

# GAO@100 Highlights

Highlights of [GAO-21-474](#), a report to the Committee on Science, Space, and Technology, House of Representatives

## Why GAO Did This Study

Spectrum is a scarce resource that supports vital services, such as mobile communications and Earth-observing satellites. In the U.S., FCC and NTIA regulate and manage nonfederal and federal spectrum use, respectively, while the ITU sets global regulations and hosts conferences to update them. Recent U.S. and ITU activities have sought to designate spectrum for possible 5G use and to study how to do so without causing harmful interference to other uses, particularly satellites like those operated by NOAA and NASA that contribute to weather forecasting and climate science.

GAO was asked to review how agencies coordinate on and study these matters. Among other objectives, this report examines: (1) the extent that cognizant federal agencies follow leading practices in collaborating on potential interference effects on weather forecasting and (2) their processes to conduct and review technical interference studies. GAO reviewed documentation and interviewed officials from FCC, NTIA, NOAA, and NASA; analyzed how various agency mechanisms and processes were implemented during recent FCC and ITU spectrum-management activities; and compared agencies' efforts to key collaboration practices and applicable key elements of a sound research process.

## What GAO Recommends

GAO is making 11 recommendations, including that FCC and NTIA collaborate to update or clarify various documents and processes related to spectrum-management coordination. The agencies generally agreed to implement the recommendations.

View [GAO-21-474](#). For more information, contact Andrew Von Ah at (202) 512-2834 or [vonaha@gao.gov](mailto:vonaha@gao.gov), or Karen L. Howard at (202) 512-6888 or [howardk@gao.gov](mailto:howardk@gao.gov).

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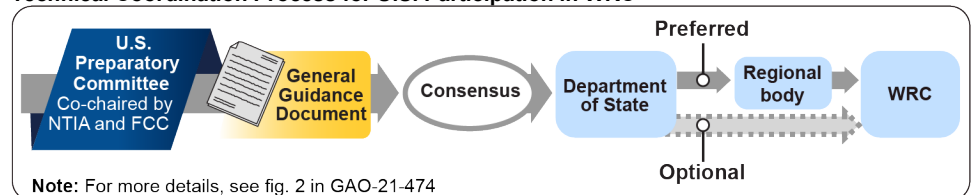
## SPECTRUM MANAGEMENT

### Agencies Should Strengthen Collaborative Mechanisms and Processes to Address Potential Interference

## What GAO Found

The Federal Communications Commission (FCC) and National Telecommunications and Information Administration (NTIA) regulate and manage spectrum, and other agencies, such as the National Oceanic and Atmospheric Administration (NOAA) and National Aeronautics and Space Administration (NASA) are among federal spectrum users. To address potential interference among proposed uses of spectrum, these agencies employ various coordination mechanisms. For domestic matters, the agencies coordinate through an NTIA-led committee that provides input to FCC's spectrum proceedings. For U.S. participation in the International Telecommunication Union's (ITU) World Radiocommunication Conferences (WRC), agencies coordinate via a preparatory committee that provides input used to develop U.S. positions that the Department of State submits to a regional body or directly to the WRC (see figure).

#### Technical Coordination Process for U.S. Participation in WRC



Note: For more details, see fig. 2 in [GAO-21-474](#)

Sources: GAO analysis of National Telecommunications and Information Administration (NTIA) and Federal Communications Commission (FCC) information. | [GAO-21-474](#)

These mechanisms reflect some key collaboration practices but do not fully reflect others. For example, while the documents that guide coordination between FCC and NTIA and the preparatory committee emphasize reaching consensus whenever possible, there are no clearly defined and agreed-upon processes for resolving matters when agencies cannot do so. Additionally, neither document has been updated in almost 20 years, though agency officials said conditions regarding spectrum management activities have changed in that time. GAO's review of U.S. participation in ITU's 2019 WRC shows that these issues affected collaboration. For example, disputes among the agencies and the inability to reach agreement on U.S. technical contributions challenged the U.S.'s ability to present an agreed-upon basis for decisions or a unified position.

NOAA and NASA conduct and FCC and NTIA review technical interference studies on a case-by-case basis. When originating from ITU activities, the agencies conduct or review technical interference studies through participation in international technical meetings and the preparatory committee process. However, the lack of consensus on study design and, within the U.S. process, specific procedures to guide the design of these types of studies, hampered U.S. efforts to prepare for the 2019 WRC. For example, the U.S. did not submit its studies on certain key issues to the final technical meeting, resulting in some stakeholders questioning whether the corresponding U.S. positions were technically rooted. Agreed-upon procedures could help guide U.S. efforts to design these studies and consider tradeoffs between what is desirable versus practical, to mitigate the possibility of protracted disagreements in the future.