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December 8, 2019

The Honorable Ajit Pai  
Chairman  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, D.C. 20554

*Re: Notice of Ex Parte Presentation, IB Docket No. 11-109; IBFS File Nos. SES-MOD-20151231-00981, SAT-MOD-20151231-00090, SAT-MOD-20151231-00091, SAT-AMD-20180531-00044, SAT-AMD-20180531-00045, and SES-AMD-20180531-00856*

Dear Chairman Pai:

The December 6, 2019 letter from NTIA Acting Deputy Assistant Secretary Douglas Kinkoph in this proceeding leads with a stunning and absurd suggestion: that plenty of spectrum is available for 5G and that no more spectrum is needed.<sup>1</sup>

That statement puts the Department of Commerce at odds with the White House, Chairman Pai, and all of the other FCC Commissioners, bipartisan spectrum leadership in Congress, and the entire wireless industry.<sup>2</sup> It is clear to everyone but the Department of Commerce that more spectrum is needed for 5G, and as leading 5G equipment manufacturers have stated in this proceeding, Ligado's spectrum can help facilitate the 5G transition. The only good thing about the Kinkoph Letter is that the Commission can finally move forward and rule on the pending applications, which have been pending for four years, and free up 40 megahertz of mid-band spectrum for 5G.

Beyond the stunning claim that no more spectrum is needed for 5G, the Kinkoph Letter conveys no new information, no new analysis, no new data, and no new arguments and makes no recommendation to the Commission. It asserts that GPS is important to the Nation's economy; as has been demonstrated repeatedly in the record, Ligado agrees.<sup>3</sup> The letter then states that the loss of GPS would have detrimental impacts to our economy; as has been demonstrated

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<sup>1</sup> Letter from Douglas W. Kinkoph, Deputy Assistant Secretary for Communications and Information (Acting), to Ajit Pai, Chairman, FCC, [above-captioned dockets] (Dec. 6, 2019), at 1 ("Kinkoph Letter").

<sup>2</sup> See Attachment A.

<sup>3</sup> See Letter from Valerie Green, Ligado Networks LLC to Marlene H. Dortch, FCC, [above-captioned dockets] (Nov. 21, 2019), at 3 ("Ligado DOD Response Letter").

repeatedly in the record, Ligado agrees, which is why the company has made serious commitments to protect GPS and submitted tens of thousands of hours of test results showing that once those commitments are enshrined in Ligado's license, GPS devices would not be impacted.<sup>4</sup> Notably, the Kinkoph Letter does not state that GPS devices would be affected by Ligado's proposal. Instead, it blurs the issue by vaguely stating that some federal agencies have "significant concerns" regarding the impact to their missions from Ligado's proposal. NTIA *cannot* make a statement that Ligado's proposal would harm GPS devices used by the Government or commercial sector because *there is no evidence*—either in the attachments to the Kinkoph Letter or in the DOT Study referenced in same—to support such a claim. Moreover, *there is no evidence* in the attachments to the Kinkoph Letter nor in the DOT Study referenced in same that support such a statement.<sup>5</sup>

The uncomfortable truth that the Kinkoph Letter has no choice but to ignore is that *all the evidence in the record convincingly demonstrates GPS devices will not be harmed under Ligado's spectrum proposal.*<sup>6</sup> The Kinkoph Letter has to ignore this powerful evidence because it has nothing to say in rebuttal, since the letters it attaches from other agencies have never studied harmful interference and instead focus solely on the 1 dB C/N<sub>0</sub> metric. Tellingly, the Kinkoph Letter does not once endorse use of a 1 dB C/N<sub>0</sub> metric, nor does it recommend the Commission use the 1 dB C/N<sub>0</sub> metric instead of a harmful interference standard. It is not surprising NTIA refused to embrace that unreliable, undefined, never-before-used metric,<sup>7</sup> given that NTIA's own spectrum manual states:

*The Federal Government considers that the basic guide to follow in the normal assignment of radio frequencies for transmission purposes is the avoidance of harmful interference and the use of frequencies in a manner which permits and encourages the most beneficial use of the radio frequency spectrum in the national interest.*<sup>8</sup>

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<sup>4</sup> *Id.* at 3–5.

