National Telecommunications and Information Administration
1401 Constitution Ave NW
Washington, DC 20230

Via email

Re: Modernizing United States Spectrum Policy and Establishing a National Spectrum Strategy, and Implementation of the National Spectrum Strategy

National Spectrum Strategy and its Implications for the Aerospace Industry

The Aerospace Industries Association (AIA) and its more than 300 members extend their appreciation for the Administration's efforts in formulating a National Spectrum Strategy (NSS), a pivotal initiative aimed at optimizing the utilization of a vital national asset—spectrum. Recognizing the indispensable role that wireless connectivity plays not only in the cellular industry but also in aviation, aerospace, defense, and national security, we applaud the National Telecommunications and Information Administration's (NTIA) and Biden Administration's commitment to addressing this multifaceted challenge.

The strategic objective of establishing a spectrum pipeline, as outlined in the NSS, is important to the nation. Access to necessary spectrum is critical to the progress of aviation and passenger travel and ensuring safety and security. Spectrum is an indispensable input to foster private sector innovation, particularly in the emerging realm of aviation systems. Consequently, we find it imperative to underscore the significance of preserving these resources for the advancement of the aviation industry; and specifically, supporting control, non-payload communications (CNPC) for the variety of emerging vehicles which will need to operate using aviation authorized, safety protected spectrum.

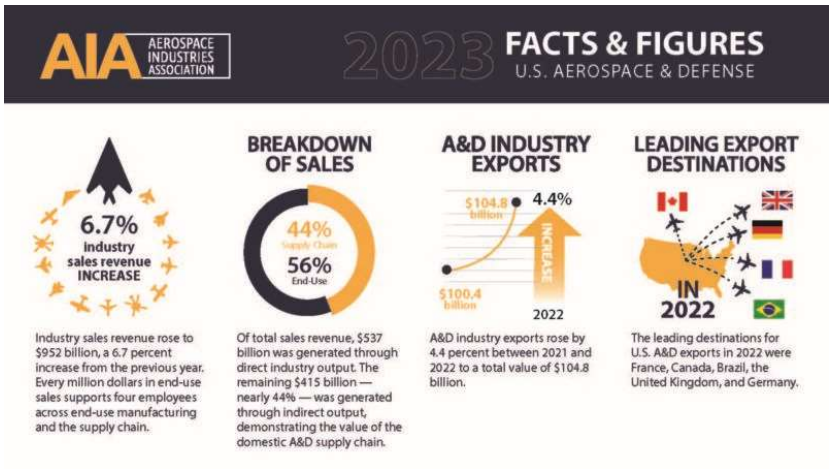
For these reasons, the AIA is pleased that the NSS recognizes the importance of spectrum for aviation, particularly to support remotely piloted and autonomous operations. This policy imperative, combined with prioritizing finalizing rules for the 5030-5091 MHz band – one of five identified in the NSS for study – to support uncrewed aircraft systems (UAS) will help catalyze the industry and advanced aviation.

Aerospace and Defense Economic Impacts

To ensure the safety of the public and meeting national security requirements, the aerospace and defense (A&D) industry relies heavily on consistent and dependable access to spectrum. Beyond its crucial role in safeguarding the nation, the A&D industry contributes significantly to the United States' economic prosperity. Despite facing various challenges, the A&D workforce in 2022 comprised over 2.2 million individuals, spread across every state.

The impact of the A&D industry on our nation's employment is substantial, with jobs supported by the sector constituting approximately 1.47 percent of the nation's total employment base.

In terms of economic contribution, the A&D industry generated $418 billion in economic value, representing 1.65 percent of the total nominal GDP in the United States. This underscores the sector's vital role not only in ensuring national security and public safety but also in driving substantial economic benefits for the nation.



National Security, Innovation, and the NSS

The NTIA should work from the principles that (a) there is a broad diversity of federal and non-federal users of spectrum, and that (b) innovation comes from many sectors, including academia, scientific institutions, the aerospace and defense industry, and small businesses. The commercial wireless industry should not be the presumed recipient of shared federal spectrum, nor should it be considered the sole source of U.S. innovation.

Spectrum sharing studies (as a precursor to compiling a detailed implementation plan) should include all stakeholders, including federal agencies, federal contractors and all identified non-federal users of shared federal spectrum. As an example, the activities pursued within the Partnering to Advance Trusted and Holistic Spectrum Solutions (PATHSS) Task Group in 3.1 – 3.45 GHz was one good approach to evaluate spectrum sharing. Further follow on discussions are needed to evaluate the viability of this band for spectrum sharing.

