



June 20, 2016

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

RE: AccuWeather response to RM-11681 Petition for Rulemaking: Ligado's Request that the Commission Initiate a Rulemaking to Allocate the 1675-1680 MHz Band for Terrestrial Mobile Use Shared with Federal Use

Dear Ms. Dortch:

The radio spectrum under consideration (1675-1680 MHz) is currently utilized for delivery of essential information used to save lives, protect property and ensure the stability of the American economy. Therefore, this portion of the radio spectrum should not be shared for any other purpose. The proposal could affect the timely and accurate delivery of this critical information. The first time there is a major storm in which data was delayed or impaired will not only be a tragedy for the nation, but will be directly traceable to the spectrum changes contemplated here.

With the oft stated position that climate change is driving ever more severe weather events and strongly supported by many scientists and the Obama Administration, this more, if implemented will run directly counter to the needs of the nation in assessing and predicting weather risks in a timely way. Additionally, as pointed out by Antonio Busalacchi, the Director of the Earth System Interdisciplinary Center at the University of Maryland at a recent House Committee on Science, Space and Technology, Subcommittee on Environment hearing "Private Sector Weather Forecasting - Assessing Products and Technologies", the world has experienced increased populations now vulnerable to extreme weather events.

AccuWeather and many other companies in the American Weather Industry receive weather data observations from the nation's GOES satellites to develop and distribute timely weather forecasts and warnings that are widely disseminated to residents and businesses throughout the United States and its territories. Communities across the nation rely on this information to prepare and respond to dangerous life-threatening weather and natural disasters such as tornadoes, hurricanes, flooding, blizzards and wildfires.

While we recognize and appreciate the ongoing need to innovate consumer electronics and enable as much spectrum as possible for commercial purposes, this expansion cannot occur at the risk of interrupting the important value chain of data distribution from NOAA for the entire American Weather Enterprise. We advise the FCC to not make any changes to the allocation of this important portion of the spectrum as there are many complex issues on how weather satellite data is transmitted and leveraged by the entire community of users, not just federal users, for the benefit of the nation.



AccuWeather, the global leader in weather information and digital media expresses this significant concern being uniquely positioned to understand the risks associated with the potential interruption of critical satellite foundational data, given that we directly serve tens of millions of American citizens and businesses each day. These services help people improve their lives by providing the most accurate, actionable and relevant weather content – including critical weather warnings which save lives and protect property. Additionally, the services enhance the American economy by providing individuals and businesses with information they use to significantly reduce the financial impact of weather events. AccuWeather directly reaches more than one billion people worldwide each day through our digital media services, including traditional and mobile internet and mobile apps. Through these services, we retransmit National Weather Service severe weather warnings and information along with unique content that we originate.

It is through the partnership with America's Weather Industry that NOAA data is leveraged to far greater value than would otherwise occur, thereby providing most of its value to the economy and safety of the American public, businesses and institutions. As such, we express grave concern about the impact of the proposed commercial operations in the 1675-1680 MHz band on non-federal users. AccuWeather utilizes this direct broadcast of data, in GVAR format today, because it is the full resolution of data available in time and space, including all imagery and sounder data available. The complete data set (including rapid scan and super rapid scan operations, critical during severe weather) is used in the generation of a variety of satellite images and data products used by AccuWeather and our clients, in algorithms that generate a variety of current and forecast products, and as a tool in the production of forecasts and warnings by AccuWeather meteorologists. Additionally, AccuWeather also supplies the imagery and data received from our earth stations to its television station, internet and other media partners for use in their public broadcasts and other public-reaching activities.

The suggestion that NOAA entities exist in "protected zones" free of shared use in this part of the radio spectrum, creates serious concerns and will not be practical as many non-NOAA users, including AccuWeather, are involved in the creation and distribution of warnings and forecasts that directly save lives and protect property. AccuWeather provides highly localized and customized severe-weather warnings to hundreds of public venues where large numbers of people gather such as stadiums and universities, as well as industrial complexes, like factories, manufacturing plants and other businesses. AccuWeather protects some of the nation's most critical infrastructure such as railroads, utility lines and highways through the delivery of pinpoint weather services. AccuWeather and other companies in America's Weather Industry are directly involved in the support of federal, state and local emergency managers and the direct support of land, air and sea transportation operations. In all of these applications, the satellite data delivered on this portion of the spectrum plays a critical role in the provision of tailored weather information services, which enable decisions, affecting the safety of large numbers of the public and the country's economic health.