<sup>5</sup> Some GPS advocates wrongfully conflate harmful interference and 1 dB. See Dennis Roberson, *Sound Physics and Engineering Underscore Why 1 dB 'Standard' is a Myth* (Dec. 6, 2019) (“[A GPS advocate] uses the magician’s sleight of hand to confuse the reader that 1 dB C/N<sub>0</sub> and harmful interference are the same thing. They are not. *I can state unequivocally that 1 dB C/N<sub>0</sub> has never been used by regulators (in the U.S. or abroad) to define harmful interference or to ‘protect’ services operating outside of their assigned spectrum.*”).

<sup>6</sup> See Ligado DOD Response Letter at 3–5.

<sup>7</sup> Many defects plague 1 dB and render it an unreliable, arbitrary and capricious tool for out-of-band spectrum decisions. See generally Ligado DOD Response Letter at 8–10.

<sup>8</sup> NTIA, *Manual of Regulations and Procedures for Federal Radio Frequency Management (Redbook)*, at 2.6.3; see also *id.* at 6.1.1 (reciting FCC definition of “harmful interference”).

Moreover, applying a 1 dB metric for all adjacent bands, as the DOD letter requests, would have a devastating effect on commercial wireless systems in use today and for spectrum in the pipeline.<sup>9</sup>

It is profoundly disappointing that after four years of analysis, the expert spectrum engineers at NTIA were not permitted to state that Ligado's proposal will not cause harmful interference or that use of this spectrum for 5G is in the national interest. Instead, the Kinkoph Letter merely indicates that it is unable to recommend the Commission approve Ligado's applications. The good news is that the Commission has extensive facts in the record that *do recommend* the applications be approved. That evidence includes the company's agreements with the major GPS manufacturers, the extensive tests on harmful interference discussed above, the extensive conditions the company proposed to protect all stakeholders, and all the other data assembled over the past four years. That evidence also includes bipartisan Congressional support as well as support from Ericsson, Nokia, CCA and others on the deployment of Ligado's spectrum as a step to advance the transition to 5G, since this low mid-band, greenfield spectrum can be available almost immediately to accelerate our country's path to the 5G future.

At this juncture, no one can doubt that the record is complete. It is time to bring an end to the irregular and unreasonable delay caused by some Executive Branch entities that has plagued this proceeding, just as it has plagued other important FCC spectrum initiatives. We respectfully request that the order you cited to the House Subcommittee earlier this week be voted upon promptly.

Sincerely,

/s/ Gerard J. Waldron  
Gerard J. Waldron  
*Counsel for Ligado Networks LLC*

cc: Commissioners Rosenworcel, O'Rielly, Carr, Starks

Attachment

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<sup>9</sup> See Letter from Gerard J. Waldron, Counsel to Ligado Networks LLC to Marlene H. Dortch, FCC, [above-captioned dockets] (Nov. 25, 2019) at 2, Attachment A.

## ATTACHMENT A

### *Sample Statements Indicating Need for More Spectrum for 5G*

#### White House

- **President Donald J. Trump:** “While American industry continues to extract greater and greater value from spectrum, each technological leap also increases demands on its usage. Those demands have never been greater than today. Moreover, it is imperative that America be first in fifth-generation (5G) wireless technologies — wireless technologies capable of meeting the high-capacity, low-latency, and high-speed requirements that can unleash innovation broadly across diverse sectors of the economy and the public sector.” President Donald J. Trump, *Presidential Memorandum on Developing a Sustainable Spectrum Strategy for America’s Future* (Oct. 25, 2018), available at <https://www.whitehouse.gov/presidential-actions/presidential-memorandum-developing-sustainable-spectrum-strategy-americas-future>.

