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DoD Electromagnetic Spectrum Optimization

Issue Summary:

The Department of Defense has relied on dominant use of the electromagnetic spectrum to achieve asymmetric advantage on the battlefield, in preparation of the battlespace and for efficient sustainment operations for over 100 years. Continued dominance going forward will require advanced techniques to operate spectrum dependent systems in an increasingly constrained and congested spectrum environment. At the same time, efficient use of finite spectrum in commercial markets has become an essential economic element of national power. 5G technologies have ushered in the need for DoD and the wireless industry to move from exclusive use of radio frequency (RF) bands to operational co-existence in newly allocated commercial spectrum bands. The RF agile techniques that will enable this will have dual use value for deployed military operations as they will provide DoD much greater flexibility to operate across a wide range of adversary efforts to deny U.S. spectrum dependent operations. To achieve a future whereby commercial spectrum utilization is optimized and U.S. military spectrum operations coexist without any degradation to spectrum dependent mission operations, the Defense Industry and the Telecommunications Industry will need to work cooperatively to create solutions for spectrum coexistence. Coordinated activity between the two industries has started in 2020 under an NDIA and DOD Office of the Secretary of Defense (OSD) partnership and should continue to be a priority for the next Administration.

Background:

NDIA brought the major wireless and defense technology providers together at the request of OSD to proactively identify better mechanisms to optimize collaborative use of Spectrum. The working group consists of current and former, government and industry, policy makers, policy stakeholders, engineers, program managers, and academic advisors. The group is addressing a major information sharing shortfall between and among DoD, the commercial wireless industry and defense industry, both necessary to ensure a commercial competitive and national security advantage. Without this group, there is a high probability that companies in either industry group would go back to perceiving the challenge of oversubscribed spectrum though their own organizational lens and cease working together to develop solutions for spectrum sharing and ultimate spectrum coexistence by design. The group has developed a multi-stakeholder governance structure to guide their efforts. NDIA provides structure for the groups deliberations to include a secure information sharing portal. NDIA staff perform a facilitation role and interface directly with DoD spectrum leadership at OSD, sub-committee co-chairs from both industries and the academic advisors.

Working Group Goals:

- Improving interagency dialogue (e.g. NTIA and the FCC)
- Creating common technological understanding between industries
- Exploring sharing options for defense and wireless technologies
- Identifying regulatory changes to enable enhanced spectrum sharing
- Create culture within DOD that thinks of spectrum sharing at the start of development for Radars and EW systems
- Create commercial culture that recognizes that repurposing of Government allocated spectrum used by the DoD is not the default solution and sharing may create a better use which also enables greater utilization of scarce spectrum resources.

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NDIA Position:

- NDIA advocates national investment to optimally utilize spectrum resources for greatest national security advantage. This includes a robust, competitive commercial wireless services industry, sharing frequency bands that were previously unavailable due to exclusive use designs for military spectrum dependent systems.
- NDIA opposes any action that would degrade military readiness; in particular, spectrum reallocation, actions without funding replacement technologies, including upgrades for legacy radar, radio and sensors impacted by spectrum reassignment for commercial wireless access.
- NDIA believes that a multi-stakeholder industry working group, strongly associated with DoD, but not constrained by any existing FCC or NTIA policy position, is well postured to develop solutions that will deliver upon national spectrum coexistence goals.
- NDIA advocates future NDAA funding to support DOD Electromagnetic Spectrum Operation (EMSO) goals and incorporation of spectrum planning as a required design and sustainment element for new start spectrum dependent systems.

Policy Ask:

- Sustain support for the DoD NDIA Spectrum Working Group
- Prioritize Department efforts to attain agile electromagnetic operations capable of coexistence with commercial and unlicensed use of spectrum
- Support program of record initiatives to upgrade legacy systems to improve spectrum efficiencies and require new start initiatives to incorporate spectrum coexistence as an objective design goal.
- Establish a trusted information sharing group that includes wireless and defense industries, and federal stakeholders, that can examine wireless telecom and DOD operating characteristics to further drive spectrum sharing opportunities
- Reshape federal spectrum policy to consider sharing models that will deliver the innovations necessary to maintain U.S. global leadership in increasingly competitive global technologies markets – both wireless and defense.
- Improve interagency mechanisms for spectrum governance beginning with a new MOU between the FCC and NTIA that will increase the frequency and breadth of formal discussions between both leaders and establishment of a position in the EOP designated to facilitate optimal use of spectrum for commercial, consumer, public safety and national security objectives.

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