

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Space Innovation;	)	IB Docket No. 22-271
	)	
Facilitating Capabilities for In-space Servicing, Assembly, and Manufacturing	)	IB Docket No. 22-272

**COMMENTS BY THE AEROSPACE INDUSTRIES ASSOCIATION (AIA)**

AIA represents over 300 companies across the aerospace and defense supply chain. Our members design, manufacture, and operate ground systems, launch vehicles, and spacecraft for commercial, civil, and national security space missions and include global leaders in researching, developing, and operating in-space servicing, assembly, and manufacturing (ISAM) capabilities.

ISAM capabilities and commercial services can and will vary widely in type, scope, and duration. The Commission can support the U.S. space industry's continued global leadership in ISAM capabilities through spectrum availability and licensing flexibility that allows the end-to-end provision of these varied – and still developing – ISAM services. The Commission can further support the development of ISAM capabilities by ensuring any Commission actions in this area are coordinated and aligned with the Administration's current whole-of-government assessment of policy issues related to novel space activities. Any future rules and policies should rely on experience from initial missions and performance-based regulation instead of attempting to regulate every aspect of the broader ISAM ecosystem from the start.

**Spectrum Needs**

The range of ISAM activities that have and may come to the Commission in the near future are varied, with many still in a demonstration or experimental phase. ISAM activities that have or will likely seek spectrum in the near term include refueling of satellites via in-space fuel transfer, in-space satellite life extension via the attachment of fuel pods or sensors to existing spacecraft, satellite to satellite capture for the purposes of deorbiting or orbit stabilization, multiple spacecraft conducting guided and/or autonomous structure assembly in orbit, and in-space manufacturing activity adjacent to or in tandem with a human tended or untended space structure or habitat.

Considering just this list of likely ISAM activities, spectrum allocation will be required for both TT&C and non-TT&C communications. Aspects of these activities will require periods of constant, high bandwidth, low latency communications. These activities also introduce the potential for regular in-space communication between multiple spacecraft, including human tended spacecraft or habitats.

ISAM missions have been licensed under both part 25 of the Commission's rules as well as under part 5. Given the varied spectrum needs of ISAM activities and the continued innovation of these services, *AIA supports the continued allowance of allocations pursuant to part 25 and part 5 licenses to accommodate ISAM services.* Moreover, *AIA supports further study and analysis of additional bands that could be allocated for particular ISAM activities (e.g., satellite to satellite servicing) or particular aspects of ISAM activities (e.g., approach during satellite to satellite refueling) as those services become more routine and their end-to-end spectrum requirements better understood.*

### **Licensing Process**

As noted by the Commission, ISAM missions have been licensed under both part 25 of the Commission's rules as well as under part 5, addressing experimental licensing. Given the novel and nascent state of many ISAM activities, *AIA supports the Commission continuing to allow ISAM activities to seek licenses under part 25 as well as part 5.* Moreover, for part 5 licensed activity, *AIA supports the Commission enhancing its guidance and support for providers seeking a license for experimental and developmental ISAM activity.* This support should be focused on accelerating the licensing process for these innovative activities based on experience and bridge existing licensing process gaps that may otherwise act as a barrier to ISAM activity development. This step will also provide the Commission with experience and lessons learned on whether additional regulatory steps, if any, are required for this activity.

Moreover, *AIA supports ISAM missions being handled under a single license that is updated with notifications as needed for activities within the scope of the license or otherwise authorized and not through multiple licenses.* When filing for the communications license the ISAM entity should file for the ISAM capabilities reasonably expected during its mission life. Given that a servicer vehicle could support a variety of mission types over its life, the servicer entity should be provided assurance and certainty that it is licensed for the full scope of potential market activity. This will prevent the case of a servicer, for example, being licensed for its first customer, but then unable to obtain a license for additional valuable market activities after it is in orbit. This outcome will stifle future investment in ISAM technologies, curtail the development of potential new markets, and impact continued U.S. leadership in these capabilities. Of course, additional uses could develop after initial licensing, including the need for an emergency service. Therefore, *AIA supports the inclusion of a process for notification after the initial license for activities within the scope of the license or otherwise authorized.*

