Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
LightSquared Technical Working Group Report	)	IB Docket No. 11-109
	)	
LightSquared License Modification Application, IBFS Files Nos. SAT-MOD-20120928-00160, -00161, SES-MOD-20121001-00872	)	IB Docket No. 12-340
	)	
New LightSquared License Modification Applications IBFS File Nos. SES-MOD-20151231-00981, SAT-MOD-20151231-00090, and SAT-MOD-20151231-00091	)	IB Docket No. 11-109; IB Docket No. 12-340
	)	
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

CONSOLIDATED REPLY TO THE OPPOSITIONS TO THE PETITIONS FOR RECONSIDERATION

THE AEROSPACE INDUSTRIES ASSOCIATION

THE AIRCRAFT OWNERS AND PILOTS ASSOCIATION

AIRLINES FOR AMERICA

AVIATION SPECTRUM RESOURCES, INC.

THE CARGO AIRLINE ASSOCIATION

THE GENERAL AVIATION MANUFACTURERS ASSOCIATION

HELICOPTER ASSOCIATION INTERNATIONAL

THE INTERNATIONAL AIR TRANSPORT ASSOCIATION

THE NATIONAL AIR TRANSPORTATION ASSOCIATION

THE NATIONAL BUSINESS AVIATION ASSOCIATION

June 8, 2020

CONSOLIDATED REPLY TO THE OPPOSITIONS TO THE PETITIONS FOR RECONSIDERATION

Joint Petitioners[1] hereby reply to the Oppositions[2] to Joint Petitioners' May 22, 2020, Petition for Reconsideration[3] asking the Commission to reconsider and withdraw the Order and Authorization in the above-referenced matters,[4] one of eight petitions opposing the *Order*.

INTRODUCTION

Joint Petitioners represent virtually all of the aviation industry – including helicopter and fixed wing pilots, passenger and cargo airlines, and manufacturers – and have the interests of the flying public and aviation safety and efficiency as their missions. Ligado seeks to obfuscate the broad array of interests that constitute Joint Petitioners by inaccurately referring to the *Petition* as the "ASRI Petition." In addition, Ligado makes a shallow attempt to counterbalance Joint Petitioners' broad array of aviation expertise and experience with an *ex parte* letter of a single helicopter company with a commercial relationship with Ligado and, now, a consultant under contract with Ligado, who happens to be a retired Federal Aviation Administration ("FAA") employee (*see, e.g.*, Ligado Opp. at 18 (referencing what Ligado calls Joint Petitioners' "disagreement with other stakeholders' perspectives concerning both TAWS and flight by visual

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1 "Joint Petitioners" are, collectively, the Aerospace Industries Association, the Aircraft Owners and Pilots Association, Airlines For America, Aviation Spectrum Resources, Inc. ("ASRI"), the Cargo Airline Association, the General Aviation Manufacturers Association, the Helicopter Association International, the International Air Transport Association, the National Air Transportation Association, and the National Business Aviation Association.

2 Opposition of Ligado Networks LLC, IB Docket No. 11-109, *et al.* (June 1, 2020) ("Ligado Opp."); Opposition of JHW Unmanned Solutions, LLC, IB Docket No. 11-109, *et al.*, (June 1, 2020) ("JHW Opp."); Opposition of the Brattle Group, Inc., IB Docket No. 11-109, *et al.* (June 1, 2020); Opposition of Roberson and Associates, LLC, IB Docket No. 11-109, *et al.* (June 1, 2020) ("RAA Opp.") (collectively, the "Oppositions").

3 Joint Petition for Reconsideration of the Aerospace Industries Association, *et al.*, IB Docket No. 11-109, *et al.* (May 22, 2020) ("Petition").

