model and deployment of interoperable infrastructure.

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