### **Assembly, Manufacturing, and Other Activities**

The Commission sought comment on any special considerations in licensing of assembly and manufacturing missions. The Commission has allowed ISAM missions to be licensed under both part 25 of the Commission's rules as well as under part 5. Given the novel and nascent state of assembly and manufacturing activities, *AIA supports the Commission continuing to allow licensing under part 25 or part 5 for these activities.* As discussed above, *AIA further supports the Commission enhancing its guidance and support for providers seeking a license for experimental and developmental ISAM activity.* This support should seek to accelerate the licensing process and bridge existing licensing process gaps. This step will also provide the Commission with experience and lessons learned on whether additional regulatory steps, if any, are required for this activity.

## **Orbital Debris Remediation**

The Commission sought comment on whether active disposal efforts should be considered part of an operator's orbital debris strategy for post-mission disposal or backup post mission disposal. *AIA supports the Commission considering operators' inclusion of sufficiently developed active and passive post-mission disposal technology to satisfy post-mission disposal requirements and consideration of mitigation and remediation efforts in a well-rounded orbital debris mitigation showing.* AIA further supports continued government investment and government-industry collaboration on active disposal technologies and demonstration efforts through NASA and the Department of Defense.

## **Activity Beyond Earth's Orbit**

The Commission seeks comment on the role, if any, it should play in reviewing planetary protection plans and implications for ISAM missions. *Given existing interagency processes, AIA does not support the Commission expanding its role to reviewing planetary protection plans or implications.* The White House Office of Science and Technology Policy is undertaking an extensive examination of planetary protection processes, including the role, if any, of NASA's long standing planetary protection processes and the role, if any, of the FAA payload review process. *AIA supports the continuation of this review under White House leadership with continued input from the space industry and other stakeholders.* The Commission is a member of these interagency efforts and should continue to support the interagency discussion without taking independent action on planetary protection.<sup>1</sup>

## **Encouraging Innovations and Investment in ISAM**

A stable and transparent regulatory environment, supported by a coordinated and consistent whole of government approach to novel policy issues raised by ISAM activities, can best facilitate development of and competition in ISAM activities. To this end, the Commission should continue access to part 25 and part 5 licensing processes while providing increased support to ISAM applicants as discussed above, while remaining in-line with existing White House policy making processes on novel space activities to ensure a whole of government approach is taken to these activities.

## **Whole of Government Coordination**

At the September 2022 National Space Council meeting, Vice President Kamala Harris requested National Space Council Members to provide, "a proposal for the authorization and supervision of commercial novel space activities within 180 days[.]" In furtherance of this request, the White House National Space Council has organized a series of listening sessions to engage stakeholders on the policy and regulatory issues associated with novel space activities, which includes ISAM capabilities. *AIA supports White House coordination on this issue.* The

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<sup>1</sup> Planetary protection is the policy and practice of protecting future scientific investigations by limiting biological contamination of other planetary bodies through exploration activities and protecting the Earth's biosphere by avoiding harmful biological contamination by returning spacecraft. See National Strategy for Planetary Protection, December 2020, <https://www.whitehouse.gov/wp-content/uploads/2021/07/National-Strategy-for-Planetary-Protection.pdf>.

Commission should defer to this existing White House policy processes on mission authorization before taking any potential overlapping action.<sup>2</sup>

Thank you for the opportunity to comment on this matter.

Respectfully submitted,

/s/ Michael J. French

Vice President, Space Systems  
Aerospace Industries Association  
1000 Wilson Blvd., Suite 1700  
Arlington, VA 22209

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<sup>2</sup> The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (“Outer Space Treaty”) requires States to authorize and continually supervise the activities of their non-governmental entities in space, referred to here as mission authorization.