4 *LightSquared Tech. Working Grp. Report, et al.*, IB Docket No. 11-109, *et al.*, Order and Authorization, FCC 20-48 (Apr. 22, 2020) ("*Order*").

reference"); JHW Opp. at 11 (referring to the *Order*'s recognition of "Metro Aviation's endorsement")). The *Order*'s acceptance of the applicant's view, and that of a helicopter company in a commercial relationship with Ligado, on matters of aviation safety in contradiction to virtually the entire aviation industry is nothing short of baffling. and indicative of why the *Order* is arbitrary, capricious, and not supported by substantial evidence in the record.

The Oppositions filed by Ligado and its hired allies frequently evade responding directly to the arguments of Joint Petitioners and repeatedly mischaracterize the *Petition*, the FAA's analysis, the record, and even the *Order*. More troubling, the Oppositions further illustrate the inadequacy of the *Order*'s conditions to address the harmful interference that Ligado's planned deployments will cause GPS receivers and satellite communications ("SATCOM") terminals.[5] Accordingly, as set out in the *Petition*, the Commission should reconsider the *Order* and deny Ligado's modification applications.

Ligado contends that the *Petition* and the seven other reconsideration petitions "present no new data or legal analyses" (Ligado Opp. at 1). The *Petition* focuses on the *Order* and the extent to which it (1) disregarded, failed to account for substantial evidence in, or mischaracterized, the record and (2) exceeded the Commission's authority.[6] Moreover,

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[5] Ligado fails to explain why the *Order*'s reliance on long-unresolved negotiations between Inmarsat and Ligado to resolve the harmful interference to Inmarsat's downlink SATCOM terminals in spectrum shared with Ligado is not an impermissible delegation of the Commission's statutory spectrum management obligations. *See Petition* at 23-24. Ligado advises the Commission to avoid what it terms as "an unrelated commercial dispute between a vendor (such as Inmarsat) and its customers (the aviation community)" (Ligado Opp. at 20), asking the Commission to disregard the risk of harmful interference to SATCOM terminals that is created solely by the grant of Ligado's license modification applications. The Commission has the sole authority and obligation to adopt specific requirements that Ligado must follow to minimize Ligado's disruption to aviation's use of SATCOM and reimburse Inmarsat and aircraft owners for any retrofit undertaken to accommodate Ligado.

[6] *See* 5 U.S.C. §§ 706(2)(A), (C), (E) (reversal of agency decisions by a court appropriate where the decision was arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law; in excess of statutory jurisdiction, authority, or limitations, or short of

recognizing the real threat of harmful interference from Ligado to GPS, the *Order* imposes license conditions, most of which are new or in a form modified from Ligado's previous proposals. Given the Commission's effort to vote on the *Order* by circulation, the parties' first opportunity to comment on the elements of the decision critical to the public interest is through petitions for reconsideration Addressing shortcomings in the *Order* is a sufficient basis for reconsideration: new data or legal analyses are not necessary.[7]

What *is* new, yet ultimately totally dubious, is Ligado's story that its proposed plans are connected to the rollout of 5G in mid-band spectrum. Ligado claims that grant of its applications presents a "unique opportunity to maximize mid-band spectrum that raised questions about impact on a small percentage of GPS devices" (Ligado Opp. at 2). Joint Petitioners wish to underscore the thin veneer of public interest benefits that Ligado's contemplated services allegedly would offer. What Ligado promises will not advance 5G. The L-band spectrum at issue offers no more than ten megahertz of contiguous spectrum and totals no more than 3% of the sub-6 GHz spectrum available for commercial next-generation services.[8] This small amount of spectrum is vital neither for "winning the global race for 5G" nor expanding the Internet of

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statutory right; or otherwise unsupported by substantial evidence); *see also Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co*., 463 U.S. 29, 43 (1983) ("State Farm") (stating an agency order is arbitrary and capricious when the agency "entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise").

[7] Contradicting itself, Ligado states other arguments are new and should be rejected for that reason. *See, e.g.*, Ligado Opp. at 20. Since the *Petition* is, at bottom, only concerned with safety-of-flight and the efficiency of America's aviation operations – meaning, the public interest – any new arguments Joint Petitioners bring should be considered as well. 47 C.F.R. § 1.106(c) (consideration of new facts and arguments will be permitted if "required in the public interest").