In contrast to the PATHSS effort, the interests of Federal contractors were not adequately reflected early in the process as part of the 2020 America Mid-Band Initiative Team (AMBIT) study. The impact of inadequate access to spectrum for testing and evaluation is seen as a stumbling block when it comes to ensuring the ability to innovate and address evolving threats in the field, all done with a view of protecting and advancing national security interests.

Spectrum sharing studies should not presume that federal spectrum will be cleared, or otherwise vacated. NTIA should also explore secondary access for non-federal users, which enables broader access without compromising primary access for important federal missions. The NTIA should carefully consider the underlying reasons why non-federal users need federal spectrum, and whether the expressed needs are warranted and sustainable. The NTIA should consider whether non-federal user spectrum needs can be met by alternative methods such as densifying networks with additional base stations that use lower power, directional antennas, carrier aggregation and other RF/system engineering solutions, with input from relevant industry stakeholders.

Spectrum sharing studies should account for projected future needs of federal agencies as they may need to deploy RF systems in locations previously not contemplated, such as a denser network of radars supporting air traffic control and national security (i.e., Spectrum Efficient National Surveillance Radar (SENSR)). In addition, access to wide band spectrum may be needed such as the DoD use of wideband waveforms for improved target discrimination and communications. Tallying existing NTIA Radio Frequency Authorizations issued to federal agencies is not a reliable method to account for their future needs as it only implies current use.

Spectrum sharing studies ahead of any decisions on implementation should consider U.S. exports of federal spectrum systems, such as Department of Defense (DoD) Foreign Military Sales (FMS), the resultant need for testing and repair/sustainment of FMS systems in the U.S. and, to the extent practicable, consistency with other ITU regions. These studies could include new protocols for the target bands along with an Interference Resolution Plan. This would include mapping existing infrastructure and potential encroachment zones, reflect proximity of shared frequencies and frequency protection zones.

Spectrum sharing studies should also consider adjacent band users, especially when those bands are used for safety-of-life aviation applications such as Aeronautical Radionavigation. Impacts to applications in the adjacent band need to be thoroughly assessed ahead of decisions on spectrum utilization in the identified bands of interest. These assessments will provide NTIA with full visibility into what needs to be accomplished to ensure that existing high integrity aviation safety of life applications are adequately protected. This will also help identify a realistic timeline with regard to what changes/updates may need to be implemented vis-à-vis use of the identified adjacent band spectrum in order to fully amortize the capabilities in the target band/s of interest.

Implementing the NSS for the 5030-5091 MHz Band

Over the past decade, the aviation industry has diligently pursued the issuance of service rules for the 5030-5091 MHz band (C Band), which is a safety-of-life designated band to support CNPC services for UAS. AIA petitioned the Commission to commence a rulemaking in 2018 and has actively participated in the rulemaking which was commenced at the end of 2022. CNPC spectrum is an essential input to remotely piloted aircraft – it is the link by which pilot commands and other safety-critical communications are carried between the pilot on the ground and the aircraft. To date, the C Band is the only new band identified by both the International Telecommunications Union and the U.S. Government to serve this purpose, and the industry requires certainty in its access to, and use of the band in the near term.

In its NSS Implementation Plan, AIA encourages NTIA to: a) prioritize continued iterative progress on the final rules for the band; b) encourage the industry to work together collaboratively to resolve outstanding technical issues; c) be clear and specific about the interference analysis it thinks needs to be conducted, including the protection basis and scope of the analysis; and d) reassert that this spectrum is critical for aviation, and as such should be reserved for aeronautical safety-of-life operations.

AIA continues to strongly urge the Commission, with NTIA's active support, to continue and complete expeditiously the rulemaking activity already underway in the band. For areas that require further discussion, analysis or data, AIA remains eager to help facilitate industry input to support NTIA's study of the band and the Commission's adoption of rules maximizing the spectrum's use in support of UAS operations. With respect to interference studies, RTCA, the standards body for aviation communications, navigation, and surveillance systems has already conducted a significant analysis of the interference potential in the same and adjacent bands. As a result, the standards for all the aviation systems reflect RTCA's work. Given the criticality of this band as the only new band for CNPC for the evolution of aviation and its fundamental purpose as a safety-of-life band, NTIA should reassert in the Implementation Plan that the spectrum is reserved for such operations.

Conclusion

One critical component of the process must be to thoroughly consider the significant impacts to all affected industries. In conclusion, AIA hopes the Administration will consider the long-term impact of spectrum allocation decisions on the aerospace industry, which plays a critical role in the safety of

operations and our national infrastructure. AIA stands ready to engage in constructive dialogue to ensure a balanced approach that meets the needs of all stakeholders involved.

Thank you for your attention to this matter, and we look forward to the opportunity to discuss these concerns further.

Sincerely,

Karina Perez Molina
Director, Unmanned and Emerging Aviation Technologies
Aerospace Industries Association