

DOD Leaders Discuss EMSO in Congressional Testimony

By John Knowles

The DOD released its FY2024 budget request as the April issue of *JED* was going to press. In the days before, the House Armed Services Committee (HASC) and the Senate Armed Services Committee (SASC) started the process of annual hearings to receive testimony from DOD officials and other defense experts on a range of national security topics, including Electromagnetic Spectrum Operations (EMSO). In particular, the Strategic Forces subcommittees of the HASC and SASC, as well as the HASC's Cyber, Innovative Technologies and Information Systems (CITIS) subcommittee, had the opportunity to address EMSO-related questions to DOD officials from the Office of the Secretary of Defense, US Strategic Command and US Space Command. From these hearings, it was clear that Congress is focusing on two major areas of interest: the DOD's future path in EMSO, and the DOD's plans for potentially vacating or sharing portions of the S-Band spectrum, specifically 3.1-3.45 GHz.

John Sherman, the DOD's Chief Information Officer, testified in front of the HASC's CITIS subcommittee for its hearing on "Defense in a Digital Era: Artificial Intelligence, Information Technology, and Securing the Department of Defense." In his written statement to the committee, he described a range of initiatives within his office, including those related to EMSO, sharing DOD spectrum with the commercial sector, 5G and implementing the DOD's positioning, navigation and timing (PNT) strategy.

He wrote, "As the Department's senior official responsible for coordinating across the EMS Enterprise, we are employing and refining our governance processes to ensure synchronization

and harmonization of all developments and activities necessary for the successful implementation of the 2020 Electromagnetic Spectrum Superiority Strategy (EMS3). The C3 Leadership Board and the EMS Senior Steering Group has broad participation from stakeholders across the Department, and work to drive towards the EMS3 vision of achieving freedom of action within the EMS at the time, place, and parameters of our choosing while denying the enemy the same."

During the hearing, Rep. Rich McCormick (GA-6) asked Sherman if DOD was investing enough into communications and counter-communications capabilities. Sherman responded, "So what you're talking about, sir, Electromagnetic Spectrum Operations, what we did in Vietnam, we had to do in Desert Storm and Bosnia and elsewhere, but to different degrees in Afghanistan and Iraq. But as we get ready for China, we better be able to fight and dominate in this space. So to you point, sir, I think investments from what I've seen are sufficient now. But this is something I'm going to 'bird dog' very carefully from my office here, particularly as we see the services starting to regenerate electronic warfare and other capabilities both to put the enemy back on their heels and ensure our NCOs and our trigger pullers can stay in touch with one another – as we've seen on the Ukrainian battlefield. All the dynamics with EMSO, with how the Russian's are trying to use it and the Ukrainians are using it, we cannot be cut off on this – to be able to make sure we can conduct combat operations." He added, "I think we need to keep a close eye on it here and monitor as we regenerate this capability that we had in the Cold War and that we had to somewhat turn away from during the War on Terror. As we regenerate it, I'm going to assure this committee I'm going to keep a close, close sight on this as we move forward."

Regarding spectrum sharing, Sherman stated in his written testimony, "The DOD supports efforts to ensure US dominance in 5G and next-G development. Previous DOD success in making

spectrum available for commercial use through the Advanced Wireless Services -3, Citizens Broadband Radio Service, and America's Mid-Band Initiatives Teams are testaments to this commitment. DOD maintains numerous operational equities throughout the spectrum which must be preserved to enable DOD the ability to protect the homeland, test equipment, train for overseas contingencies and operate in all domains."

Sherman also wrote, "The Department remains committed to making mid-band spectrum available for industry while meeting our mission requirements. Within the 3100-3450 [MHz] band, the DOD relies on hundreds of air-, sea-, and land-based radars for a wide range of missions. It would be untenable for DOD to outright vacate these systems from the parts of the spectrum in which they currently operate. To do so would take decades, cost hundreds of billions of dollars, and cause significant mission impacts to the Joint Force's warfighting readiness and capabilities.

"We continue to make strong progress in the spectrum-sharing study of the 3100-3450 band, as required by the Infrastructure Investment and Jobs Act (IIJA). To inform this study, DOD is coordinating closely with the Department of Commerce and leveraging the technical expertise of government, industry, and academia. We will report our findings to the Department of Commerce by September 2023 as required by the IIJA."

Later in the hearing, Congressman McCormick addressed concerns about the DOD "giving up" spectrum to commercial telecoms providers. Sherman clarified the DOD's position: "Not giving it up, congressman, but figuring out how we could share it. Sharing in terms of time, in terms of geography and in terms of radio frequency, so we can conduct our military training operations here in the US and [for] homeland defense, but also giving our economy an ability to stay ahead of the Chinese in areas like 5G." He later added, "We wouldn't want to vacate, where we're shoved out and never to return again... But the band you noted, sir, this 3.1 to 3.45 [GHz], it's beachfront

property – both for long-range radars, as well as telecom needs. And to the chairman's [earlier] point about competition and dominating against China, I have the CIO equities for DOD. I want our radars to work, be able to protect this homeland and keep our citizens safe. But I also know economic dominance matters. We have a study we're undertaking right now, per the Infrastructure and Investment Jobs Act that Congress tasked us to do and that culminates on 30 September. No decisions would be recommended be made until we can do our diligence and figure out if sharing is even possible."

