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House of Representatives
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY

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November 21, 2022

Nathan Simington
Commissioner
Federal Communications Commission
445 12th Street NW
Washington, DC 20554

Dear Commissioner Simington,

As the Science, Space, & Technology Committee's jurisdiction includes oversight of outer space, the atmosphere, and the environment, the Committee seeks to protect and advance the quality of global weather forecasting and satellite-based climate measurements. However, we are deeply concerned that these essential services, which are inextricably connected to the safety of people, property, and health, are in peril due to the proposed rule to allocate additional portions of the spectrum designated for these government functions to commercial wireless services. We write to urge you and the Commission to stop consideration of the proposal for sharing the 1675-1680 MHz band for commercial wireless carriers operating in the downlink mode.

The 1675-1680 MHz spectrum band is used by the National Oceanic and Atmospheric Administration (NOAA) for the transmission of real-time satellite meteorological and environmental data, including critical information about severe weather and flooding, from NOAA's Geostationary Operational Environmental Satellites (GOES) to antennae on the ground. The 1675-1680 MHz spectrum band sits within the 1670-1710 MHz band allocated globally for meteorological satellite services; NOAA has already made half of this allocation available for sharing with commercial wireless broadband services.

In 2017, the National Telecommunications and Information Administration (NTIA) Technical Panel approved the NOAA Spectrum Pipeline Plan. It apportioned $12 million from the Spectrum Relocation Fund, managed by the Office of Management and Budget, to fund an independent study on the potential feasibility and implications of sharing the 1675-1680 MHz band with commercial wireless companies. Independent scientific experts entered into a contract with NOAA and developed the Spectrum Pipeline Reallocation Engineering Study (SPRES)

report between late 2018 to late 2020. At 555 pages, the SPRES report includes an exceedingly thorough, evidence-based evaluation of the potential for harmful interference with incumbent operations, namely weather data transmissions, in the band.[1] The SPRES report was only released late last month after extensive interagency comment and review, and NTIA filed it into FCC's record for *Allocation and Service Rules for the 1675-1680 MHz Band*.[2]

To be brief, the SPRES report found that "the proposed sharing of the band carries substantial risks," and that three specific types of signals currently transmitted by NOAA's National Environmental Satellite, Data, and Information Service (NESDIS) for weather and environmental data in and near the 1675-1680 MHz band are at risk for harmful interference if the band is shared with new commercial users:

- The High-Rate Information Transmission (HRIT) transmits near-real-time weather forecasts and warnings via satellite in a form well-suited for emergency managers. SPRES found that the risks of harmful interference affecting HRIT are **low but non-zero**.[3]

- The GOES ReBroadcast (GRB), the primary way that NOAA NESDIS provides weather and environmental data products from its GOES-R satellites to a variety of users, including all aspects of the National Weather Service, the U.S. Forest Service, state and local governments, emergency response personnel, and a host of private companies, is at **"significant risk" of harmful interference** from sharing. In some time-sensitive applications, GRB is the only method that can be used for data dissemination.

- The GOES Data Collection System (DCS) is a relay system managed by NESDIS which is used to collect information from 32,000 Earth-based platforms, primarily located in remote areas. The sensors record information on weather conditions, tides, wildfires, etc., and relay it via GOES-R satellites to fixed ground stations operated by NOAA, other federal science agencies such as USGS, and private sector users. This network sends an average of 800,000 reports a day. As DCS is a relay of the original source data, *any* interference results in *permanent* loss of data. The SPRES report found that the ground stations operating DCS receivers are at "**extreme risk**" of harmful interference if the 1675-1680 MHz band is shared.

The SPRES evaluators found that the DCS and GRB receive sites for GOES-R transmissions, such as the Wallops site in Virginia, would require as much as 300 km distance from any LTE downlink stations deployed in the band in order to be protected against 95% of interference

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[1] U.S. Department of Commerce. National Oceanic and Atmospheric Administration. National Environmental Satellite Data Information Service. *Spectrum Pipeline Reallocation 1675–1680 MHz Engineering Study (SPRES) Program Report.* Silver Spring, MD: NESDIS, October 2020. The full report is available on the Committee website at https://science.house.gov/download/noaa-spres-report.

[22] WT Docket No. 19-116, Allocation Rules for the 1675-1680 MHz Band.

[3] *Spectrum Pipeline Reallocation 1675–1680 MHz Engineering Study (SPRES) Program Report,* p. 20

events, and 650 km to be protected against 100% of interference. This is an impracticable distance for protection zones to mitigate. The evaluators studied "over two dozen possible mitigation techniques" in both the LTE downlink and uplink scenarios, but "no mitigations were found that were able to significantly reduce the required separation distances or remove the need for the GOES downlink sites."[4]

Given these findings, the SPRES report concluded that "spectrum sharing with commercial wireless carriers operating in the downlink mode is *not* viable."[5]

Therefore, we urge FCC to heed the conclusions of the scientific record and formally vacate consideration of sharing the 1675-1680 MHz band for downlink purposes. The SPRES report makes clear that this step is necessary to avoid threats to the critical weather functions performed by NOAA in the band, avoiding property damage and loss of life.

In addition, the SPRES report concluded that "spectrum sharing with commercial wireless carriers operating in the uplink mode is *potentially* feasible" with separation and mitigation techniques.[6] The Technical Panel that funded the SPRES report identified some follow-up research tasks that will use remaining Spectrum Relocation Fund monies to evaluate the potential feasibility and effectiveness of mitigation strategies recommended in the SPRES for uplink interference. These tasks are articulated in the Foreword to the SPRES report. It would be premature for FCC to take any further action on the FCC's May 13, 2019 Notice of Proposed Rulemaking *In the Matter of Allocation and Service Rules for the 1675-1680 MHz Band* related to uplink operations while such further study is ongoing.[7]

High quality, uninterrupted dissemination of weather satellite data and information is one of the most fundamental functions of the United States government for protecting public safety and property. A whole-of-government approach to spectrum management is needed to enable U.S. telecommunications leadership while protecting these critical activities at federal science agencies.

We thank you for giving due consideration to the concerns of Congress, affected stakeholders, and the numerous federal science and safety agencies that would be affected by harmful interference in the 1675-1680 MHz band. If you would like to discuss further, please have your staff contact for the Committee on Science, Space, and Technology staff at 202-225-6375.

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[4] *Id,* p. 22
[5] Id p. 21
[6] Id p. 22
[7] *In the Matter of Allocation and Service Rules for the 1675-1680 MHz Band.* FCC-19-43. Available at https://www.fcc.gov/document/fcc-moves-open-airwaves-mobile-services-1675-1680-mhz-band. Accessed Oct. 3, 2022.

Sincerely,

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

Frank Lucas
Ranking Member
Committee on Science, Space, &Technology

Cc:

Arati Prabhakar
Director, Office of Science and Technology Policy

Gina Raimondo
Secretary of Commerce