



S. 4049, the National Defense Authorization Act (NDAA) Excerpts of Priority Items of Interest (Senate)

Sec 128 - Report on strategy to use ALQ-249 Next Generation Jammer to ensure full spectrum electromagnetic superiority.

The committee recommends a provision that would require the Secretary of the Navy, in consultation with the Vice Chairman of the Joint Chiefs, to provide a report to the congressional defense committees, no later than July 30, 2021, defining a strategy to ensure full spectrum electromagnetic superiority using the ALQ-249 Next Generation Jammer.

The committee notes that the ALQ-249 is the only standoff jamming capability in the Joint Force that is capable of providing electronic warfare support in a conflict envisioned by the National Defense Strategy (NDS). The committee is concerned that the current strategy and force structure of naval electronic warfare forces will not be sufficient to meeting the needs of the joint warfighting concept.

Therefore, the committee directs the Secretary, using analysis provided by the Joint Staff and in consultation with the Vice Chairman, to provide a report detailing: (1) The current procurement strategy of the ALQ-249 and an analysis of its capability to meet the radio frequency ranges required in a NDS conflict; (2) Its compatibility and ability to synchronize non-kinetic fires with other joint electronic warfare platforms; (3) A future model of an interlinked/interdependent electronic warfare menu of options for commanders at the tactical, operational, and strategic levels.

Sec 173 - Transfer from Commander of United States Strategic Command to Chairman of the Joint Chiefs of Staff of responsibilities and functions relating to electromagnetic spectrum operations

The committee recommends a provision that would: (1) require the Secretary of Defense to transition to the Chairman of the Joint Chiefs of Staff (CJCS) as a Chairman's Controlled Activity all of the responsibilities and functions of the Commander of United States Strategic Command that are germane to electromagnetic spectrum operations; (2) define additional responsibilities related to EMSO for the VCJCS; and (3) require the combatant commanders and service chiefs to assess their plans and programs for consistency with the Electromagnetic Spectrum Superiority Strategy, the Joint Staff-developed concept of operations, and operational requirements.



The committee's oversight priorities in electronic warfare (EW) to date have been in correcting the Department of Defense's governance gaps and in addressing its acquisition activities. The committee recognizes, however, that the military services and combatant commanders face operational and tactical challenges today that have exposed the inadequacy of the Department's concept of operations, tactics, techniques, and procedures (TTPs), and associated capabilities, forces, and training for electromagnetic spectrum operations (EMSO). These issues, highlighted in a Center for Strategic and Budgetary Assessment study conducted pursuant to section 255 of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (Public Law 115–232), demand the formulation of a new way of “maneuvering within the electromagnetic spectrum,” to use the Department's terminology—new doctrine, operational plans, training, capabilities, and TTPs for fighting with, against, and through electronic warfare capabilities. This assessment was amplified by the March 2019 report by the Institute for Defense Analysis, “Independent Assessment of EMS Organization Alternatives,” which considered a number of options to further the Department's focus on spectrum operations from both military service and joint commander perspectives. This report noted, “The panel judges this crisis [in electromagnetic spectrum operations] to be urgent and enduring—requiring immediate actions from the Department's top leadership to address the urgent problem and a systemic institutional response to address the enduring competitive challenge.”

The committee believes that the only appropriate body for managing this modernization is the Joint Staff and thus supports the Department's designation of the Vice Chairman of the Joint Chiefs of Staff (VCJCS) as the senior designated official for EW and EMSO. The VCJCS, as chairman of the Joint Requirements Oversight Council and as a senior advisor to the President and Secretary of Defense, possesses the seniority and vantage point to effectively provide that critical oversight and advocacy. In particular, the committee believes that the VCJCS must lead the development of EMSO concepts of operations and oversee their integration into the joint warfighting concept, the warfighting plans of the combatant commands, and the programs of the military services.

Sec. 181 - Requirement to accelerate the fielding and development of counter-unmanned aerial system efforts across the Joint Force

The committee recommends a provision that would require the executive agent of the Joint Counter Small Unmanned Aerial Systems office to prioritize counter-unmanned aerial systems (CUAS) that can be fielded in fiscal year 2021 and develop a near-term plan to effect that fielding. As part of the Secretary of the Army's review of CUAS efforts, the committee encourages the Secretary to consider establishing a CUAS center of excellence for the executive agent to coordinate service research and development for counter-drone technologies.



