

July 25, 2017

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

Re: IB Docket No. 11-109; RM-11681; IBFS File Nos. SES-MOD-20151231-00981,
SAT-MOD-20151231-00090, and SAT-MOD-20151231-00091

Dear Chairman Pai:

We understand that some trade associations representing certain aviation and aerospace entities (“the Associations”) recently met with Federal Communications Commission (“Commission”) staff regarding the above-referenced proceedings.¹ At that meeting, the Associations made several statements about a Federal Aviation Administration advisory committee review of Ligado’s spectrum proposal to operate consistent with the FAA’s requirements.² We are writing about that proposal, which we understand is pending before the Commission, so that the agency understands that the Associations do not speak for the entire aviation community.

As the President and the Director of Operations at Metro Aviation (“Metro”), we write to clarify that, after careful review, Metro is fully confident that, if deployed as proposed, Ligado’s network operations will not interfere with the safe operation of helicopters. In addition, Metro disagrees with the suggestion that Ligado’s proposal would fail to protect the safe navigation of helicopter operations in many common scenarios. In fact, Ligado’s communications systems have contributed significantly to Metro’s efforts to improve aviation safety.

By way of brief background, Metro is a leading provider of air medical services, operating more than 130 rotary and fixed-wing aircraft in 20 states. In partnership with 35 operations customers, we support the safe and rapid transport of thousands of American patients. Metro is also a leader in efforts to improve aviation safety specific to Helicopter Air Ambulance (“HAA”) operations. The HAA industry presents unique challenges, requiring operation of aircraft both day and night, outside of the controlled environment of airports and airways. As

¹ See Letter from Edward A. Yorkgitis, Jr., counsel for Aviation Spectrum Resources, Inc. (“ASRI”), to Marlene H. Dortch, Secretary, Federal Communications Commission (“FCC”), IB Docket Nos. 11-109, 12-340; RM-11681; IBFS File Nos. SES-MOD-20151231-00981, SAT-MOD-20151231-00090, SAT-MOD-20151231-00091 (filed June 20, 2017). In addition to ASRI, attendees included Aerospace Industries Ass’n, Airlines for America and Helicopter Ass’n Int’l.

² At the FAA’s request, the study was completed by Special Committee 159 of the Radio Technical Commission for Aeronautics (“RTCA”). We note that the letter references RTCA, Inc. by its former name, the Radio Technical Commission for Aeronautics.

discussed below, Metro strongly supports Ligado's proposal, which will deliver innovative communications technology to the market while protecting the safe operation of certified aviation GPS receivers.

The Associations' June 20, 2017 filing takes issue with Ligado's proposal to restrict its transmit power to a level below the Minimum Operational Performance Standards set by the FAA. Specifically, Ligado has proposed to abide by this restriction everywhere in the United States, except for any area 250 feet horizontally from and 30 feet above any Ligado antenna.

Because this proposal relates to operational issues associated with aircraft operations in close proximity to antennas and towers, RTCA's Tactical Operations Committee ("TOC") sought input on this aspect of Ligado's proposal. Metro participated in the TOC proceeding to consider this issue.

Metro's views on this issue are summarized in the attached letter, which we submitted to the FAA and discussed with the TOC. In sum, Metro believes strongly that Ligado's proposal will not affect the safe operation of helicopters. Moreover, our conclusion is supported by the practical and legal considerations outlined in our letter.

To be clear, Metro strongly disagrees with the Associations' statement that Ligado's proposal "would fail to protect the safe navigation of helicopter operations in *many common scenarios*."³ Indeed, as detailed in our letter to the TOC, operations within 250 feet of an obstruction laterally, or 30 feet vertically, including operations that rely on certified aviation GPS receivers, would be exceptionally rare. In addition, safe operation within this space requires a pilot to rely on visual reference information and not solely on instrumentation like GPS to navigate.

Please contact us if you have any questions.

