

Congress of the United States

House of Representatives

COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

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December 10, 2019

The Honorable Gene L. Dodaro
Comptroller General of the United States
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Mr. Dodaro:

We are deeply concerned about the potential for degradation of our nation's weather forecasts from interference in the electromagnetic spectrum. Meteorologists have expressed concern for many years that as the number and diversity of spectrum users increase, so does the likelihood of radio frequency interference and impaired access to spectrum bands that are needed for Earth observation. The American Meteorological Society has expressed concerns about "increasing pressure on weather-related radio frequency bands" and the "need for adequate protection and mitigation efforts against the loss and shared use of the spectrum" for at least a decade.¹ In June of this year, the governing congress of the World Meteorological Organization adopted a resolution expressing "its serious concern at the continuing threat to several radio-frequency bands allocated to the meteorological aids, meteorological-satellite, Earth exploration satellite and radiolocation (weather and wind profiler radars) services posed by the development of other radiocommunication services."²

In March 2019, the House Committee on Science, Space, and Technology sent a bipartisan letter to the Chairman of the Federal Communications Commission (FCC) requesting a delay of the 24 GHz auction out of concern for potential interference with weather data collected at the adjacent 23.8 GHz band by passive sensors on National Oceanic and Atmospheric Administration

¹ "Radio Frequency Allocations for Meteorological Operations and Research" A Policy Statement of the American Meteorological Society (Adopted by the AMS Council on October 1, 2009), <https://www.ametsoc.org/ams/index.cfm/about-ams/ams-statements/statements-of-the-ams-in-force/radio-frequency-allocations-for-meteorological-operations-and-research/>.

² Resolution 42 (Cg-18) Radio Frequencies for Meteorological and Related Environmental Activities; World Meteorological Congress Abridged Final Report of the Eighteenth Session (June 3-14, 2019), https://library.wmo.int/doc_num.php?explnum_id=9827.

(NOAA) and National Aeronautics and Space Administration (NASA) Earth observing satellites.³ In his response to the Committee, the Chairman wrote that there was no evidence of potential interference between the use of the 24 GHz band for 5G and the collection of weather data. Further, the Chairman said that the FCC had seen no scientific evidence that an out-of-band emissions limit of -20 dBW for the 24 GHz band would impact weather data.⁴

However, NOAA and NASA leadership have affirmed their concerns regarding the potential loss of satellite data before the Committee. During a hearing on April 2, 2019, NASA Administrator Jim Bridenstine, in response to a question from Space and Aeronautics Subcommittee Ranking Member Brian Babin, testified that at these more relaxed emission limits of -20 dBW, “there is a very high probability that we are going to lose a lot of data.”⁵ At a May 16, 2019 hearing, NOAA’s Acting Administrator Neil Jacobs stated, in a response to a question by Subcommittee Chairwoman Lizzie Fletcher, that the interference limits being proposed by FCC “would result in roughly a 77 percent data loss from our passive microwave sounders. This would degrade the forecast skill by up to 30 percent.”⁶

These contradictory statements between the FCC, NOAA, and NASA regarding the use of the 24 GHz band for 5G are concerning. Earth observing satellites are critical for protecting the lives and property of the American people from severe weather. Further, the FCC is planning additional 5G spectrum auctions in the future that also have the potential to interfere with weather data collection on NOAA and NASA satellites. We must ensure there is an effective interagency process that can expand the availability of spectrum for future users while protecting existing federal spectrum needs.

Pursuant to Rule X of the U.S. House of Representatives, the Committee on Science, Space, and Technology is delegated full legislative and oversight jurisdiction over the National Weather Service, the National Institute of Standards and Technology (NIST), and NASA as well as oversight jurisdiction over all laws, programs, and Government activities relating to nonmilitary research and development.⁷

Therefore, we request that GAO conduct an evaluation of how the Federal government, including the FCC and the National Telecommunications and Information Administration (NTIA), resolves interference issues and ensures that spectrum is available to meet critical needs.

³ See Letter from Chairwoman Johnson and Ranking Member Lucas, H. Comm. on Sci., Space, and Tech., to Chairman Pai, Fed. Commc’ns Comm’n (Mar. 13, 2019), *available at* <https://science.house.gov/imo/media/doc/Pai%20FCC%20Letter.pdf>.