Electronic Warfare Red Team

Realistic training of blue forces in electronic warfare requires a red force that is trained in the tactics, techniques, and procedures of potential opponents, as informed by timely intelligence, and that fields representative electronic warfare equipment. The committee directs the Secretary of Defense to brief the congressional defense committees, no later than March 31, 2021, on progress made and gaps remaining in training electronic warfare red forces based on intelligence as well as the Department of Defense's ability to field representative equipment or systems that can simulate representative equipment to complement the tactics, techniques, and procedures of red forces in order to better prepare the Joint Force through realistic electronic warfare training.

Joint Electronic Warfare Training Range

The committee recognizes the requirement for the Department of Defense (DOD) to operate across the electromagnetic spectrum and prevail in electronic warfare (EW) in every operational domain. Development of capabilities needed to control the EW battlespace requires well-developed training ranges that enable the military services and Defense Agencies and Field Activities to rapidly test and field new weapon systems. Increased demand and spectrum encroachment at current EW training ranges mean that these facilities are inadequate to meet the Department's EW test and training needs over the next several years. Therefore, the committee directs the Secretary of Defense to provide a plan for the establishment of a Joint Electronic Warfare Training Range that: (1) Offers sufficient space for spectrum isolation; (2) Provides for the ability to protect sensitive technologies from detection by offering access to large, inland space; and (3) Would be specifically dedicated to EW activities to avoid overcrowding. This plan shall be briefed to the congressional defense committees no later than December 1, 2020.

Sec. 234 - Independent technical review of Federal Communications Commission Order 20-48

The committee recommends a provision that would require the Secretary of Defense to enter into an agreement with the National Academies of Science, Engineering, and Medicine to conduct an independent technical review of the Order and Authorization adopted by the Federal Communications Commission (FCC) on April 19, 2020 (FCC 20-48). The independent technical review would include a comparison of the two different approaches used for evaluation of potential harmful interference. The provision also would require the National Academies of Science, Engineering, and Medicine to submit a report on the independent technical review.



The committee is aware that extensive testing performed by 9 federal agencies concluded that the Ligado proposal will cause interference for both civilian and military Global Positioning System (GPS) users. The committee notes that the Department of Defense, Department of Justice, National Aeronautics and Space Administration, Department of Transportation, Department of Commerce, Department of Homeland Security, Department of Energy, and Federal Aviation Administration all strongly oppose this proposal. The committee is also concerned that the mitigation conditions imposed on Ligado in the FCC Order are not practical and do not adequately protect GPS.

The committee is aware that one of the main justifications in the FCC Order for approving Ligado's proposal involves the methods used for determining harmful interference. The committee believes that further technical evaluation of the methods is warranted and therefore recommends this independent study to review the two approaches (the Ligado-proposed and FCC-approved criteria of harmful interference to determine how select receivers are impacted versus the Department of Transportation study method of determining an allowable level of noise adjacent to the relevant spectrum) to determine which one most effectively mitigates risk and to recommend a way forward, including the possibility of incorporating additional testing.

Sec. 801 - Policy recommendations for implementation of Executive Order 13806 (Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency)

The committee recommends a provision that would require the Under Secretary of Defense for Acquisition and Sustainment to submit a series of recommendations surrounding United States industrial policies to the Secretary of Defense, who would subsequently be required to submit these recommendations to the President, the Office of Management and Budget, the National Security Council, the National Economic Council, and the congressional defense committees.

The committee commends the Department of Defense for its leadership in implementing the July 21, 2017, Presidential Executive Order on Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States. The challenges and shortfalls highlighted in the report authored in response to the executive order are of such scale that the committee believes that only a national approach can effectively address these deficits. Therefore, the committee expects the Department to exercise its leadership position, analytical capabilities, and policy expertise in developing recommendations for the industrial policies that the United States ought to pursue.



Sec. 861 - Implementation of Modular Open Systems Architecture requirements

The committee recommends a provision that would facilitate and establish requirements for the open systems architecture for Joint All-Domain Command and Control to ensure compatibility across new and legacy systems in the Department of Defense. (AOC Note: the Committee Report also includes language titled, "Air Force Open Systems Architecture," on p. 109 that authorizes an addition \$30 million in PE 0604429F Airborne Electronic Attack, under USAF RDT&E for the Air Force's initiative to transition the Systems of Systems Technology Integration Tool Chain for Heterogeneous Electronic Systems (STITCHES) capability to the 850th Electronic Warfare Group.)