[8] *See* Letter from Douglas W. Kinkoph, Deputy Assistant Secretary for Communications and Information (Acting), National Telecommunications and Information Administration, to Ajit Pai, Chairman, Federal Communications Commission, IB Docket Nos. 11-109, 12-340, *et al.*, 1-2 (Dec. 6, 2019) (more than 900 megahertz of sub-6 GHz spectrum available for licensed mobile service). The thirty megahertz Ligado is licensed to use is approximately 3% of that amount.

Things – and is extremely limited in how it may be deployed. The integrity and reliability of GPS, a system which has improved aviation safety and already provided $1.4 trillion of realized benefit to the U.S. economy,[9] are not worth endangering for these doubtful benefits.

Ligado's sponsored studies, on which the *Order* relies, tested no more than 41 GPS devices.[10] Their limited scope was insufficient to support a conclusion that only "a small percentage of GPS devices" will be affected.[11] Moreover, as Joint Petitioners made clear, only one non-certified aviation receiver was tested and in a non-aeronautical, two-dimensional setting, a central part of Joint Petitioners' arguments why the *Order* fails to protect aviation use of non-certified GPS that neither Ligado nor its hired supporters even attempt to address in their Oppositions. Therefore, wholly separate and apart from the issue of the Commission's rejection of the well- and long-recognized 1 dB standard in favor of Ligado's own Key Performance Indicator ("KPI") standard without adequate foundation or explanation, there simply was statistically insignificant evidence to base a major public policy decision concerning the level of threat to uncertified GPS receivers, especially those used for aviation.

DISCUSSION

One of the most disturbing claims in the Ligado Opposition, which further reveal the weakness of the license conditions adopted, is that the spectrum in question is Ligado's (*see, e.g.*,

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[9] RTI International, "Economic Benefits of the Global Positioning System (GPS)," ES-1 (June 2019), available at https://www.rti.org/sites/default/files/gps_finalreport618.pdf?utm_campaign=SSES_SSES_ALL_Aware2019&utm_source=Press%20Release&utm_medium=Website&utm_content=GPSreport.

[10] *See* RAA Opp. at 3, 7 (describing the number of non-certified devices tested). The number is actually smaller as, in some cases, the same GPS receiver appeared in both studies.

[11] *See* Ligado Opp. at 2. The 41 GPS devices tested cannot substantiate the claim in the Ligado and RAA Oppositions that the models tested are representative of the entire GPS market, which is estimated at 900 million GPS receivers in the U.S. according to The National Coordination Office for Space-Based PNT. National Space-Based Positioning, Navigation, and Timing Advisory Board, Twenty-Fourth Meeting Notes, 14 (Nov. 20, 2019), available at https://www.gps.gov/governance/advisory/meetings/2019-11/minutes.pdf. Ligado's claim also totally ignores other GNSS systems now in use such GLONASS, Galileo, and BeiDou.

Ligado Opp. at 7, n.8, 8-9, 15). The thirty megahertz that is the subject of the *Order* is not "Ligado's." Ligado, as a SATCOM operator, did not pay for the frequencies it has access to by auction and does not have an exclusive grant. (Inmarsat SATCOM terminals, for example, operate in co-channel spectrum at 1526-1536 MHz.) Even if the spectrum were exclusive, this does not mean Ligado could otherwise use it for any purpose without restrictions imposed to protect co-frequency and adjacent band users. Indeed, the Commission has not concluded that GPS is "squatting on Ligado's spectrum," as Ligado nonetheless seems to assert. While Joint Petitioners disagree with the Commission on the question of whether the *Order* protects GPS, the *Order* unquestionably recognizes that GPS devices are entitled to operate *without experiencing harmful interference from Ligado.* The only remaining question is whether the *Order* is sufficient for the purpose of protecting GPS receivers. Joint Petitioners submit that it is not.[12]