⁴ See Letter from Chairman Pai, Fed. Commc’ns Comm’n, to Chairwoman Johnson and Ranking Member Lucas, H. Comm. on Sci., Space, and Tech. (Apr. 29, 2019), *available at* <https://science.house.gov/imo/media/doc/4.29.19%20Ajit%20Pai%20letter%20to%20EBJ.pdf>.

⁵ “A Review of the NASA Fiscal Year 2020 Budget”, hearing before the H. Comm. on Sci., Space, and Tech. (Apr. 2, 2019), *available at* <https://science.house.gov/hearings/a-review-of-the-nasa-fy2020-budget-request>.

⁶ “The Future of Forecasting: Building a Strong U.S. Weather Enterprise”, hearing before the Subcommittee on the Environment, H. Comm. on Sci., Space, and Tech. (May 16, 2019), *available at* <https://science.house.gov/hearings/the-future-of-forecasting-building-a-stronger-us-weather-enterprise>.

⁷ Rule X, Clerk of the House of Representatives, 116th Cong., Rules of the House of Representatives (2019), *available at* <https://www.govinfo.gov/content/pkg/HMAN-115/xml/HMAN-115-pg441.xml>.

If GAO finds that existing interagency processes to resolve interference issues are inadequate or could be improved, we expect recommendations on how to improve such processes.

We ask that GAO study the following matters and provide recommendations as appropriate:

1. What are NOAA and NASA's processes for identifying and assessing potential spectrum interference issues?
2. How do NOAA and NASA work with federal and international meteorological partners to assess interference issues and potential effects on weather forecasting?
3. How do NOAA and NASA communicate potential interference issues to NTIA and FCC and to what extent is there an interagency process to assess and make decisions regarding potential interference issues? To what extent do agencies work together and abide by this process when there is not consensus?

In addition, NIST conducts research on spectrum sharing through its multi-agency partnership with the National Advanced Spectrum and Communications Test Network (NASCTN). Created in 2015, NASCTN's mission is to provide robust test processes and validated measurement data necessary to develop, evaluate, and deploy spectrum sharing technologies that can increase access to the spectrum by both Federal agencies and non-federal spectrum users.

With this in mind, we ask that GAO also study the following matters and provide recommendations as appropriate:

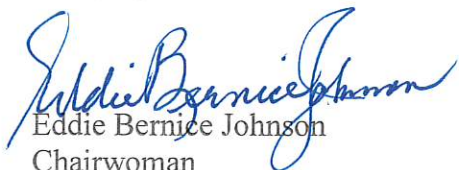
4. What are the existing capabilities and requirements for scientific analyses or studies to be conducted by NOAA, NASA, NTIA, FCC, and NIST/NASCTN regarding spectrum interference issues, and how are such analyses conducted, peer-reviewed, and presented?
5. What are the existing capabilities of NIST/NASCTN to conduct spectrum sharing studies and to what extent could they resolve the spectrum sharing issues addressed in this study?

The Committee is particularly interested in understanding the types of interference studies and analyses that are conducted by NOAA, NASA, NIST/NASCTN, NTIA, and the FCC, and typical timelines for identifying and resolving interference issues. We therefore ask that you consider these issues when conducting this study.

We also ask that GAO include the apparent lack of coordination between the FCC, NTIA, NOAA, and NASA on the 24 GHz band within its scope as a case study. The Committee is deeply concerned with the disagreement between U.S. federal agencies on out-of-band emission limits and the implications of those disagreements on the 2019 World Radiocommunication Conference regarding Agenda Item 1.13. It is vital that federal agencies work through these issues in a manner that is independent of political motivation and driven by science. As such, we ask that GAO determine whether interference issues regarding the 24 GHz band were adequately resolved and recommend how this process could be improved, if an ongoing issue.

Your assistance with this matter is greatly appreciated. If you have any questions, please contact Priyanka Hooghan or Janie Thompson of the Majority Committee staff at 202-225-6375 and Brent Blevins or Tom Connally of the Minority Committee staff at 202-225-6371.

Sincerely,



Eddie Bernice Johnson
Chairwoman
Committee on Science, Space, and
Technology



Frank D. Lucas
Ranking Member
Committee on Science, Space, and
Technology