

GAO@100 Highlights

Highlights of [GAO-21-440T](#), a testimony before the Subcommittee on Cyber, Innovative Technologies, and Information Systems, Committee on Armed Services, House of Representative

Why GAO Did This Study

The spectrum is essential for facilitating control in operational environments and affects operations in the air, land, sea, space, and cyberspace domains. Spectrum use is pervasive across warfighting domains and thus maintaining or achieving spectrum superiority against an adversary is critical to battlefield success.

This statement summarizes: (1) the importance of the spectrum; (2) challenges to DOD's superiority in the spectrum; and (3) the extent to which DOD has implemented spectrum-related strategies and is positioned to achieve future goals.

This statement is based on GAO's December 2020 report ([GAO-21-64](#)) and updates conducted in March 2021. For the report, GAO analyzed 43 studies identified through a literature review, reviewed DOD documentation, and interviewed DOD officials and subject matter experts. For the updates, GAO reviewed materials that DOD provided in March 2021.

What GAO Recommends

In its December 2020 report, GAO made five recommendations, including that DOD should identify processes and procedures, reform governance structures, assign leadership for strategy implementation, issue an implementation plan, and develop oversight processes. DOD generally concurred with the recommendations, and as of early March 2021 has an implementation plan being reviewed by senior leaders.

View [GAO-21-440T](#). For more information, contact Joseph W. Kirschbaum at (202) 512-9971 or kirschbaumj@gao.gov.

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ELECTROMAGNETIC SPECTRUM OPERATIONS

DOD Needs to Take Action to Help Ensure Superiority

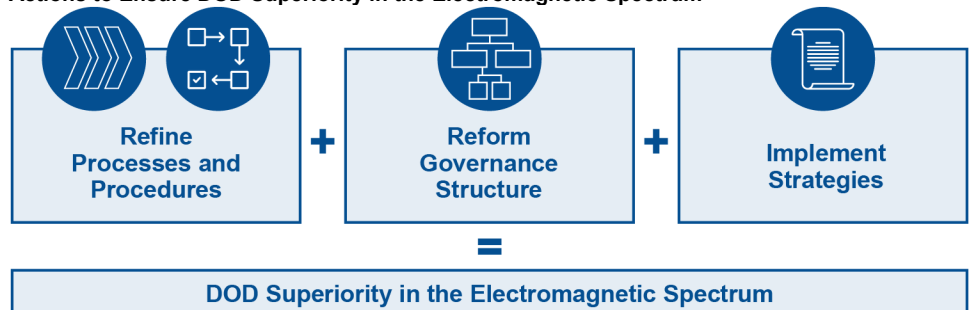
What GAO Found

The electromagnetic spectrum (the spectrum) consists of frequencies worldwide that support many civilian and military uses, from mobile phone networks and radios to navigation and weapons. This invisible battlespace is essential to Department of Defense (DOD) operations in all domains—air, land, sea, space, and cyberspace. The interruption of U.S. forces' access to the spectrum can result in a military disadvantage, preventing U.S. forces from operating as planned and desired.

According to the studies by DOD and others that GAO reviewed for its December 2020 report on military operations in the spectrum, adversaries, such as China and Russia, are also aware of the importance of the spectrum and have taken significant steps to improve their own capabilities that challenge DOD and its operations. For example, studies described how China has formed new military units and fielded new unmanned aerial vehicles with spectrum warfare capabilities, and Russian electromagnetic warfare forces have demonstrated their effectiveness through successful real-world applications against U.S. and foreign militaries. These developments are particularly concerning in the context of challenges to DOD's spectrum superiority. GAO's analysis of the studies highlighted DOD management challenges such as dispersed governance, limited full-time senior-level leadership, outdated capabilities, a lengthy acquisition process, increased spectrum competition and congestion, and a gap in experienced staff and realistic training.

GAO found that DOD had issued strategies in 2013 and 2017 to address spectrum-related challenges, but did not fully implement either strategy because DOD did not assign senior leaders with appropriate authorities and resources or establish oversight processes for implementation. DOD published a new strategy in October 2020, but GAO found in December 2020 the department risks not achieving the new strategy's goals because it had not taken key actions—such as identifying processes and procedures to integrate spectrum operations across the department, reforming governance structures, and clearly assigning leadership for strategy implementation. Also, it had not developed oversight processes, such as an implementation plan, that would help ensure accountability and implementation of the 2020 strategy goals (see figure).

Actions to Ensure DOD Superiority in the Electromagnetic Spectrum



Source: GAO analysis of Department of Defense (DOD) information. | [GAO-21-440T](#)