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31 May 2018

Federal Communications Commission
Ms. Marlene Dortch, Secretary
445 12th Street, S.W.
Washington, DC 20554

RE: GN Docket No. 18-122

Dear Ms. Dortch:

The potential for sharing 3.7 GHz to 4.2 GHz band with licensed or unlicensed commercial wireless users is of concern to America's weather enterprise, including those businesses, trade groups, scientific organizations, academic institutions, and government agencies responsible for providing meteorological research and services, because the timeliness and reliability of weather information is of utmost importance.

Who We Are

The mission of the American Meteorological Society (AMS) is to advance the atmospheric and related sciences, technologies, applications, and services for the benefit of society. The AMS is the nation's premier scientific and professional organization promoting and disseminating information about the atmospheric, oceanic, hydrologic sciences, with 13,000 members, including scientists, researchers, educators, broadcast meteorologists, and other professionals in the fields of weather, water, and climate. (See *http://www.ametsoc.org*)

The mission of the American Geophysical Union (AGU) is to "promote discovery in Earth and space science for the benefit of humanity." AGU galvanizes a community of Earth and space scientists that collaboratively advances and communicates science and its power to ensure a sustainable future. With 60,000 members, AGU is a leader, collaborator, and sought-after partner for scientific innovation, rigor, and interdisciplinary focus on global issues. (See *http://www.agu.org*)

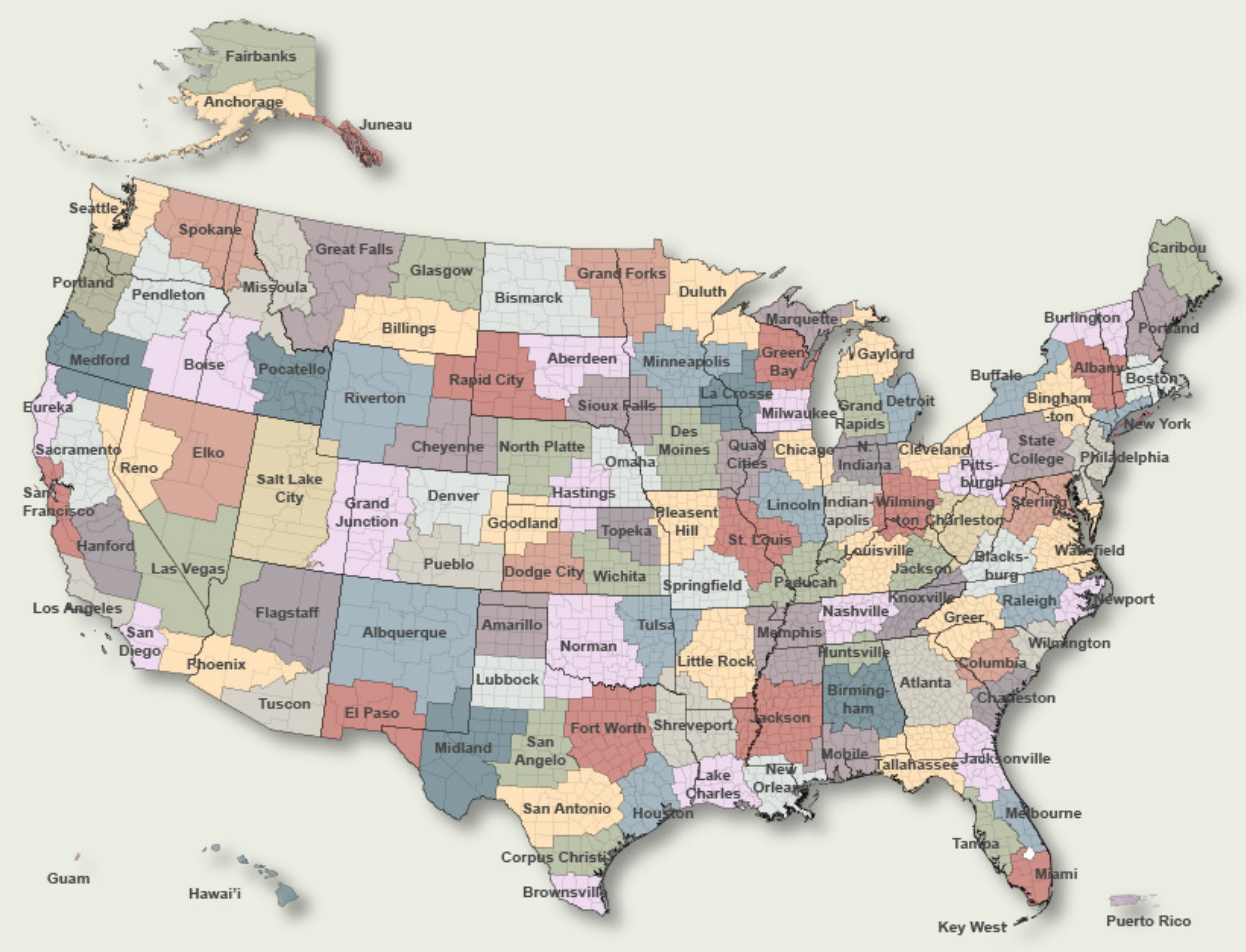
The National Weather Association (NWA) is a professional association supporting and promoting excellence in operational meteorology and related activities. The mission of the NWA is "connecting operational meteorologists in pursuit of excellence in weather forecasting, communication, and service." The NWA represents 2,000 United States government and military

operational meteorologists, broadcast meteorologists, meteorology students and faculty at America's universities, and American weather industry professionals. (See *http://www.nwas.org*)

Our Concern

The foundation of producing accurate weather forecasts and warnings is timely, reliable weather data. NOAAPort is the bent-pipe satellite transmission of such weather data from the National Oceanic and Atmospheric Administration (NOAA) to field offices of the National Weather Service (NWS) and non-federal partners of the weather enterprise in the United States.

