Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Supplementing the record on proposal rules to re-allocate 1675-1680 MHz band	)	WT Docket No. 19-116
	)	
	)	
	)	

REPLY COMMENTS OF THE AMERICAN GEOPHYSICAL UNION, ALERT USERS GROUP, AMERICAN METEOROLOGICAL SOCIETY, AMERICAN WEATHER AND CLIMATE INDUSTRY ASSOCIATION, CAPITOL METEOROLOGICS, LOCKHEED MARTIN CORPORATION, MICROCOM ENVIRONMENTAL, NARAYAN STRATEGY, NATIONAL WEATHER ASSOCIATION, THE SEMAPHORE GROUP, SPACE SCIENCE AND ENGINEERING CENTER AT UNIVERSITY OF WISCONSIN-MADISON & UNIVERSITY CORPORATION FOR ATMOSPHERIC RESEARCH

March 17, 2025

The above noted organizations from the weather and water communities appreciate the opportunity to provide reply comments on the Wireless Telecommunications Bureau's Public Notice[1] that seeks to supplement the record in this rulemaking proceeding on a proposal to re-allocate the 1675-1680 MHz band for shared use between incumbent federal operations and non-federal fixed or mobile operations on a co-primary basis.[2]

While there may be a future possibility of sharing 1675-1680 MHz in an LTE uplink-only scenario with additional considerations, **a sharing regime that includes both LTE downlink and uplink operations or only downlink operations is not feasible**. At best, only uplink operations have some prospect of being able to share the band. Building on the more than 120 comments offered by our communities and users in this and the underlying rulemaking petition proceeding (RM-11681)

[1] Information sought to supplement the record on a proposal to re-allocate the 1675-1680 MHz band, Public Notice, FCC WT Docket No. 19-116 (released January 29, 2025). https://www.federalregister.gov/d/2025-01535
[2] Allocation and Service Rules for the 1675-1680 MHz Band, WT Docket No. 19-116, Notice of Proposed Rulemaking and Order, 34 FCC Rcd 3552 (2019) (NPRM)

on this topic, we continue to have major concerns due to the risks to weather forecasting and water management across the U.S. and North America.

Reiterating what was in the Spectrum Pipeline Reallocation Engineering Study (SPRES) Follow-On Report (SPRES-FO)[3], the U.S. Army Corps of Engineers (USACE) noted in their comment[4] that any terrestrial means of transmission of Data Collection System (DCS) information would not meet their mission requirements. In addition, they are not in favor of the potential dynamic sharing solution proposed by NTIA in this operational context.[5]

It is important for the FCC to fully consider the economic impact of disrupting real-time data to USACE's water management mission (which is just a small portion of DCS' total real-time economic impact across sectors). USACE Water Management project operations have a two trillion-dollar annual impact on the nation's economy with $161 billion in average annual flood damages prevented between 2010 and 2020; $248 billion in 2022 alone.[6] These are impacts that spread across the country from locations in California, Ohio, Mississippi, Nebraska, Illinois, Missouri and other states directly impacting critical trade routes and supply chains.

The undersigned also agree with Microcom Environmental[7] where they noted the importance of recognizing all DCS receive sites as de facto Federal sites given that the data from those sites are freely and openly available to all other DCS users, including Federal agencies. The National Weather Service has access to all the data from thousands of DCS platforms without owning a single such device. These data are used in hydrological and flood products and are one of multiple inputs to the supercomputer models for numerical weather prediction. This is enabled only by the shared use of this spectrum by more than 33,000 DCS user devices owned by many different organizations across numerous sectors that transmit over one million messages per day. This is consistent with the

[3] U.S. Department of Commerce. NOAA NESDIS and NTIA. *Spectrum Pipeline Reallocation Engineering Study Follow-On (SPRES-FO) Final Report*. Silver Spring, MD: NESDIS, Aug 2024. Public Release Nov 2024. https://www.fcc.gov/ecfs/document/1122068936842/3

[4] See USACE Water Community of Practice comment in WTC 19-116 at 2. (28 Feb 2025) https://www.fcc.gov/ecfs/document/10228048927558/1

[5] See *SPRES-FO Final Report* at 89.

[6] USACE. 2023. *Value to the Nation-Civil Works*. https://www.iwr.usace.army.mil/Missions/Value-to-the-Nation/

[7] See Microcom Environmental comment in WTC 19-116 at 2. (28 Feb 2025) https://www.fcc.gov/ecfs/document/10228138298056/1

comment from AGU et al[8] that highlighted the importance of the open collaboration of the public-private-academic enterprise that comprises the weather forecasting capabilities in the U.S. that has grown and persisted for more than 20 years, bringing considerable advancements in forecasting and related economic growth for the U.S.

The undersigned are dismayed by the repeated inaccuracies conveyed by Ligado Networks, LLC (Ligado), especially in their most recent filing in response to the refresh of this proceeding.[9] While Ligado touts the results of the SPRES and SPRES-FO reports, we encourage them and the FCC to look beyond the executive summaries of the reports and examine the fine print that inserts considerable doubt and concern about the viability of sharing 1675-1680 MHz. As highlighted in the AGU et al. comment, mission critical concerns were highlighted by USACE and Bureau of Land Management (in support of fire weather operations), both Federal agencies, which have not been addressed by the NTIA.[10] These issues are also amplified by the more than 120 comments in this and past proceedings from across the weather and water communities and their users, ranging across aviation, ports management, navigation and agriculture.[11]

Ligado's ongoing comments about developing a Content Delivery Network (CDN) continue to concern the undersigned since such a CDN as proposed by Ligado is insufficient for the needs of existing professional users who are reliant on real- or near-real-time information from the GOES-R series of satellites. **The Ligado-proposed CDN does not provide the reliability and latency to fulfill real- and near-real-time information from the GOES-R series satellites.** Multiple past filings from organizations who signed below have provided considerable detail into why terrestrial latency is insufficient for these operational applications.[12] The need for real-time data is most critical for professionals and practitioners in the operational use of the data, while the public has multiple alternate sources of GOES-R series satellite data that are widely used that do not meet the operational latency requirements, but still provide useful and applicable data for their more general needs.