Sincerely,



Mike Stanberry
President



Jim Arthur
Director of Operations

CC: Marlene Dortch, Secretary
Chris Anderson
Michael Ha

³ *Id.* (emphasis added).

Charles Matthias
Aalok Mehta
Paul Murray
Robert Nelson
Ronald Repasi
Alex Vetras

October 19, 2016

The Honorable John J. Hickey
Deputy Associate Administrator for Aviation Safety
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, D.C. 20591

Re: Ligado Networks

Dear Mr. Hickey:

Metro Aviation is a leading provider of air medical services, operating more than 130 rotary and fixed-wing aircraft in 20 states. In partnership with 35 operations customers, we support the safe and rapid transport of thousands of American patients in need. Metro is also a leader in efforts to improve aviation safety specific to Helicopter Air Ambulance (HAA) operations. The HAA industry presents unique challenges, requiring the operation of aircraft both day and night, outside of the controlled environment of airports and airways. Metro was extremely proud to be the first Part 145 certificate holder to reach Level IV of the FAA's SMS Pilot Program, and one of the first to reach Level IV for Part 135 operators.

Metro Aviation has a longstanding relationship with Ligado Networks. Metro uses Ligado's satellite network to provide IRIS, an innovative two-way communication, data link, and flight data monitoring system. IRIS delivers an uninterrupted connection with constant flight data monitoring, push-to-talk communications, real-time flight tracking, and in-flight vehicle condition data and alerts. Through IRIS, Ligado is part of Metro's unending efforts to improve aviation safety. By transmitting real-time flight data to ground support staff, IRIS can help prevent accidents and identify maintenance issues before they become problems. Ubiquitous push-to-talk communications beyond the range of traditional VHF radios can dramatically improve pilots' access to critical information such as developing weather conditions.

Because of Metro's relationship with Ligado, our safety and operational experts welcomed the opportunity to work with Ligado as the company sought to develop operational parameters for its terrestrial network; a network that will protect certified aviation GPS receivers and permit helicopter operators to continue to perform their important missions safely. We likewise appreciate the opportunity to share these views with the FAA.

Many of our discussions with Ligado have concerned the appropriate distance from each Ligado terrestrial antenna beyond which GPS reception should be protected for certified aviation GPS receivers (i.e., GPS certified under an applicable FAA technical standard order). These certified GPS receivers are the *only* GPS devices approved by the FAA as a primary source of navigational information under instrument flight rules. These same certified GPS receivers also provide position information used in other systems (such as ADS-B and TAWS) and can be used generally for navigation and position awareness in a variety of flight operations under Visual Flight Rules (VFR).

Ligado has proposed that its operations be conditioned on a requirement that Ligado reduce its transmit power such that the amount of Ligado signal received by a GPS receiver would be below the interference level specified in the FAA's TSOs for such devices. This proposal would resolve concerns related to fixed-wing aircraft because Ligado can ensure that its signal does not interfere with the use of GPS more than 500 feet from an antenna, the minimum distance that fixed-wing aircraft are permitted to approach an obstacle under 14 C.F.R. § 91.119. Regulations for helicopters, however, permit operations closer than 500 feet to an obstacle. Ligado therefore sought our advice regarding the appropriate distance from a Ligado terrestrial antenna at which GPS reception should be protected for helicopter operations.

In our discussions with Ligado, both Ligado and Metro were cognizant of earlier analyses done by the FAA and RTCA which reviewed a proposed "exclusion zone" around towers that was 500 feet laterally and 100 feet above the top of the tower. In 2014, RTCA's Tactical Operations Committee concluded that an "exclusion zone" of this size could hamper HAA and other helicopter operations, particularly in urban environments. Metro generally agreed with these conclusions, and advised Ligado that helicopters may rely on certified GPS receivers closer than 500 feet from a tower.