The *Petition* explained why the license condition providing for Ligado to address interference complaints was inadequate (*Petition* at 14-16). Ligado confirms this by insisting in its Opposition that the spectrum it uses is "its spectrum" and characterizing GPS receivers that may experience harmful interference as "squatters" (*see, e.g.*, Ligado Opp. at 15), giving every indication that, upon receiving a complaint of interference to GPS receivers, Ligado's view will be that there is no interference to be resolved as long as its radios are operating within the parameters set out in the *Order*. That is not what the condition contemplates and the Commission, now fully apprised of Ligado's interpretations thereof, must reconsider its *Order* to

[12] Not only is Ligado's argument at odds with the *Order*, such a position would be a dangerous precedent, since it would result in the Commission ceding jurisdiction over spectrum management. Notably, the Commission has on repeated occasions ensured the protection of adjacent receive-only or passive services. Examples include C-Band receive-only earth stations and passive services at various locations throughout the radiofrequency spectrum. *See, e.g.*, *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, Report and Order and Order of Proposed Modification, 35 FCC Rcd 2343, ¶¶ 171, 343-350 (2020); 47 C.F.R. § 2.106 footnote 5.208A (protecting radio astronomy in non-adjacent bands).

address this. Consistent with the overriding public interest in aviation safety, the Commission must not leave the question of harmful interference to GPS receivers used in aviation to after-the-fact resolution by Ligado.

Of principal concern to Joint Petitioners is that Ligado and JHW, like the *Order* they seek to defend, mischaracterize the record by insisting that the FAA accepted implementing 250-foot radius assessment zones, Ligado's "250/30 Cylinder" proposal, as a protection for certified GPS receivers on aircraft operating near Ligado base stations, including Unmanned Aircraft Systems ("UAS"). Unfortunately, the Commission appears to have based its decision on the opinion of Ligado, a non-aviation stakeholder. The *Order*'s misconstruction of the FAA's assessment zone studies, which forms the lynchpin of the Commission's decision that the protection of certified GPS receivers can be addressed by its license conditions,[13] resulted in a decision that "runs counter to the evidence before the agency" and must be corrected on reconsideration.[14]

Contrary to Ligado and JHW's contentions, Joint Petitioners were not "questioning" the FAA's analysis (*see* Ligado Opp. at 16-17; *see also* JHW Opp. at 3-7), but rather focusing the Commission's attention on a critical, but overlooked, aspect of the record: that the FAA expressly had not considered all helicopter Terrain Awareness and Warning Systems ("TAWS")

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[13] *See Petition* at 5-8. Ligado claims that Joint Petitioners "erroneously suggest that the Commission relied upon testing sponsored by Ligado in concluding that Ligado's applications do not present an interference risk to certified aviation receivers." Ligado Opp. at 16. Ligado's effort at misdirection is simply wrong. The *Petition* makes clear that Joint Petitioners understood well that the *Order* relied exclusively on the FAA study regarding certified aviation receivers. Similarly, Ligado's claims that Joint Petitioners' arguments regarding non-certified receivers and UAS are reducible to arguments about the 1 dB standard (*see id.* at 19, n.20) completely overlook that fact that the *Petition* disputes the sufficiency of the scope of the Ligado-sponsored studies for a decision increasing the risk of interference to non-certified GPS *even if one assumes the KPI methodology is appropriate* (*see Petition* at 20-21). Additionally, Joint Petitioners' challenge to the *Order*'s treatment of UAS issues does not rely on the acceptance of the 1 dB standard (*see id.* at 13).