NOAAPort uses a commercial satellite provider to deliver the 30 Mbps Digital Video Broadcasting - Satellite - Second Generation (DVB-S2) standard signal at a central frequency of 4040 MHz to receive-only antennas. The types of information delivered over NOAAPort include, but are not limited to, text forecast and warning bulletins, surface and upper-air observations from airport instruments and weather balloons (i.e., radiosondes), radar data, satellite imagery, and computer-generated forecast guidance (i.e., numerical weather prediction output). The majority of data transmitted on NOAAPort is unencrypted and freely available to anyone with a receive-only antenna.



NWS field offices, almost all using receive-only antennas in the 3.7-4.2 GHz spectrum
(Source: NWS Weather Forecast Offices, *https://www.weather.gov/jetstream/wfos*)

This data is essential in all corners of the American weather enterprise. Government meteorologists and hydrologists disseminate severe weather warnings, forecasts, and advisories from all NWS offices, including specialized centers such as the National Hurricane Center, Storm Prediction Center, Ocean Prediction Center, and Aviation Weather Center. Most of these offices have Advanced Weather Interactive Processing System (AWIPS) workstations that NOAAPort receive-only antennas feed exclusively. Commercial sector meteorologists use NOAAPort data to support digital weather applications and Internet-based services, and to create specialized products for weather-sensitive industry segments. Research meteorologists at America's universities use NOAAPort data to actively study the evolving atmosphere.

Timely weather information is essential for assuring advanced warning of any adverse impacts to life and property of American citizens. The NOAAPort delivery mechanism is a long-standing method that achieves this objective and has advanced weather services, research, and industry in the United States and beyond. Licensed or unlicensed commercial wireless users could interfere with this transmission and interrupt the flow of data about potentially dangerous weather.

Some, but not all, of the data transmitted over NOAAPort is available via the Internet from government and, occasionally, academic or industry partner web sites in the same format as the NOAA transmission. Other data is difficult to retrieve, particularly in an active, real-time capacity, without NOAAPort, or an Internet feed derived directly from a NOAAPort ingest. As a complement to NOAAPort, NOAA transmits high-resolution satellite imagery and some surface station data, such as from flood gages, via their recently launched Geostationary Operational Environmental Satellite R-Series (GOES-R) assets. GOES-R uses federal-exclusive spectrum between approximately 1680 MHz and 1690 MHz. However, an adjacent band, between 1675 and 1680 MHz, is under consideration for sharing, threatening that delivery path with radio frequency interference[1].

It would be prudent for the FCC to extend the registration window for existing receive-only NOAAPort antennas. Academic, industry, and public members of the weather and emergency management communities do not traditionally follow FCC proceedings. With that extension, the FCC should work with NOAA and NWS to assure that members of America's weather enterprise and their partners are aware of these proceedings, allowed to provide specific comments on potential impacts to their operations, and register their receive-only C-band antennas.

We ask that the FCC assure that the reliability, consistency, and accessibility of the weather information currently transmitted over NOAAPort is maintained, and that the needs of all governmental and non-governmental participants of the American weather enterprise and users of federal weather services are considered in any following proceedings.

Both the federal and non-federal users play important and unique roles in communicating weather and other environmental threats to the American public and businesses. This partnership requires redundant, independent, and equally available sources for the weather information that is delivered via NOAAPort today, and open accessibility to any bona fide weather information provider, research institution, or emergency management agency.

[1] See FCC filings for RM-11681.

Federal and non-federal incumbents with receive-only antennas should be eligible for any subsequent auction proceedings to purchase new equipment or components if necessary. The NWS alone has NOAAPort antennas at nearly all 122 field offices, which are geographically spaced across the United States. Auction proceedings should also fund the development of systems and advance technologies that can replicate the NOAAPort data feed and transmit it to multiple hosts via terrestrial Internet. While we are unconvinced that terrestrial Internet-only delivery mechanisms are suitable for critical weather information, redundancy could ameliorate the most substantial impacts in the event of interference from new commercial wireless users operating in or adjacent to the 4040 MHz NOAAPort band.

We appreciate your caution and awareness of this issue and potential impact to America's weather enterprise in and around 4040 MHz as you proceed with assessing whether the 3.7 GHz to 4.2 GHz band is suitable to open for licensed or unlicensed commercial wireless users.

Sincerely,

American Meteorological Society[2]

American Geophysical Union[3]

National Weather Association[4]

[2] To address the American Meteorological Society (AMS) on this matter, contact Keith Seitter, Executive Director, or Paul Higgins, Director of the AMS Policy Program.
[3] To address the American Geophysical Union on this matter, contact Lexi Shultz, Vice President of Public Affairs.
[4] To address the National Weather Association on this matter, contact Janice Bunting, Executive Director.