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Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington DC 20554

Re: GN Docket No. 17-183, *Expanding Flexible Use in Mid-Band Spectrum between 3.7 and 24 GHz*
ET Docket No. 18-295, *Unlicensed Use of the 6 GHz Band*

Dear Ms. Dortch:

I am filing this letter on behalf of the Association for Unmanned Vehicle Systems International (AUVSI) in response to the Federal Communication Commission's (FCC or Commission) Notice of Proposed Rulemaking (NPRM) in the above-referenced proceeding. AUVSI is the world's largest non-profit organization devoted exclusively to advancing the unmanned systems and robotics community. Our members are leaders in the development of unmanned aerial, ground, and marine systems. In particular, AUVSI members are driving the revolution in inspection, search and rescue, infrastructure deployment, and delivery services that are made possible by unmanned aircraft systems (UAS), commonly known as drones. AUVSI is also a strong supporter of industry consensus standards that support safety, such as those that are integrated into its Trusted Operator Program, which has been developed with forward leaning technology in its purview.

The unmanned aircraft industry is rapidly developing; the FAA's adoption of its Part 107 rules allowed limited commercial operations without the need for an exemption or waiver, and the FAA just this week published a new NPRM that will expand the scope of Part 107 to cover flights over people (in some circumstances) and flights at night. Over the next several years, these operations will continue to expand, eventually leading to routine beyond visual line of sight (BVLOS) flights, interstate cargo delivery, and even air taxi services. To date, the limited scope of permissible operations has meant that existing unlicensed spectrum is largely sufficient for small UAS flights. As the number and type of flights increase, and as transformative UAS use cases continue to emerge, the industry's spectrum needs will also expand. The increasing complexity and type of UAS operations will demand a variety of spectrum allocations, from additional unlicensed bands to commercial wireless networks to dedicated aviation spectrum for higher altitude flights.

In that context, AUVSI offers its comments on the FCC's proposed ban on UAS use of spectrum in the 6 GHz band. While AUVSI understands the concerns animating this proposal, it urges the

FCC to proceed carefully in adopting any spectrum restrictions that are focused specifically on unmanned aircraft.

As the Commission grapples with the growing spectrum demand of the UAS industry, it should avoid imposing blanket restrictions on UAS use in particular band proceedings. The Commission should not simply assume, absent competent record evidence and scientifically valid testing, that *all* aerial use of spectrum is incompatible with other unlicensed uses. Indeed, the current landscape of UAS operations under existing Part 107 rules consists largely of UAS operations that are targeted, short in duration, and limited in range. Operations of this nature do not implicate the Commission's concerns in the 6 GHz NPRM "that airborne operation can cause interference *over a wide area*."

The Commission should keep the following specific points in mind as this proceeding moves forward, and in any future spectrum proceedings:

- If the Commission decides to exclude UAS use of unlicensed spectrum in the 6 GHz band or any future bands, this decision must be supported by record evidence and limited to those UAS operations which have a demonstrated potential to cause harmful interference.

- The proposed rules must clearly provide exemptions and allowance for both UAS operators and UAS platforms that have already established reliability and safety performance data, or for operations that are narrow in scope and will not present interference concerns.

- Safety reliability performance criteria should be clearly outlined in the rules to support transparency and fair opportunity to access unrestricted services. In particular, the FCC should take steps to ensure the predictability, transparency and fairness of any automatic frequency detection (AFD) protocols. The Commission should work to ensure that parties cannot "tie up" a frequency in order to prevent others from utilizing it during certain periods. Similarly, the FCC should make sure that any spectrum database remains accurate and up-to-date. Smaller UAS operators are the largest portion of impacted users who use the unlicensed spectrum. Restrictions on access to unlicensed spectrum will have a disproportionately negative impact on this demographic, stifling the growth of small, innovative businesses and new uses for UAS.

- These proposed restrictions may also hinder UAS operations that provide vital search and rescue, public safety and emergency services, making it even more critical that the FCC justify any such regulations using empirical data and clear evidence.

- The FCC should take into account ongoing standards development work by organizations with expertise in aviation spectrum issues. For instance, in the next 12 months, RTCA is scheduled to complete its C2 MASPs and MOPs which includes performance requirements for both terrestrial and SATCOM based approaches, and the Ka/Ku SATCOM path.

- The FAA, in collaboration with security agencies and a range of stakeholders, is focused on ensuring that UAS are integrated safely into the national airspace. To that end, the FAA has been working on a variety of measures to enhance the safety and security of UAS operations, including its new Low Altitude Authorization and Notification Capability ("LAANC"), which provides faster access to controlled airspace, and the soon-to-be adopted Remote ID regulations that will allow safety officials and first responders to identify drones and their operators in-flight. Given the FAA's work in these areas, imposing additional spectrum and user restrictions to these operators is unnecessary and will stifle innovation. UAS operators' exclusion from parts of the spectrum band once their platform or application has passed these safety, certification and other screenings, would be overly restrictive and duplicative.

- The FCC's approach to the 6 GHz band and spectrum policy generally should align with the National Spectrum Strategy initiated in the October 25, 2018 Presidential Memorandum and currently under development by the National Telecommunications and Information Administration (NTIA); as relevant here, the National Spectrum Strategy promotes increasing spectrum access for *all* users and improving global competitiveness with respect to the United States' use of spectrum.

- Unless these points are adequately addressed in the rules in the 6 GHz band and future spectrum proceedings, the domestic UAS industry will be significantly hampered and the United States will be at a competitive disadvantage in the global race to develop the UAS industry standards, including unmanned traffic management (UTM) and spectrum allocation, which will shape the future of aviation.

In sum, the Commission should proceed cautiously in order to avoid the unintentional consequence of burdening the UAS industry with spectrum limitations that stifle the development of this industry. To that end, the FCC should, among other things, more carefully identify its interference concerns with respect to UAS operations, and validate those concerns through record evidence and research, before categorically excluding unmanned aircraft from the 6 GHz band.

Respectfully submitted,

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