[14] *See State Farm*, 463 U.S. at 43.

and UAS operational scenarios *within* the "250/30 Cylinders."[15] The FAA added that there were "unresolved concerns expressed by several, though not all, operators about the assessment zone and its impacts to aviation operations and safety," a concession to the lone voice of Metro Aviation,[16] but not sufficient to outweigh the safety concerns overwhelmingly expressed by the almost the entire aviation industry.[17]

Ligado claims, without citation *to the FAA assessment*, that "the FAA based its conclusions regarding tolerable power limits on the most restrictive certified aviation scenarios analyzed, and these exact scenarios cover operations ASRI and ALPA suggest were overlooked"

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[15] Ligado's contractor, JHW correctly acknowledges and points out to the Commission that the "the model the FAA used [only] establish[ed] the estimated power levels *at the surface of the standoff cylinders*," and the purpose of the cylinders is to "establish *a reasonable point in space* where the FAA-calculated power levels from Ligado base stations could exceed the interference mask specified in the FAA Technical Standard Orders ('TSOs') for safety-of-life GPS receivers installed on aircraft," *i.e.*, certified aviation GPS receivers. JHW Opp. at 4 (emphasis added).

[16] Ligado states that "the Commission and the FAA had notice of ASRI's and ALPA's concerns for years – concerns the FAA noted are not shared by all operators." *See* Ligado Opp. at 18. However, as the record makes clear, only a single operator expressed a contrary view, who has commercial links to Ligado. *See* Valerie Green, "One of America's Largest Helicopter Operators Voices Support for Ligado's Plan," Ligado Networks Insights (July 25, 2017), available at https://ligado.com/blog/one-americas-largest-helicopter-operators-voices-support-ligados-plan/.

[17] JHW incorrectly suggests that, at Ligado base station heights, GPS will not be utilized, claiming that "helicopters will receive any TAWS alert well before they enter a standoff cylinder" and "the pilot will be using visual separation techniques to maintain a safe distance from the obstacle(s) that the TAWS identified." JHW Opp. at 11. *See id.* at 10 ("TAWS systems are not navigation systems and pilots are prohibited from using them for navigation."). JHW misleads the Commission further by asserting that, in low-altitude flight, "reliance on GPS for navigation is inappropriate or prohibited." *Id*. at 3. Joint Petitioners are compelled to correct these misstatements: use of GPS for navigation and in the conduct of flight operations generally is *never* prohibited. Several systems aboard modern aircraft rely on GPS signals to provide vital information to pilots, enabling them to maintain situational awareness through, for example, an accurate understanding of position, location, and courses to flight plan waypoints, and accurate monitoring of fuel reserves. This information is critical whether visual flight rules are in use or not. JHW's citation to Metro Aviation for support is unavailing. *See id.* at 11 (quoting Metro as stating pilots "do not *solely* rely on GPS receivers near obstacles") (emphasis added). Metro concedes that pilots *do rely* on GPS near obstacles. At low altitudes, pilots regularly rely on GPS as well as other forms of navigational input (*e.g.*, VOR/DME/TACAN), and sometimes almost exclusively on GPS as these other tools are not always available.

(*see* Ligado Opp. at 17).[18] But the FAA is clear in the DOT ABC Report regarding its limited purpose: to assess the maximum power allowed for certified aviation receivers "operating under the *assumption* of the described 250 foot (76.2 m) radius assessment zone."[19] The *Order*, by echoing Ligado, errs, and this alone requires reconsideration.[20]

As stated in the *Petition*, certified GPS-dependent systems operating within the 250/30 Cylinders play an important role in aviation safety.[21] Ligado claims that the Commission

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[18] Indeed, the joint public statement from the Department of Defense and the Department of Transportation (the FAA's parent agency) on April 17, 2020, five days before the *Order* was released, explained that the anticipated Commission decision would put "all these uses of GPS at risk" which "facilitate travel by air and sea." *See* Sandra Erwin, Space News, "DoD issues new rebuke of Commission's decision to allow Ligado 5G network" (Apr. 18. 2020), available at https://spacenews.com/dod-issues-new-rebuke-of-fccs-decision-to-allow-ligado-5g-network/. Accentuated by the petition for reconsideration filed by the National Telecommunications and Information Administration, this is hardly an FAA blessing of the *Order*'s conclusions.

