

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of)	
)	
Ligado Request to Modify its)	IB Docket No. 12-340
ATC Authorization)	IB Docket No. 11-109
)	

REPLY COMMENTS

The Aerospace Industries Association (AIA), the leading voice of the U.S. aerospace and defense industry, wishes to express its continued concern over the plans put forward by Ligado to establish a terrestrial mobile telecommunications network that could compromise the reliability of safety-critical Global Positioning System (GPS) as well as other Global Navigation Satellite Systems (GNSS). Specifically, AIA offers the following responses to some of the points made by Ligado in its Reply Comments, dated June 6, 2016. Though AIA appreciates that Ligado is working with the Federal Aviation Administration (FAA) and aviation industry stakeholders, items remain that need resolution before the Federal Communications Commission (FCC) can move forward with Ligado’s proposed actions. We take this position to safeguard the ongoing investments the American public has made in GPS as well as the safety of systems dependent on it and other space-based Radio Navigation Satellite Service (RNSS) systems domestically and abroad.

We offer the following for further consideration on this matter:

I. FAA Should Have the Authority to Make the Final Determination on Ligado’s Operational Power Levels

There is some uncertainty surrounding exactly how Ligado’s plan to protect civil aviation certified receivers by deferring to FAA Technical Standard Order (TSO) standards would work in practice. Therefore, we believe that if the FCC takes action on Ligado’s Modification Applications, it should ensure that FAA has the authority to make the final determination on Ligado’s operational power levels.

In its Reply Comments, Ligado describes that it would bear responsibility for performing calculations to ensure it does not interfere with GPS, and would be responsible for adjusting its power level based on active TSOs issued by the FAA. If the Commission were to act on the Modification Applications, AIA strongly agrees with Ligado’s statement that “[specific power] limits will be calculated by Ligado, in consultation with RTCA and subject to the FAA’s concurrence.” If the Commission were to act on the Modification Applications at this time, AIA concurs and recommends that all power levels be approved by the FAA to ensure that aviation safety-of-life is not impacted in

any way. If FCC grants Ligado's applications, specific clarification in Ligado's license is needed on FAA's role in setting operational power levels.

II. FAA Should Be Responsible for Authorizing Ligado Power Levels; and Deference to Active TSOs Needs to be Further Clarified

Ligado has suggested several different power levels that might be acceptable to operate within in the lower band of 1526-1536 MHz; but said in its December 2015 and reiterated in its June 6, 2016 Reply Comments that it would "limit its power as necessary to achieve compatibility with current and any future MOPS insofar as they are incorporated into an active Technical Standard Order by the FAA." (emphasis added) While the spirit of this statement is appreciated, practically speaking this may be untenable. The important aspect is to protect all GPS receivers installed on aircraft regardless of if the TSO is active or not. FAA may cancel a TSO when it plans to issue a new TSO, however, FAA still may certify a device (or approve a certification plan) pursuant to a TSO that is soon to be cancelled. This occurs because of the long development lead times that take many years prior to final certification. When a GPS receiver is certified, it is done so on the expectation that it would be manufactured for many years to come (order of decades) and placed into service for twenty (20) years or longer from that date of manufacture. Please note that equipment certified under a once active TSO may be produced for an extended period of time after the TSO is canceled. AIA believes this "active" TSO-related statement by Ligado needs to be clarified prior to moving forward with the Modification Applications.

III. Further Evaluation on the Uplink Band is Required by the FAA

In its Reply Comments, Ligado states that "there are no issues for aviation surrounding Ligado's use of the uplink bands" in 1626-1660.5 MHz. However, the FAA has not fully evaluated or released the results of its evaluation in the uplink band yet. If there would be an adverse impact, airline operations could be impacted. Therefore, additional input is needed from the FAA prior to authorizing Ligado's use of the uplink bands.

IV. Currently-accepted Interference Thresholds should Remain when Evaluating Government GPS Devices

Ligado's claim that a 1 dB reduction in the Carrier to Noise Density is not a reliable predictor of harmful interference needs further evaluation. Such a statement is not supportable. The 1 dB protection level has been used for many years by many organizations both inside and outside the U.S. Government in connection with the protection of a multitude of devices. Furthermore, the tests used as a basis for such a statement may not be consistent with those conducted recently by the Department of Transportation (DoT). For individual agencies, or the U.S. as a whole, to unilaterally determine their spectrum compatibility establishes a bad precedent. Similarly, this would be a bad precedent for the international community as it undermines the typical approach espoused at international levels (for a variety of spectrum allocation purposes).

V. A Federal Government Entity Should Control the Test Procedure to Ensure the Public Good is Served

In addition to the technical concerns raised above, FAA, the DoT, or other appropriate federal entities should have control over the testing methodology that will, in turn, determine the test results. Given that a key issue in this proceeding is maintaining the public benefits GPS offers the U.S., it is important that an entity with aviation safety as its core mission lead in developing and controlling any such tests. Ad hoc testing conducted by other entities such as Roberson and Associates needs to be vetted by appropriate federal agencies. Indeed, AIA reiterates that it looks forward to public release of the results and report of the DoT-sponsored Volpe National Transportation Systems Center on the matter of Ligado's proposal. Further, the Department of Defense and other potentially impacted federal agencies should have adequate opportunity to assess and communicate to other stakeholders the risks Ligado's operations might have on them before the FCC takes any further action on Ligado's Modification Applications.

VI. AIA Supports Comments by Aerospace Stakeholders

Finally, AIA expresses its support for aerospace stakeholders who have participated in these "reply comments" filed in response to Ligado's Modification Applications in the above proceedings —namely the Lockheed Martin Corp., Airlines for America, Air Line Pilots Association International, The Boeing Company, and Aviation Spectrum Resources, Inc. It is particularly noteworthy that parties with which Ligado has reached settlements have expressed their concerns in the docket. In its May 23 comments, Trimble described Ligado's testing regime and criteria as "unrealistic and impracticable" and advocated for continued use of existing criteria. AIA concurs with the comments its fellow aerospace industry stakeholders have offered into the docket.

CONCLUSION

AIA will continue to monitor the most recent Ligado proposal. To support this, AIA's members are available to provide you the relevant expertise to inform any decision germane to the spectrum discussion. Please do not hesitate to call upon us as you reach out to the spectrum stakeholder community.

Respectfully submitted,

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