

2 May 2019

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

Re: Oral *Ex Parte* presentation in GN 19-116 “In the Matter of Allocation and Service Rules for the 1675-1680 MHz Band”; RM-11681 “Petition [by Ligado Networks] for Rulemaking to Allocate the 1675-1680 MHz Band for Terrestrial Mobile Use”

Dear Ms. Dortch:

On 30 April 2019 and 1 May 2019, the following representatives from industry and related organizations of the weather, meteorological satellite and satellite ground systems communities met with Mr. Will Adams, Legal Advisor to Commissioner Brendan Carr, Mr. Aaron Goldberger, Acting Wireless Adviser to Chairman Ajit Pai, Ms. Erin McGrath, Wireless Adviser to Commissioner Michael O’Rielly, Mr. Umair Javed, Legal Advisor to Commissioner Jessica Rosenworcel and Mr. Randy Clarke, Acting Legal Advisor to Commissioner Geoffrey Starks:

- Mr. Brett H. Betsill, Radio Frequency Equipment Design Engineer and Ground Station Manufacturer, President, Microcom Design, Inc., Hunt Valley, Maryland
- Ms. Janice Bunting, Executive Director, National Weather Association (NWA), Norman, Oklahoma
- Mr. Dan DePodwin, Director of Forecast Data and Systems, AccuWeather, State College, Pennsylvania
- Dr. Jordan Gerth, Associate Researcher, Space Science and Engineering Center, University of Wisconsin, Madison, Wisconsin
- Dr. Brian Kopp, Assistant Professor, University of North Florida and Consultant, Florida Department of Transportation, Jacksonville, Florida
- Ms. Renée A. Leduc Clarke, Founder and Principal, Narayan Strategy, Washington, D.C.

In addition, this filing encompasses a follow-up conversation by phone between Randy Clarke and Renee Leduc Clarke to clarify some comments from the meeting about the GOES Data Collection System (DCS).

The primary purpose of this meeting was to present concerns about sharing 1675-1680 MHz from diverse users of real time information services from the Geostationary Operational Environmental Satellite (GOES) satellite systems and to communicate some of the steps required to protect access to GOES real-time information by all users, including federal, state and local government, academic institutions and the private sector.

The group expressed concern that this NPRM is proceeding at this time when the issue has not been fully vetted by Federal agencies, commenting via NTIA. Many of the users of systems that are likely to be impacted by interference or sharing conditions are Federal users, in partnership with academic and private sector partners with which they work each day to enhance weather forecasts for the nation. We believe meteorological and hydrological stakeholders from state and local government,

the private sector and academic institutions can provide answers to the many questions within this draft NPRM, (assuming adequate time is allowed for comments and reply comments to accommodate users who are responding to weather conditions and hydrometeorological events occurring this time of year) but the input from potential affected federal agencies should be considered in tandem with other sector comments.

The group also expressed significant concern with anticipated reliance on a content delivery network (CDN), noting that it will not be able to provide the latency and availability required for many federal and non-federal users of GOES DCS and the GOES Rebroadcast (GRB) systems. As noted in the 10 April 2017 Ex Parte comment in RM 11-681, the GOES-R series functional and performance specifications require the GOES-R Rebroadcast (GRB) service to have an availability of 99.988% over a 30-day period¹, which is not commercially available from cloud and internet providers across the U.S. where existing users rely on the GRB system for real-time information.

The briefings highlighted the significant and discrete operations and importance of both the GRB and DCS systems, highlighting examples of DCS use by the Florida Department of Transportation and examples of GRB use by the University of Wisconsin and AccuWeather. When seeking further clarification, Randy Clarke with Commissioner Starks' staff was provided additional information about the operations of DCS, which is a relay system used to collect information from earth-based platforms that can be placed in remote locations and left to operate with minimal human intervention,² and has great, diverse and remote geographic distribution across the Americas and its surrounding oceans.³

To ensure all existing users have the opportunity to comment in a relevant manner in a projected future public comment period on the NPRM, we recommend the following questions and clarifications be included:

- Would a CDN be appropriate for the users who rely on real-time information relayed from platforms on the DCS system? From the GRB system? From the High Rate Information Transmission (HRIT)/Emergency Managers' Weather Information Network (EMWIN)?
- Will protection zones be sized to function under all conditions and be appropriate protection for receive stations under all operational conditions?
- In allowing private parties to waive out of band emissions (OOBE) limits between the adjacent 1670-1675 MHz band and the proposed 1675-1680 MHz band, the in-band status of the GOES DCS system within the 1675-1680 MHz band could cause undue interference to such an in-band incumbent GOES DCS user. Is this acceptable?
- Considering the concept of a privately-owned CDN receiving data directly from Federal satellites, and then being the primary source of that data, how can a private entity ensure that a receive-only earth station will not incur radio frequency interference? How can a private entity assume the liability of being the sole source of this critical Federal data to users?
- How are Data Collection Platform (DCP) gage data used by federal agencies? Is the privately-held gage data used differently than that of federal gage data users?

¹ NOAA. https://www.goes-r.gov/resources/docs/GOES-R_GS_FPS.pdf

² NOAA. <https://www.noaasis.noaa.gov/DCS/intro.html>

³ The National Weather Service uses DCPs owned by over 100 entities including Federal, state, local consolidators in the Hydrometeorological Automated Data System (HADS) operated by the NWS Office of Dissemination. These gages are used as input to numerical weather prediction models and for flood forecasting and warning. Here is a list of HADS platforms by state: https://hads.ncep.noaa.gov/hads/goog_earth/

- How are wildfire weather managers supported via incumbent services in this spectrum?
- For clarification: In the list of Federal stations, Sioux Falls SD is missing

Submitted by the briefing participants from industry, academia and professional organizations from the hydrometeorological community.