Following our extensive discussions with Ligado, we understand that the company has proposed to the FAA that its operations protect certified GPS receivers beyond a "cylinder" of 250 feet laterally and 30 feet above the Ligado antenna. Metro believes strongly that a cylinder of this size is appropriate for the safe operation of helicopters. In our view, the following considerations support this conclusion:

1. FAA regulations appropriately recognize that any operation closer than 500 feet from a person or object should be conducted with extreme care. The generally applicable rule, under 14 C.F.R. § 91.119, provides that an "aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure." The regulations provide an exception for helicopter operations, but only if "the operation is conducted without hazard to persons or property on the surface." In our view, and under Visual Flight Rules (VFR), it would be extremely hazardous to operate closer than 500 feet from an object (such as a Ligado antenna tower) while relying solely on a certified aviation GPS device to provide navigation guidance to avoid that object. Safe operations in such a situation therefore necessarily require flight by visual reference. Because

such flight would incorporate visual reference to be conducted safely, the potential degradation of the GPS signal within 250 feet of a tower does not present safety of flight issues.

2. Specific to Helicopter Air Ambulance (HAA) operations, Metro Aviation also considered 14 CFR § 135.615 (b) (1) & (2). This regulation requires the pilot-in-command of an HAA operation, while en route, to ensure all terrain and obstacles along the planned route of flight are cleared vertically by 300 ft during day operations and 500 ft during night operations. This regulation is applicable to the approximately 1,100 HAA aircraft currently operating in the United States.
3. When operating in close proximity to any emitter of radio interference, it is possible that an aircraft's GPS signal reception could be subject to degradation. After searching Metro Aviation's SMS reporting system database, dating back to 2005, no reports were found relating to GPS signal degradation issues during VFR operations. The absence of complaints or concerns about this situation further demonstrates the points above; that is, helicopter operators rely on visual cues and not GPS location data when operating safely in close proximity to a tower.
4. Ligado's proposal addresses one of the most problematic aspects of the "exclusion zone" assessed by RTCA in 2014, namely the 100-foot vertical exclusion above the top of the tower. During certain operations, helicopters could conceivably operate safely by overflying towers and other obstructions with less than 100 feet of obstruction clearance (particularly when flying offset laterally from the top of tower). In our view, it would be impractical for all helicopters to be required to operate more than 100 feet above towers. As an additional complication, a pilot will likely not know whether a particular tower contains a Ligado antenna, thus requiring *all* towers to be over flown with a 100-foot vertical separation. Ligado's proposal addresses this problem in two important ways. First, the cylinder extends 30 feet above the *antenna*, rather than the tower. This change will increase the protected area for an overflying helicopter whenever the antenna is not deployed at the top of the tower. According to Ligado, antenna deployments will often not be at the top of a tower. Second, the cylinder extends only 30 feet above the antenna, so even if the antenna is located at the top of a tower, a helicopter operating safely should be further than 30 feet above such an obstruction.
5. Ligado has committed to ensuring that no site will be deployed in a location where the antenna's cylinder would encroach upon areas defined in 14 C.F.R. Part 77, Subpart C. As you know, Part 77 addresses the safe, efficient use, and preservation of navigable airspace. This commitment from Ligado ensures instrument approach procedures, including Special Instrument Approach Procedures (SIAP) widely used during HAA operations, will not be affected by a Ligado antenna. Ligado has also informed us that it will avoid installing antennas in close proximity to hospitals, even hospitals that do not currently have an SIAP in use.

For these reasons, Metro believes that Ligado's proposal to protect certified aviation GPS receivers at all locations beyond a 250 foot cylinder around an antenna is safe, reasonable, and strongly in the interests of aviation and aviation safety. If you have any questions

about Metro's views on Ligado's proposal, please let me know. Metro would be pleased to provide any information that the FAA found useful.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Jim Arthur', with a stylized, cursive script.

Jim Arthur
Director of Operations

cc: Bruce DeCleene
Michael Biggs