

Our Ref: 2016-87/GEO/RM-11681
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United States Federal Communications
Commission
Attention: Ms Marlene Dortch
Secretary
445 12th Street, S.W.
Washington, DC 20554
USA

Geneva, 20 June 2016

RE: Response to RM-11681 Petition for Rulemaking – Request by Ligado
Networks to Allocate the 1675-1680 MHz Band for Terrestrial Mobile Use
Shared with Federal Use

Dear Ms Dortch,

The intergovernmental Group on Earth Observations (GEO) is a partnership of governments and organizations that share Earth observation data for the benefit of all nations. GEO Member Governments include 102 nations and the European Commission and 95 Participating Organizations comprised of international bodies with a mandate in, and/or use of Earth observations.

The GEO Community is developing a Global Earth Observation System of Systems (GEOSS) that comprises the space-based (as well as the *in situ*) assets that measure and communicate these Earth observation resources across the planet. Applications of these data include meteorological forecasting, hydrological planning and use, and climate variability as they relate to GEO's-stated Societal Benefit Areas, including Biodiversity and Ecosystem Sustainability, Disaster Resilience, Energy and Mineral Resources Management, Food Security and Sustainable Agriculture, Infrastructure & Transportation Management, Public Health Surveillance, Sustainable Urban Development and Water Resources Management.

The environmental satellite systems in operation around the Earth are all elements of GEOSS. Included are those operated by the U.S. National Oceanic and Atmospheric Administration (NOAA) not only over the Americas, but globally. One such capability of the NOAA geosynchronous satellites is their direct broadcast of real-time environmental information in 1675-1695 MHz and the Data Collection System (DCS) relay in the Geostationary Operational Environmental Satellites (GOES-R) era within 1679.7-1680.4 MHz. It is this capability that GEO wishes to comment upon as it pertains to the aforementioned FCC proceeding.

The GEO-sponsored AmeriGEOSS initiative is an international framework that seeks to promote collaboration and coordination among GEO Members in the American continents. The specific Societal Benefit Areas selected by our Americas Caucus Country Members that are of particular interest include:

- Agriculture;
- Disaster Risk Reduction, particularly for data exchange associated with early warning, and for the generation of early warning products in the region;
- Water, particularly related to water management and the associated data management issues; and
- Biodiversity & Ecosystem Monitoring in coastal, marine and contested habitats.

Each of these relies heavily on information from NOAA's geostationary satellites; and for many of these applications, real-time information is essential.

We recognize radio frequencies are important, yet scarce resources, used by many government agencies across the world, and especially national meteorological and hydrological services (NMHSs). Radio frequencies are crucial to measuring and collecting the observation data upon which analyses and predictions, including warnings, are based, processed, and communicated to and by governments, policy makers, disaster management organizations, commercial interests and the general public.

Environmental satellite systems, especially from NOAA's GOES programme, collect a variety of data with visible and infrared imagers as well as with instruments for passive and active sensing using also microwave frequencies allocated for this purpose. The 1675-1680 frequency range under consideration is used both for raw data downlink (on current GOES satellites) and the retransmission of Data Collection Platform data (on the new generation GOES-R series satellites). The DCS spectrum directly supports the AmeriGEOSS priorities of Agriculture, Water, and Disaster Management by providing near-real time information on water levels and flows in streams, rivers and along coastal areas. In addition, deployment of sensors that characterize oil spills, are relayed via GOES DCS and support ecological monitoring.

The raw data gathered by the instruments on-board an environmental satellite are transmitted to a primary ground station of the operating agency (in this case NOAA), processed, and distributed to various national environmental agencies, to official archives, and to commercial users. Raw data, for example, include images of the Earth taken at several wavelengths so as to provide a variety of measurement data such as surface temperatures, wind velocities, rainfall rates, river and stream heights, coastal tide heights, gases in the atmosphere, and, in the case of floating buoys, oceanic pollutants. NOAA's satellites transmit processed measurement data from tens-of-thousands of receiving stations within the combined hemispherical footprint of the GOES spacecraft.

