

July 13, 2018

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

Re: Ligado Networks LLC Amendments to License Modification Applications SAT-AMD-20180531-00044 and SAT-AMD-20180531-00045; IB Docket No. 11-109

The recently proposed license modifications made by Ligado in this proceeding are significant and merit granting the underlying requested waiver.¹ Considering the extensive changes to the proposed band plan and power levels gaining support from key stakeholders in the GPS community, this chapter in the L-band saga should be closed. Ligado should be permitted to deploy valuable services that would advance the U.S. economy and national competitiveness.

Ligado has worked to address the various concerns around potential sensitive receivers in adjacent bands. The collaboration with the FAA to protect certified aviation GPS is the latest in a long line of work with GPS device manufacturers to restructure the band and allay concerns. The company has relinquished the originally proposed 1545 - 1555 MHz downlink to expand the lower GNSS guard band, and has significantly lowered power levels across the board. The most significant concession in the firm's recently proposed amendments would lower the terrestrial base station power more than 99.3% from the original modification applications.² These power reductions, coordinated with the FAA, should address any remaining concerns around certified aviation GPS, notably eliminating the potential for interference to helicopters and first responders within dense urban environments.

¹ The instant comments are with regard to the Space Station Applications SAT-AMD-20180531-00044 and SAT-AMD-20180531-00045 submitted by Ligado Networks Subsidiary LLC contained in Report No. SAT-01321 (June 8, 2018) *available at* http://licensing.fcc.gov/ibfswweb/ib.page.FetchPN?report_key=1415633; Ligado Amendment to License Modification Applications IBFS File Nos. SES-MOD-20151231-00981, SAT-MOD-20151231-00090, and SAT-MOD-20151231-00091 IB Docket No. 11-109 [https://ecfsapi.fcc.gov/file/1053120688074/Ligado%20License%20Modification%20Cover%20Letter%20and%20Amendment%20\(5-31-2018\).pdf](https://ecfsapi.fcc.gov/file/1053120688074/Ligado%20License%20Modification%20Cover%20Letter%20and%20Amendment%20(5-31-2018).pdf) ("License Modification Amendments").

² License Modification Amendments at 1.

The extreme power level reductions and bandwidth relinquishment go hand-in-hand with a transformation in business model. We are not talking about a massive deployment of base stations like a new mobile carrier, but targeted supplements to a largely satellite-based industrial IoT system. This allows for valuable technological advancement that will contribute to the economy and U.S. competitiveness while avoiding the risk of interference from a larger, broadband-focused business model.

ITIF argued in 2011 that “significance of this matter goes far beyond the immediate question of granting LightSquared (LS) the right to operate an ancillary terrestrial component, as it establishes precedent in determining how future rights conflicts between spectrum-based applications and networks will be resolved.”³ We stand by our overall message in 2011, that it is “important to resolve this matter in such a way as to facilitate future reallocation of spectrum currently assigned to satellite services to terrestrial ones, even if a portion of the legacy installed base of low-cost GPS devices is impacted.”⁴ That risk of impact to the installed base of GPS devices is far lower today given the significant concessions Ligado has made.

Radio services must have certainty in the protection against interference if we are to see the massive investment needed for large scale operations, but if the Commission is driven by worst-case-scenario thinking in attempting to minimize any possible interference, innovation and introduction of new services would grind to a halt. The line for GNSS interference cannot be drawn at 1 dB in the carrier-to-noise power density ration (C/N_0), as some in the GPS community have asserted.⁵ This threshold is so low to be unreliably measured considering variations in the noise floor, and represents the worst in worst-case-scenario thinking. Giving an actual, measurable impact beyond some minimal threshold level of interference should be the very least we ask of receivers attempting to claim harmful interference.

The FCC must not be trapped in forever providing absolute protection for poorly designed, wide-open receivers. As ITIF has submitted, the FCC must work toward new tools and new abstractions that more adeptly address receiver issues in interference disputes.⁶ With the general historic trend of ever more intensive

³ Richard Bennett, “ITIF Comments to the FCC on LightSquared/GPS Testing” IB Docet No. 11-109 (Aug 2011), *available at* <https://itif.org/publications/2011/08/16/itif-comments-lightsquaredgps-testing>.

⁴ *Ibid.*

⁵ See Glen Gibbons, Jr., “Changing the Rules” *Inside GNSS*, <http://insidegnss.com/auto/sep0ct16-THINKING.pdf>.

⁶ Doug Brake, ITIF Comments on the FCC's Technological Advisory Council's Spectrum Policy Recommendations” ET Docket No. 17-340 (Feb. 2018), *available at* <https://itif.org/publications/2018/02/15/comments-fccs-technological-advisory-councils-spectrum-policy>.

use of spectrum, radio services will have to be packed ever closer together in time, space, and frequency. The process of seeing the L-band put to more productive use is an important case in this process.

This proceeding is an great opportunity to see Ligado's spectrum be put to a far more valuable use. With a combined satellite and terrestrial network, even at the low power levels proposed, Ligado would be able to deliver industrial IoT services that would bring incredible value to the U.S. economy. The FCC should not allow what has already been a lamentably protracted proceeding to drag on longer.⁷

Sincerely,

Doug Brake,
Director, Broadband and Spectrum Policy
The Information Technology and Innovation Foundation

⁷ See Thomas W. Hazlett, "How Politics Stalls Wireless Innovation" *Wall Street Journal* (Oct. 2017), <https://www.wsj.com/articles/how-politics-stalls-wireless-innovation-1506889162>.