Companies with direct broadcast ground stations, including AccuWeather, have invested millions of dollars over the years developing and maintaining the systems needed in order to leverage this critical information.



Additionally, AccuWeather is in the process of installing completely new hardware and software needed in order to reliably receive, process and leverage data from the new GOES-R satellite. Since the beginning of the GOES Program, American Weather Industry companies have been given the assurance of federal government officials that the GOES data was 100% reliable as mission-critical information. Given government assurance, the private sector has made significant investments to enable the receipt of the satellite data needed for the construction of accurate forecasts and weather warnings.

Congress has appropriated tens of billions of dollars to date to fund the development of NOAA's next generation geostationary weather satellites (including GOES-R) over more than a decade and if commercial use of this part of the spectrum was allowed, it could render these satellites much less useful in protecting the life and safety of American citizens. GOES-R data holds the promise of being revolutionary for the entire meteorology community – enabling satellite information to be as indispensable for meteorologists in the preparation of weather warnings and forecasts as weather radar is today, in a complementary manner. As a global weather provider, AccuWeather has the requirement to use all available bands of GOES-R data for the entire satellite coverage area in real-time, with the smallest amount of latency as possible. Increasing latency, even by a small amount, significantly diminishes the value and utility of the information being provided and significantly decreases the overall return on investment of the GOES-R satellite. If end users cannot reliably access all of the data all of the time, the value of the GOES-R satellite is being arbitrarily and significantly reduced.

The petitioner has suggested that NOAA could make the data available from the GOES and GOES-R series of satellites via terrestrial means, specifically the Internet, and that would satisfy the needs of non-NOAA end users. This is a false premise. There are a number of substantial concerns with transferring this data only via the Internet. First, the size of the GOES-R data given the increased spatial and temporal resolution as well as the increased number of bands will result in a significant expansion in the size of the dataset to be transferred. Transferring large datasets over the Internet with low-latency has proven to be a significant challenge as a result of potential issues between hosts on the open Internet and the inability to control the complete path of data packets over the many connected networks that make up the Internet. If an intermediate hop is experiencing latency, performance degradation and/or a network security issue, the ability to reliably stream information from NOAA to a critical end user could easily be impaired. In these types of situations, there is little mechanism to provide a quick resolution to the issue, which is highly problematic in the case of mission critical weather data. Given the nature of rapidly changing weather situations and importance of this data in saving lives and protecting property, the timeliness of this data is critical. Second, it is unclear what type of cost would be involved in streaming this increased dataset over the Internet to interested users. A satellite ground station, such as those being installed now to support the GOES-R broadcast, is a fixed cost which allows users to budget for related expenses in advance. Finally, the current satellite based dissemination method requires only that the hardware, systems and software already in place remain so, and the only additional requirement is a backup generator in the case of power failure. With Internet-based dissemination, there are more potential failure points, including the routers and telecommunications circuits through the entire pipeline. Therefore, the current



satellite based method is much more reliable during times of commercial power interruptions such as those that occur during and in the aftermath of a natural disaster, when in fact the satellite data is most needed. Seconds mean lives in many situations.

Since AccuWeather depends on GOES and will depend on GOES-R satellite data every millisecond, every second, every minute of every hour of every day of the year to support lifesaving products and services, an additional concern from the proposal of shared commercial usage in these frequencies is the potential for a variable pattern of interference, which would be highly problematic to AccuWeather in the sense that data interruptions could come and go in a way that is not controllable or manageable. This type of interference is simply not unacceptable and poses real public danger.

In conclusion, it is important to reiterate that we feel strongly about the need for the country to continue to innovate, develop new communication platforms and new consumer electronics, however that growth cannot jeopardize the use of a critical portion of the radio frequency spectrum used to deliver critical satellite weather data especially in the face of new technologies on GOES-R and changing weather patterns related to global climate change. This data and the infrastructure used to deliver it should be considered as critical infrastructure as defined by Homeland Security and protected appropriately. Now is not the time to make changes to the satellite distribution framework when the country is on the precipice of receiving revolutionary new satellite weather data from GOES-R, which will revolutionarily enhance the American Weather Enterprise's ability to produce high quality weather warnings and forecasts. We strongly feel that no action should be taken at this time by the FCC to share this portion of the radio spectrum for commercial or any other purposes.

We would be very pleased to discuss this further in more detail – please contact me to do so.

Sincerely,

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