During the recent International Telecommunications Union (ITU) World Radiocommunication Conference (WRC), the band 1675-1695 MHz was not selected for worldwide consideration to support international mobile telecommunications (IMT). Accordingly, GEO believes domestic use of portions of this band in the United States may result in actions in other countries, which could further destabilize the consistent access to the data that is critical to public safety, welfare, and the economy at large.

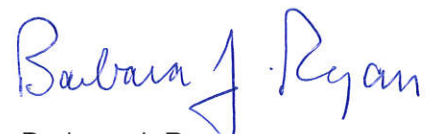
Successful weather forecasting and water management in the U.S. and globally relies on the supply of observations from other countries that use these frequencies in their observing programmes. For example, weather stations deployed in Mexico routinely support the forecasting of meteorological phenomena in the Southwestern United States and this data is relayed via the GOES DCS system. Setting a precedent within the U.S. that uses these frequencies for other-than-meteorological purposes would most certainly weaken the ability of other, less influential, nations to retain these frequencies for meteorological observing and hydrological management. The resulting loss of observations from these countries would harm the ability of all countries, including the U.S., to forecast and respond to severe weather events including those involving extreme precipitation.

The GEO community also supports regional communication distribution systems for space-based meteorological information. Often this data is rebroadcast via regional communications satellites. The source data for these broadcasts, however, include the direct downlinks from the Member meteorological satellites such as NOAA's GOES and the future GOES-R. Reception of such data, either from within the U. S. or its territories, in support of an entire region will utilize the spectrum in question. For example, another of our initiatives GEONetCast Americas (in which NOAA is a crucial international partner) provides every country in the Americas with environmental data required by each Member Country.

Therefore, and in summary, the Group on Earth Observations (GEO) opposes the spectrum sharing of the 1675-1680 MHz band, and the larger 1675-1695 MHz band, which today is used exclusively to support meteorological satellites and meteorological observations.

We thank you for allowing us to provide our view in this proceeding.

Yours sincerely,



Barbara J. Ryan
Secretariat Director

cc: GEO Principal, USA
Secretary General, WMO

The Honorable John Thune, Chairman, Senate Commerce, Science and Transportation Committee

The Honorable Bill Nelson, Ranking Member, Senate Commerce, Science and Transportation Committee

The Honorable Marco Rubio, Chairman, Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard

The Honorable Cory Booker, Ranking Member, Subcommittee on Oceans, Atmosphere, Fisheries and Coast Guard

The Honorable Richard Shelby, Chairman, Commerce, Justice, Science, and Related Agencies Subcommittee

The Honorable Barbara Mikulski, Vice Chairwoman, Senate Appropriations Committee

The Honorable Fred Upton, Chairman, House Energy and Commerce Committee

The Honorable Frank Pallone, Jr, Ranking Member, House Energy and Commerce Committee

The Honorable Greg Walden, Chairman, Communications and Technology Subcommittee

The Honorable Anna G. Eshoo, Ranking Member, Communications and Technology Subcommittee

The Honorable Jim Bridenstine, Chairman, Subcommittee on Environment, House Science, Space and Technology Committee

The Honorable Suzanne Bonamici, Ranking Member, Subcommittee on Environment, House Science, Space and Technology Committee

The Honorable John Fleming, Chairman, Subcommittee on Water, Power and Oceans, House Natural Resources Committee

The Honorable Jared Huffman, Ranking Member, Subcommittee on Water, Power and Oceans, House Natural Resources Committee

The Honorable John Culberson, Chairman, Commerce, Justice, Science and Related Agencies Subcommittee

The Honorable Mike Honda, Acting Ranking Member, Commerce, Justice, Science and Related Agencies Subcommittee

The Honorable Dr John Holdren, Assistant to the President for Science and Technology, Director of the White House Office of Science and Technology Policy, and Co-Chair of the President's Council of Advisors on Science and Technology (PCAST)

The Honorable Lawrence E. Strickling, Assistant Secretary for Communications and Information and NTIA Administrator, Department of Commerce

The Honorable Dr Kathryn D. Sullivan, Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator

The Honorable Dr Suzette Kimball, Director, U.S. Geological Survey

The Honorable Judith Garber, Acting Assistant Secretary, Bureau of Oceans and International Environmental and Scientific Affairs