

Spectrum Enterprise Services & Capabilities

Overview

- Electromagnetic Spectrum (EMS) superiority is a warfighting imperative.
- The EMS is an integral part of the “Information Battle Space,” and a comprehensive understanding of all EMS activity is essential, given the requirements for increased battle tempo, agile operations, coordination, training, and surgical targeting.
- Military spectrum requirements are extensive, diverse, complex, and growing. Successful modern military operations in all domains (air, land, maritime, space, and cyberspace) and across all joint functions (command and control, intelligence, fires, movement and maneuver, protection, and sustainment) are dependent on capabilities enabled by dominating EMS operations. Growing spectrum demand from consumers, commerce, and the military are significantly increasing congestion in the most desirable portions of the EMS. While it is essential for our nation to spur economic growth and satisfy consumer demand, we must concurrently ensure that the unique and vital requirements of our national security and safety are met.
- DISA provides, enhances and evolves unique services and capabilities that support the complex task of managing the DOD EMS and keep pace with the highly dynamic battle space.
- DISA performs deliberate analyses to evaluate spectrum bands and ensure balanced spectrum repurposing decisions at domestic and international spectrum and satellite network forums. DISA leads DOD preparations for the World Radiocommunication Conference (WRC), an international forum where radio regulations are periodically reviewed and revised.

DOD Spectrum Support To The Warfighter

Department of Defense spectrum management is a crucial element of our national defense. Electromagnetic support is a critical component in carrying out DISA’s priorities around the globe.

- **Planning support for theater of operation.** Supported development of a DISN service restoral plan in the event of hostilities in a major theater of operation, and prepared SATCOM ground station visibility materials for specific locations.
- **Technical support for Army Cyber Electromagnetic Activities (CEMA).** Supported development of CEMA spectrum activity requirements for the Army’s critical missions.
- **Digital upgrade decision.** Determined the feasibility of upgrading analog VHF and UHF communications networks in the CENTCOM AOR. The countrywide radio coverage analysis supported a digital upgrade decision for a theater of operation area.
- **Minimizing electromagnetic interference and maximizing operational effectiveness.** Conducted a Radio Frequency (RF) site survey which helped determine the optimal installation site for the Homeland Defense Radar to minimize the potential for electromagnetic interference and maximize its operational effectiveness.

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- **Spectrum Certification of DOD Equipment.** Completed the deployment of Stepstone v2.2 and Host Nation Spectrum Worldwide Database Online (HNSWDO) v3.9 on both the NIPRNET and SIPRNET into the DISA milCloud environment. Deployed a new Business Process Manager (BPM) capability that supports the migration from the Army Knowledge Online-hosted BPM tool used by Army and Navy Spectrum Management offices.
- **Developing Integrated Spectrum Management Tools.** Demonstrated End to End Supportability System (E2ESS) v1.0 modules to Service Spectrum Management Office (SMO), Joint Staff J6 and DOD CIO representatives. Adoption of E2ESS will move the DOD to a single integrated tool for processing spectrum certification data with the benefit of sharing this data with other DOD automation tools.
- **Protecting domestic DOD spectrum access.** DSO protects DOD incumbent systems in the 3.5 GHz band by contributing to the Spectrum Access System (SAS) Test and Certification document. The SAS Test and Certification document will be used as the basis for developing the test code that the Federal Communications Commission and National Telecommunications and Information Administration will use for certifying proper operation of the SAS.
- **Protecting international DOD spectrum access.** DSO authored several technical documents supporting spectrum-dependent DOD systems in the international telecommunication arena. These contributions affect terrestrial radiocommunication systems and include information on critical DOD radars and data communications networks as well as characteristics and protection criteria for multiple DOD terrestrial systems. These documents have the potential to influence decisions at the 2019 World Radiocommunication Conference (WRC-19).
- **Developing Spectrum Management Architectures.**
 - **Developed the Defense Spectrum Management Architecture (DSMA) v5.0.** DSMA is the DOD reference architecture for DOD spectrum management (SM). It includes a robust, common set of architecture documentation which provides a comprehensive description of capabilities, systems, and operational activities that support Defense Spectrum Management. The DSMA guides and manages the development and deployment of SM tools and capabilities for the 2019-2023 Future Years Defense Program. The DSMA v5.0 is discoverable on the Warfighter Mission Area Architecture.
 - **DOD EMS Enterprise Architecture (EMSE-A).** This standardized technical framework improves interoperability between various EMS tools utilized within Combined Joint Task Force operations and across the DOD EMS Enterprise. The EMSE-A has a focus on Joint Electromagnetic Spectrum Operations (JEMSO) capabilities, activities, and services required to support Command & Control (C2) of EMS operations.
- **Emerging Spectrum Technology (EST) Development.** The EST program provides recommendations for effective, anytime, full-range spectrum access for the Warfighter.

DISA DSO Current Strategic Efforts

- Continue deploying GEMSIS capabilities in the milCloud environment. The successful use of cloud services by GEMSIS will reduce the time required to get software fielded to the warfighter.
- Continue supporting DOD's WRC-19 preparation process. The agency's support is essential to ensuring DOD electromagnetic spectrum equities are considered throughout each WRC cycle.
- Publish an update to the Electromagnetic Spectrum Strategy Roadmap and Action Plan.
- Continue improving direct support to DOD Components to enable effective spectrum operations.
- Advocate for a robust DOD EMS Enterprise Governance Structure and Policy and Operational Requirements Definition.