

# THE CONTROVERSY OVER INCLUSION OF THE MMWAVE BAND IN 5G AUCTIONS

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An industry body that represents interests of the communication satellite ecosystem in India has voiced concerns over the Government's plan to include the mmWave bands in the spectrum auction, which is slated for later this year. | Photo Credit: [Getty Images/iStockphoto](#)

**The story so far:** Before the Telecom Regulatory Authority of India (TRAI) submits 5G pricing recommendations to the Department of Telecommunications (DoT) in March, the regulator had sought industries' views (till January 11) on topics related to quantum of spectrum to be auctioned off. It had also asked for views on band plan, block size, and conditions for auction of spectrum in new bands, which includes millimetre (mm) Wave band of 24.25-28.5 GHz. An industry body that represents interests of the communication satellite ecosystem in India has voiced concerns over the Government's plan to include the mmWave bands in the spectrum auction, which is slated for later this year.

The Satcom Industry Association-India (SIA), in its submission to TRAI, has urged the regulator to limit the inclusion of mmWave spectrum in the 5G auction as 27.5-31 GHz and 17.7-21.2 GHz bands have been preserved for satellite-based broadband services as per the decision taken by the International Telecommunication Union (ITU). The industry body pointed to Europe's "5G Roadmap", which is built on the ITU's decision to hold these bands for satellite-based broadband services.

The SIA also noted that offering excessive spectrum resources in the upcoming 5G auction will result in Indian citizens being denied the benefits of high-demand, advanced satellite broadband services. In addition to this, it will result in a massive loss to the Indian economy of up to \$184.6 billion by 2030, along with the loss of foreign direct investment (FDI) and employment generation benefits.

Millimetre Wave band or mmWave is a particular segment of radio frequency spectrum that range between 24 GHz and 100 GHz. This spectrum, as the name suggests, has a short wavelength, and is apt to deliver greater speeds and lower latencies. This in turn makes data transfer efficient and seamless as the current available networks work optimally only on lower frequency bandwidths.

5G services can be deployed using lower frequency bands. They can cover greater distances and are proven to work efficiently even in urban environments, which are prone to interference. But, when it comes to data speeds, these bands fail to hit peak potential needed for a true 5G experience. So, mmWave is that quintessential piece in the 5G jigsaw puzzle for mobile service providers.

Internet has largely been provided to users via fibre-optic based broadband connectivity or mobile network. Of late, another class of Internet vendors is showing up. These are satellite-based communication service providers. For example, SpaceX's Starlink and Bharti Airtel's OneWeb are some of the players in this market. This segment uses low-Earth orbit (LEO) satellites to provide broadband to both urban and rural users. Their service could also be used for weather predictions.

According to an IEEE Wireless Communications paper on Spectrum Policy, "the 24.25-27.5 GHz

band had been the subject of controversy due to out-of-band emissions into the passive satellite band used for weather satellites at 23.6-24 GHz.” This issue was later resolved by setting a limit for base station emissions into the satellite band. The limit would become more restrictive in 2027, and any equipment installed prior to that date will be made acceptable. This compromise was reached in the hope that it will allow an immediate rollout of 5G in this band while pressing manufacturers to decrease, in the long term, out-of-band emissions into the nearby passive band where they may impact weather prediction data.

The satellite communication industry is looking to pre-empt mobile telephony companies’ move by ensuring that the bands don’t go to them in the first place. But, until 2027, these bands can be auctioned off to mobile Internet service providers.

SIA-India has noted that the 330 MHz of spectrum in the 3.3-3.67 GHz band is enough to satisfy India’s mid-band 5G needs while ensuring a competitive auction. India has three private mobile network operators holding 90% of the total market share. These three will be able to secure the available spectrum, roughly 80- 90 MHz each, while leaving the remaining 10% to state-owned enterprises.

The industry body also noted that providing excess spectrum could pose a downside risk of the bands going unsold, or even worse, underutilised by terrestrial players at the expense of satellite-based service providers. The allocation of mmWave band is critical to the satellite communication industry, which needs a stronger regulatory support to ensure that 5G operations don’t interfere with their existing operations.

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The chips are Intel’s first effort in many years in the market and will take on leader Nvidia, which had graphics chips sales of \$9.8 billion in its most recent fiscal year, a 29% increase.

The concept car uses less than 10 kWh of electrical energy to travel 100 km. When translated into fossil-fuel consumption, this is around 1 litre per 100 km.

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