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[8] See AGU et al comment in WTC 19-116 at 2. (28 Feb 2025) https://www.fcc.gov/ecfs/document/10301503124653/1
[9] See Ligado comment in WTC 19-116 at 3. (28 Feb 2025) https://www.fcc.gov/ecfs/document/1022809405909/1
[10] *AGU et al* at 6.
[11] *AGU et al* at 1 and 8.
[12] *AGU et al* at 5-6. *See* AMS et al. written *Ex Parte* in RM-11681 at 3-6. (10 Apr 2017) https://www.fcc.gov/ecfs/document/104132285323927/1

If the FCC determines a commercial relay of DCS data system is required, the undersigned strongly encourage NOAA to be funded with spectrum auction revenues to develop such a system that can be as responsive to the varied array of GOES-R series satellite user needs as possible. Commercial licensee(s) such as Ligado will not have such knowledge or understanding of the user community and they would be inappropriate to develop a relevant, suitable and useful system.

Within the comments there were varied estimates of the length of time that the GOES-R series satellites will be operating on-orbit. To clarify, as noted in the AGU et al. comment, the GOES-R series of satellites is expected to be operating until 2039 and likely longer.[13] But since that comment was submitted at the end of February 2025, there are significant unknowns in the budget and appropriations process about future funding at NOAA, which could mean that the launch of the next generation GeoXO satellites will be delayed. This means the GOES-R series satellites could be operational for longer than currently anticipated, which further lengthens the critical need for real-time information to Federal and non-Federal users in this spectrum without threat of interference. In addition, it should be expected that the current reliance on GOES-R series data transmission technologies will persist for multiple years as the GOES-R series satellites continue to be operating and serving as on-orbit backup to GeoXO series satellites.

Multiple commenters in the current proceeding cited the long length of time it took to complete the SPRES and SPRES-FO studies.[14] While the studies were complex and multi-phased, it is important to note that SPRES was submitted by NOAA to NTIA in October 2020, but NTIA did not release the report to the public in the FCC ECFS until August 2022. Also, the AccuWeather et al. filing,[15] submitted in September 2022, noted the inconsistencies between the statements in the "Foreword" to the SPRES report (and the summary of the general findings in the NTIA cover letter) and the contents of the main report. The NOAA drafted main text of SPRES repeatedly indicated sharing of 1675-1680 MHz will present significant, if not extreme, risk to real-time GOES data services for multiple Federal and non-Federal users. The SPRES "Foreword" (drafted after the report was

[13] See current NOAA GEO Fly-Out Chart at https://www.nesdis.noaa.gov/s3/2024-02/Geo_Flyout_Chart_January_2024.pdf
[14] Ligado at 2. See Echostar comment in WTC 19-116 at 1. (28 Feb 2025)
[15] See *AccuWeather et al* comment in WTC 19-116 at 1. (13 Sept 2022) https://www.fcc.gov/ecfs/document/1091338148923/1

completed by NOAA, presumably by NTIA) used a much more muted tone and did not express the same level of risks as in the main report.

Both the nearly two-year time gap in releasing SPRES after it was completed, and the inconsistency of language between the NTIA-drafted "Foreword" and the NOAA drafted main report, suggests NTIA may have been looking to adjust the message of the main report that clearly indicated 1675-1680 MHz should only be shared in uplink mode. While NTIA called for the additional studies within SPRES-FO, it is important to note that even following that additional study, technical experts from Microcom Environmental and from USACE and BLM (Fire) have continued to note that downlink operations in 1675-1680 MHz would threaten the receipt of the important real-time information transmitted by DCS, and the alternate "dynamic sharing solution" presented in SPRES-FO is insufficient to meet their operational needs. **The undersigned organizations call on the FCC to refuse to move forward with a proceeding to approve sharing when both Federal and non-Federal users are lacking feasible options to sustain their mission critical real-time operations that support public safety and protection of property.** In addition, while multiple commenters repeatedly referred to NOAA's SPRES and SPRES-FO reports, since they were conducted under NOAA contracts, it is important to note that NTIA had to approve those reports in consultation with the FCC before they could be released to the public.

In summary, the weather, water and Earth science communities, (and aviation and other industry sector entities that rely on the meteorological data transmitted over the GOES-R series satellites, whether directly or indirectly) represented by the undersigned continue to be fundamentally concerned with the proposal to re-allocate the 1675-1680 MHz band for shared use between incumbent Federal operations and non-Federal fixed or mobile operations on a co-primary basis. The undersigned are concerned that **there is a significant likelihood of harmful interference to the reception of weather satellite imagery and relayed environmental data to the public, private and academic partners that are crucial to the nation's inherently collaborative weather and hydrological forecasting efforts.**

While there may be a future possibility of sharing 1675-1680 MHz in an LTE uplink-only scenario with additional considerations, **a sharing regime that includes both LTE downlink and uplink operations or downlink only operations is not feasible.** At best, only uplink operations have some prospect of being able to share the band.

Thank you for the opportunity to continue to contribute to this important proceeding.

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