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Coexistence in Wireless Networks: Challenges and Opportunities

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Abstract

The potential consequences of interference on communication networks are one of the main challenges in the nature and efficiency of wireless communication links. The interruption is seen as additional noise to the device, which can have a major impact on the efficiency of the connection. The rapid expansion of broadband wireless networks and the increasing congestion of the radio frequency spectrum due to shared usage by terrestrial and satellite networks have heightened concerns about potential interference. To optimize spectrum utilization, multiple terrestrial and satellite networks often coexist within the same frequency bands allocated for satellite communications services. Spectrum interference in wireless networks is a topic of much interest in the current scenario as it can present a lot of challenges. This article provides a critical review of the coexistence and spectrum sharing in wireless networks. Along with this, mitigation techniques to avoid interference have also been discussed in detail. The article aims to give a detailed discussion

on the challenges and opportunities in this field by reviewing significant recent works in this field. © 2025 by the authors.

Author keywords

5G; coexistence; interference; spectrum sharing; wireless networks

Indexed keywords

Engineering controlled terms

Efficiency; Electronic document exchange; Satellite communication systems; Satellites; Wireless networks

Engineering uncontrolled terms

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Engineering main heading

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