

# GAO Highlights

Highlights of [GAO-24-106325](#), a report to congressional committees

## Why GAO Did This Study

Spectrum enables a wide range of critical services in the U.S., such as mobile phone service and wireless services used by the military. Nearly all usable spectrum has been allocated by FCC for nonfederal use or by NTIA for federal use. Yet the demand for spectrum continues to grow due to ongoing innovations such as 5G networks. Improving receiver performance can help increase the available spectrum.

GAO was asked to review issues related to receiver performance. This report examines key challenges that selected stakeholders and experts identified to improving receiver performance, and how FCC and NTIA consider receiver performance as part of their spectrum management efforts.

GAO reviewed relevant statutes, regulations, and FCC and NTIA guidance and documentation. GAO interviewed FCC and NTIA officials, experts, and relevant stakeholders, such as spectrum users and industry associations. GAO compared FCC's and NTIA's spectrum management to key practices for managing and assessing the results of federal efforts.

## What GAO Recommends

GAO is making three recommendations to FCC related to implementing its principles for spectrum management: (1) define goals, (2) identify strategies to achieve these goals, and (3) identify barriers to these goals. GAO is also making a recommendation to NTIA to identify and assess current information sources related to federal receiver performance. FCC and NTIA agreed with the recommendations.

View [GAO-24-106325](#). For more information, contact Andrew Von Ah at (202) 512-2834 or [vonaha@gao.gov](mailto:vonaha@gao.gov).

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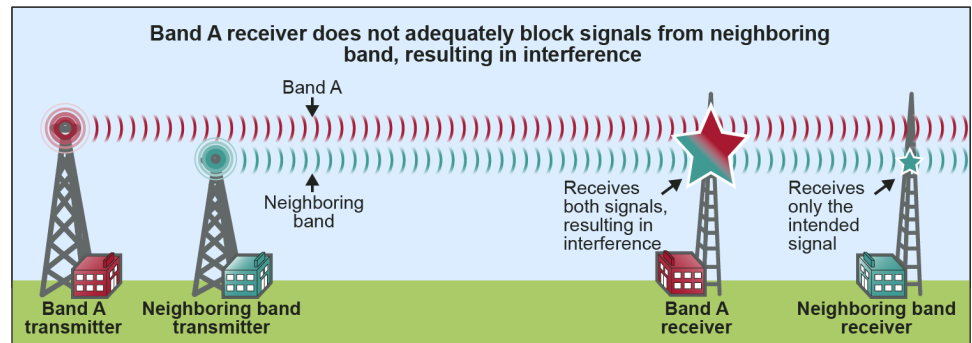
## SPECTRUM MANAGEMENT

### Key Practices Could Help Address Challenges to Improving Receiver Performance

## What GAO Found

Equipment that receives radio signals (receivers) can be susceptible to unwanted signals from new services and users entering the radio frequency spectrum environment. Some receivers may not be able to reject unwanted signals that are transmitted in adjacent and nearby spectrum bands, resulting in interference (see figure). Having more robust receivers can help promote spectrum efficiency by enabling different services to operate closer together. However, stakeholders and experts that GAO interviewed noted several challenges to improving receiver performance. For example, they said that it can be difficult to design, procure, or modify receivers that can accommodate the rapidly evolving spectrum environment.

#### Example of a Receiver Unable to Reject Unwanted Signals Transmitted from Nearby Services



Source: GAO. | GAO-24-106325

In 2023, as a part of its broader efforts to improve spectrum efficiency, the Federal Communications Commission (FCC) established nine principles for spectrum management that set expectations for users of nonfederal receivers. Specifically, the principles establish policy and technical considerations for receivers including that users should design receivers to reduce unwanted signals from nearby services. However, in implementing the principles, FCC has not applied key practices that GAO has found could help an agency better manage for results, including identifying goals, strategies, and barriers. Taking such steps could help FCC address challenges to improving receiver performance by providing more direction and certainty for spectrum users.

The National Telecommunications and Information Administration (NTIA) collects information and mandates performance standards for certain federal receivers. While the information NTIA currently collects is helpful for preventing instances of harmful interference, it may not provide insight into other aspects of receiver performance that could promote spectrum efficiency. Assessing its information sources to identify and address any information gaps related to federal receiver performance could help NTIA ensure that it has the evidence needed to address broader spectrum efficiency efforts. For example, knowing more about the robustness of federal receivers and the extent to which receiver performance is being optimized could be helpful to effectively manage spectrum moving forward.