In addition to the CITIS Subcommittee, both the SASC and HASC Strategic Forces subcommittees were interested in the S-Band spectrum study. Several senators on the SASC Strategic Forces Subcommittee discussed this with Gen Anthony Cotton, USAF, commander, US Strategic Command and General James Dickinson, commander, US Space Command, hoping to get an estimate of the cost should DOD vacate the 3.1- to 3.45-GHz spectrum. However, neither provided a solid cost estimate.

In the HASC Strategic Forces subcommittee hearing, however, Assistant Secretary of Defense for Space Policy Dr. John Plumb provided a conservative figure in response to HASC Strategic Forces subcommittee chairman Rep. Doug Lamborn (CO-5). Dr. Plumb said, "That particular portion of the band, the S Band from 3.1-3.45 [GHz], is absolutely essential for DOD operations. The Department of Defense is conducting a study with the Department of Commerce on whether we can share the spectrum. For DOD, we need to be able to maintain our operational capability and readiness in any result. We've looked at what it might take to vacate, by which we mean to leave that band and go somewhere else. We don't know where else we would go. And it would cost easily \$120 billion – probably more – just to create the pieces. But that isn't the same as getting the studies and the physics done or the recapitalization; it could take easily 20 years. It's a really difficult problem for us. And so we think the only viable way

forward would be, is there some way to share so DOD can operate there and so other commercial companies might be able to use that, as well, without impeding us.”

Congressman Lamborn asked Plumb, “Did you say \$120 million or billion?”

Plumb responded, “That’s billion with a ‘b,’ and that’s kind of our low estimate. I don’t want that to be confused with what it would actually cost, because that’s really just if you look at what would it cost [for example] to make a new AEGIS radar. But that’s not the same as figuring out the physics and all the testing that would go into figuring out what bands we would have to use it in, let alone the decades of experience we have with the equipment now to understand how they work.” At the very least, SASC and HASC members wanted assurances that the DOD would not take any action on the S-Band spectrum until after the study was finished and released for review.

The Strategic Forces subcommittees of the HASC and SASC also addressed the status of EMSO across the DOD in their hearings with General Cotton, who oversees USSTRATCOM’s Joint EMSO office. He stated in his written testimony, “Per the Unified Command Plan (UCP), CDRUSSTRATCOM is responsible for advocating for JEMSO and electromagnetic warfare capabilities, providing contingency electronic warfare support to other CCMDs [combatant commands], and supporting CCMD joint training and planning related to controlling the EMS. Potential adversaries understand our dependency upon the EMS and have developed technology to effectively contest our use of it. Additionally, increased civil and commercial use of spectrum bandwidth significantly congests the EMS and constrains DOD use. Multiple USSTRATCOM assessments have identified JEMSO readiness shortfalls, which are growing. Our adversaries have dramatically increased their offensive and defensive capabilities in recent years; the DOD must similarly improve our ability to operate in a degraded electromagnetic warfare environment.”

His statement continued, "We must continue to pursue a DOD-wide effort to achieve EMS superiority and mission success. To support the goals of the DOD EMS Superiority Strategy, USSTRATCOM is executing twelve assigned tasks, including establishing an organization, led by a 2-star, called the Joint Electromagnetic Spectrum Operations Center (JEC). The JEC will lead execution of the eleven other USSTRATCOM assigned DOD EMS Superiority Strategy tasks. Additionally, USSTRATCOM has led development of JEMSO cells at other CCMDs to enable these functions. We are also working with the DOD Chief Information Officer to develop a software system for use by CCMD JEMSO cells in planning, coordinating, and controlling the EMS. Following multiple assessments from Northern Edge – USINDOPACOM's tier 1 exercise – USSTRATCOM is pursuing accreditation authorities for Joint Force EMSO readiness that will help close capability gaps. USSTRATCOM is also establishing an EMSO training and education capability to coordinate DOD EMS joint training, streamline training processes, and promote standardization."

During the HASC Strategic Forces subcommittee hearing, Congressman Lamborn said to General Cotton, "On the issue of EMSO, as I emphasized in my opening statement, I think DOD needs to commit to fixing EMSO, and plugging the holes identified in the Northern Edge exercise. I understand that this has the attention of Secretary Hicks and Admiral Grady, and I hope that we will have good progress on this." He then asked General Cotton what were some the warfighter needs that would be essential for competing with Russia and China in the future.

General Cotton responded, "We need to ensure that we have spectrum for employment of forces, to maintain situational awareness, to assure communications via all domains – space, maritime, air, and land – and to assure positioning with PNT, with positional navigation systems. What we're doing within STRATCOM, my top priority is to execute the DOD EMS

Superiority Strategy Implementation Plan. What we're going to do is, we're actually in the midst of standing up a two-star Joint EMS Operations Center known as the JEC – a direct report to me that raises and aggregates force readiness across the Department. We'll continue to ensure that the Joint Force appropriately is organized and equipped to handle EMS. I am responsible for advocating the proper training when it comes to EMS ... What makes this particularly helpful to me is the fact that my direct report will be the Deputy Secretary of Defense, who can direct services to take action."