[19] U.S. Department of Transportation, "Global Positioning System (GPS) Adjacent Band Compatibility Assessment," Final Report, VI (April 2018) ("DOT ABC Report") (emphasis added), available at https://www.transportation.gov/sites/dot.gov/files/docs/subdoc/186/dot-gps-adjacent-band-final-reportapril2018.pdf. Despite the *Order*'s assertion (*Order* at ¶ 71), helicopter use of the GPS-dependent Helicopter Terrain Awareness and Warning System 250 feet laterally from an obstacle is not the most restrictive operational scenario possible, but merely the most restrictive of the scenarios that the FAA has analyzed under the specific assumption the FAA-adopted for study purposes. *See Petition* at 6.

[20] JHW tries to obscure Ligado's invitation for pilots to play Russian roulette inside the 250/30 Cylinders by asserting that the aviation parties misrepresent the purpose of the standoff cylinder around each Ligado base station (JHW Opp. at 3). JHW indicates that there will be interference within the 250/30 Cylinders, just not evenly throughout, and that "a momentary loss of GPS location (were it to occur) would likely go entirely unnoticed," in an attempt to downplay the problem. *See id.* at 4-5, 6. This wholly understates the impact that a loss of GPS would have, is in direct contradiction to expert pilots, and JHW can provide no assurance that the loss would be momentary. Nothing could be potentially more detrimental to a flight than an "unnoticed" loss of GPS location or accuracy, particularly at low altitude. Harmful interference within portions of the contemplated thousands of 250/30 Cylinders, even if not constant throughout their volume, undermines the reliability of one of the essential tools upon which pilots will depend when operations bring them in close proximity to Ligado base stations. *See* DOT ABC Report, VI ("inside [the assessment zones,] GPS performance may be compromised or unavailable and GPS-based safety systems will be impacted accordingly due to the elevated levels of RFI"). This is not something that the Commission can responsibly ask pilots to accept. Yet, that is exactly what the *Order* does, contrary to the evidence before it.

[21] *Petition* at 9. Contrary to JHW's false statement that "manned aircraft do not routinely fly close to structures" (JHW Opp. at 4), Joint Petitioners can attest that, in fact, they commonly do as the reference in the DOT ABC Report makes clear (DOT ABC Report, Executive Summary at VI-VII). Particularly within an urban environment, helicopters often operate in proximity to structures, including towers, in the execution of their duties. Public service

weighed use of GPS "in close proximity to obstacles," implying Ligado base stations, but the *Order* never expressly says it did that (*see* Ligado Opp. at 18, citing *Order* at ¶¶ 68, 70). Instead, Ligado in tell-tale fashion is citing Commission summaries of party comments, and thus is simply citing itself. This does nothing but expose the deficiencies in the *Order*.

Further, the *Petition* also explained that the *Order*'s dismissal of concerns regarding potential interference to UAS operating in close proximity to Ligado base stations was not substantiated, another scenario the FAA made clear that it has not assessed (*Petition* at 6-7). To justify its action, for example, the Commission made unwarranted presumptions that the FAA would grant waivers of its rules to overcome the problems (*see id.* at 13). Quizzically, Ligado characterizes Joint Petitioners' criticism of the Commission's unsupported and new discussion as recycled. Not only does Ligado fail to cite any of these supposed previous arguments, Joint Petitioners did not refer to any previous submissions, but instead focused their analysis on the *Order*'s rationale, which had not previously appeared in the record.

JHW tries to lend support to Ligado's UAS arguments, claiming that small UAS can operate in very close range of Ligado base stations without interference (JHW Opp. at 7; *see also* Ligado Opp. at 19). But JHW speaks only to a subclass of UAS used to inspect radio towers and other infrastructure. Numerous other UAS types are not mentioned by JHW or the *Order*.[22]

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helicopters (police, fire, Coast Guard, and others) are required to operate daily in close proximity to infrastructure, and increasingly during natural disaster responses (hurricanes, earthquakes, and fires) – day and night.