#### Commission

- **Chairman Pai:** “That’s why the FCC is looking to free up mid-band spectrum for wireless innovation. As the world goes wireless, as consumers rely ever more heavily on their mobile devices, we need to keep up—and that means in part looking at spectrum bands “in the middle,” where the FCC historically hasn’t focused . . . We aim to close the mobile digital divide so that American consumers, especially in rural areas, won’t be eternally “stuck in the middle” of dead or spotty wireless service zones.” Statement of Ajit Pai, Chairman, FCC (Aug. 3, 2017), available at <https://docs.fcc.gov/public/attachments/FCC-17-104A2.pdf>.
- **Commissioner Rosenworcel:** “The United States is not in the lead when it comes to making mid-band spectrum available for next-generation 5G networks. If you want evidence, it’s right there, out in the open for all to see.” Statement of Jessica Rosenworcel, Commissioner, FCC (Jul. 12, 2018), at 1, available at <https://docs.fcc.gov/public/attachments/FCC-18-91A5.pdf>.
- **Commissioner O’Rielly:** “[Commissioner O’Rielly has] been yelling from the rooftops about the need for mid-band spectrum for the past three years or so. . . . While the facts clearly show the U.S. leading the world in allocating and auctioning millimeter waves, our actions in the mid bands haven’t been on par. . . . In addition to CBRS and C-band, we need to tee-up even more mid bands for review.” *Remarks of FCC Commissioner Michael O’Rielly before the Brooklyn 5G Summit 2019* (Apr. 25, 2019), at 2–3 available at <https://docs.fcc.gov/public/attachments/DOC-357184A1.pdf>.

#### Congress

- **Reps. Fred Upton (MI), Brett Guthrie (KY), Billy Long (MO), John Shimkus (IL), and Jeff Duncan (SC):** “While we are all keenly aware of the need to unlock spectrum resources across all band categories, we particularly support efforts to make mid-band

spectrum available for 5G connectivity. Due to the urgent need to inject more of these frequencies into an all-of-the-above spectrum approach, we write to encourage prompt action on a proceeding to deploy a greenfield buildout of 5G services in the L-band in the very near-term. The proposal has the capacity to free up prime, lower mid-band spectrum between 1 to 2 GHz frequencies.” Letter from Fred Upton *et al.* Representative, U.S. House of Representatives to Ajit Pai, Chairman, FCC (Aug. 7. 2019).

- **Reps. Doris Matsui (CA) and Brett Guthrie (KY) (Co-chairs of the Congressional Spectrum Caucus):** “It is our understanding that unlocking certain L-band spectrum could support a first-of-its-kind advanced satellite-terrestrial network designed to provide mission-critical connectivity for 5G and IoT applications. Among many other uses, this type of network could provide significant benefits to our nation’s core infrastructure industries, including transportation, energy, and public safety.” Letter from Doris Matsui and Brett Guthrie, Representatives, U.S. House of Representatives, to Ajit Pai, Chairman, FCC (Aug. 24, 2017), *available at* <https://docs.fcc.gov/public/attachments/DOC-347573A2.pdf>.
- **Senators Marsha Blackburn (TN) and Mark Warner (VA):** “We write to urge the Commission to reach a final disposition in regards to Ligado Networks’ license modification applications for use of 40 MHz of L-band spectrum...Unleashing additional spectrum for mobile broadband is a key priority in maintaining American leadership vis-à-vis China, particularly for mid-band spectrum such as this.” Letter from Marsha Blackburn and Mark Warner, Senators, U.S. Senate to Ajit Pai, Chairman, FCC (Oct. 28, 2019), *available at* <https://twitter.com/JohnHendel/status/1197183081490333696>.

## **Industry**

- **CTIA:** “We need to keep our foot on the gas—and continue to work together, particularly on spectrum. . . . And we need to focus on mid-band. While the FCC has put the U.S. ahead of many of our global peers when it comes to high-band spectrum, the U.S. lags far behind other countries—including China—in mid-band spectrum.” Nick Ludlum, CTIA, *To Lead the World in 5G, the U.S. Needs a National Spectrum Strategy* (Apr. 2, 2019), *available at* <https://www.ctia.org/news/to-lead-the-world-in-5g-america-needs-a-national-spectrum-strategy>.
- **Verizon:** “As a policy matter, it’s really important for the U.S. to look long-term at how much mid band Spectrum is in the market and make sure that we have enough coming forward because as I said, millimeter wave is great. But it doesn’t propagate that far. . . . But you really need that Spectrum in the middle—that mid band Spectrum . . . . So, we’ve done a good job on low band. We’ve done a good job on high band. I think mid band is really where we need to see the focus now.” Remarks of Kathleen Grillo, SVP, Public Policy and Government Affairs, Verizon, CQ Roll Call Event (Nov. 13, 2019).