[22] Similarly, JHW argues that the alleged ability of one type of UAS to tolerate high intensity radiated fields ("HIRF") is indicative that GPS receivers on UAS will not suffer harmful interference. *See* JHW Opp. at 7-8. The argument is entirely without merit because interference is a frequency-dependent phenomenon: HIRF radiation is not emitting in Ligado spectrum. JHW's statement that "proximate on-board transmitters for command and control, just like those incorporated into cellular and tablet devices, present interference that the closely situated GPS must be equipped to endure" is equally unavailing. *Id.* at 8. Self-coordination on unmanned aerial vehicles among systems not occupying adjacent spectrum is not analogous to the Ligado-into-GPS harmful interference issue.

Finally, the Ligado base station database and notification conditions do not save the *Order*.[23] Ligado claims the database condition "impos[es] no obligation on such stakeholders [such as ASRI]" and, thus, correctly admit that the obligations and burden of license conditions should fall solely on it (Ligado Opp. at 20).[24] However, even if true regarding the database,[25] that does not fix the condition, because the *Order* ostensibly bifurcates the systems by which pilots are notified of obstacles in the airspace (*see Petition* at 14-16). Ligado ineffectually attempts to solve that deficiency by asserting that "Ligado also must report base station location information directly to the FAA" (Ligado Opp. at 20). But this conflates the two conditions, which the *Order* clearly did not do. Moreover, there is no specific mechanism in the record or the *Order* by which Commission/FAA notification would make the locations of interfering Ligado base station practically and readily available to pilots.[26] As the *Petition* explained, the Commission has no authority to order the FAA to develop a process to accommodate Ligado's planned operations (*Petition* at 15).

CONCLUSION

For the foregoing reasons and those set out in the *Petition*, the Commission should reconsider the *Order*, withdraw it, and deny the Ligado license modification applications.

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[23] Seemingly contrary to Ligado's impulses to provide notification of its base stations, since they represent potential interference zones, JHW claims that "the FAA has never treated the standoff cylinder as an obstruction necessary for inclusion in applications such as Terrain Awareness and Warning Systems ('TAWS'), nor would such treatment be appropriate." *Id.* at 6. Joint Petitioners question why notification of potential zones where GPS will not operate would be improper given the importance of GPS availability throughout flight.

[24] Ligado previously tried to foist the administration of a database on ASRI or another aviation stakeholder.

[25] Joint Petitioners question Ligado's assessment of the condition's burden, given the *Order* directs aviation involvement in the "establishment" of the database. *See Petition* at 15-16.

[26] If notification to the FAA was sufficient, which it is not, and Ligado has never previously claimed that it is, one has to wonder what the purpose of the separate database ordered by the Commission is and why Ligado ever proposed it in the first place, if not to try to put a bandage on a problem.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I, Edward A. Yorkgitis, Jr., hereby certify that on June 8, 2020, a copy of the foregoing Consolidated Reply to the Oppositions to the Petitions for Reconsideration of the Aerospace Industries Association, the Aircraft Owners and Pilots Association, Airlines For America, Aviation Spectrum Resources, Inc., the Cargo Airline Association, the General Aviation Manufacturers Association, Helicopter Association International, the International Air Transport Association, the National Air Transportation Association, and the National Business Aviation Association was served by e-mail on the following representatives of the other parties to the proceeding:[1]

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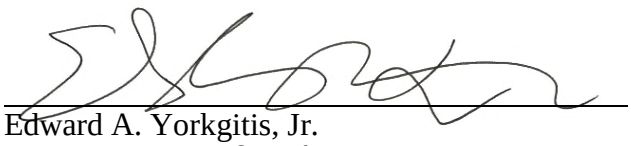

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