

Releasable

DOD\DSO 3450-3550 (Rev. 1) (Sufficient)

Submitted: 11/15/2022

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Serial Number	System Name	Center Lower Frequency (MHz)	Upper Frequency (MHz)	Emission Bandwidth (MHz)	Receiver Bandwidth (MHz)	System Use Type Name	Operation Area	Transmitter State	Transmitter Latitude	Transmitter Longitude	Receiver State	Receiver Latitude	Receiver Longitude	Frequency Remarks	Geographic Location associated with Timeline (AAO in this column indicates the timeline is associated with the geographic location defined by the Authorized Area of Operation in the frequency)	Sharing Type (Indefinite, Temporary i.e. Coordinated, or None)	Temporary Sharing Timeline (Months After 1/14/2022)	Indefinite Sharing Timeline (Months After 1/14/2022)	Vacate Assignment Timeline (Months After 1/14/2022)

DOD\DSO 3450-3550 (Rev. 1) (Sufficient) - Funds

System Name	Total Pre-Auction Cost (\$M)	Funds Requested Prior to Auction (\$M)	Transition Implementation Cost (\$M)	Total Cost (\$M)	Begin Expenditure Timeline (Months after Receipt of Funds)	End Expenditure Timeline (Months after Receipt of Funds)	Expanded Capability Cost (\$M)	Expanded Capability Description	Expanded Capability Justification
Automated Spectrum Coordination System (DISA-3450-3)	1.5950	1.5950	69.5500	71.1450	1	78	0.0000		
Engineering Coordination Services (DISA-3450-2)	0.7300	0.7300	6.3800	7.1100	1	78	0.0000		
Sequestration	0.0000	0.0000	0.0000	0.0000					
Spectrum Access Optimization Team (DISA-3450-1)	0.9000	0.9000	4.9400	5.8400	1	78	0.0000		
Total	3.2250	3.2250	80.8700	84.0950			0.0000		

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DOD\DSO 3450-3550 (Rev. 1) (Sufficient) - Interactions

Interaction Name	Interaction Description
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DOD\DSO 3450-3550 (Rev. 1) (Sufficient) - Impact Factors

Factor Name	Factor Description
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DOD\DSO 3450-3550 (Rev. 1) (Sufficient) - Notes

Note Name	Note Text
3450-3550 MHz CPA and PUA	<p>Cooperative Planning Areas (CPA): Geographic locations in which non-federal operations shall coordinate with federal systems in the band to deploy non-federal operations, in a manner that shall not cause harmful interference to federal systems operating in the band and to protect non-federal operations from potential harm caused by high powered federal operations.</p> <p>Periodic Use Areas (PUA): Geographic locations where non-federal operations in the band may not cause harmful interference to federal systems operating in the band for episodic periods. During such episodic time periods, non-federal users in PUAs must alter their operations to enable federal systems' temporary use of the band, and during such times, non-federal users may not claim interference protection from federal systems outside of coordination procedures.</p>
5G Assumptions	<p>DoD was required to plan protection to and from 5G. An agreed standard was not available. Special subgroup that included the White House Office of Science and Technology (OSTP), DoD, the Federal Communications Commission (FCC), National Telecommunications and Information Administration (NTIA), and National Science Foundation (NSF) provided 5G assumptions for development of the initial plan. It was concluded that DoD would continue to work towards the topline goals in the Transition Plan by refining the assumptions with industry.</p> <p>(1) 5G Base Station Transmitter Power Output as Effective Isotropic Radiated Power (EIRP): (a) Urban: 1640 watts per megahertz (W/MHz); (b) Non-Urban: 3280 W/MHz</p> <p>(2) 5G Base Station Receiver Characteristics: Interference Power Input Density -35 dBm per meter squared (dBm/m²) or 0.01 Volts per meter (V/m)</p> <p>(3) Maximum Power Input: +35 dBm/m²</p> <p>(4) 1 dB Compression (P1dB): -25 dBm for continuous wave signals referenced at antenna port</p> <p>(5) 20 MHz channels</p> <p>(6) Tower Height of 100 meters: Adjusted due to FCC requirement for an interference reporting declaration boundary</p>

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Note Name	Note Text
<p>AMBIT Risks and Mitigation to DoD</p>	<p>In achieving the AMBIT Top Line goals, the DoD is accepting some risks and making assumptions that require further definition. The full operating electromagnetic environment is unknown and the definition of it is based on assumptions of 5G characteristics. The network laydowns are not yet available; as such, industry can be engaged to define a network laydown and engineering analysis to define CPAs and PUAs. The impact of ducting, particularly evaporation ducts for the Navy ships, are a known issue. An extensive detailed engineering analysis of the 5G environment and associated ducting can help address this issue. Out-of-band emissions are also a significant risk, in addition to unknown noise levels. Another definable problem includes a need for increased coordination between federal and non-federal entities for AMBIT to be successful. Spectrum compression due to increased number of systems in the lower band needs to be defined. In addition, DoD is incurring cost impacts as a result of increased testing, training, operational and acquisition timelines. This has a direct impact on critical electromagnetic warfare (EW) testing, training and exercise. Conducting analysis, research, and development and equipment modification or replacement to maintain comparable capability can help alleviate some of the unknowns. Potential solutions include but are not limited to:</p> <ul style="list-style-type: none"> a. Backlobe/sidelobe suppression b. Sparse signal processing c. Receiver noise reduction <p>As the network deploys, verification and validation of the electromagnetic environment can help provide a better picture of the new environment. Development of tools to reduce spectrum dependence from open-air testing and training as well as those to improve the efficiency of spectrum utilization can be utilized to mitigate some of the aforementioned issues. This in turn would assist in maintaining comparable capability and readiness in a shared spectrum environment. With adequate management, oversight and guidance of the transition, the overall transition plans will stand to see more viable success.</p>
<p>Checkpoints</p>	<p>It is recognized that a number of the identified solutions require further analysis and study. The final solutions will be compliant with allowable relocation or sharing costs and comparable capability of systems 47 USC 923(g)(3). Upon completion of each analysis and study effort, DOD will provide OMB with the results, and describe compliance with 47 USC 923(g)(3) so OMB can address its statutory oversight requirements. If requested, DOD will provide OMB status updates on analysis and study efforts via the SRF Resources Oversight Group (ROG). If required by OMB, DSO will update its transition plan as specified in OMB's "Information for Eligible Federal Entities Related to Spectrum Transition Plan Updates (17-01)" to revise the cost estimate, funds expenditure timelines, or technical approach. No funds will be transferred until OMB has determined the appropriateness of the costs and the timeline for relocation or sharing in accordance with 47 USC 928(d)(2)(B).</p>

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Note Name	Note Text
<p>DISA-3450-1: Spectrum Access Optimization Team</p>	<p>Objective(s): Provide government oversight and management to DISA-3450-2/3 with a government team and to provide a single focal point for interface to NTIA, OMB, and industry Coordinating governmental transition plan activities among the MILDEPs, DoD CIO, and industry Includes evaluating existing and future mitigation techniques available to 5G devices Provide a trusted consistent application of engineering solutions System or Sites: All Readiness/Capability Impact: Inability to provide consistent day-to-day management support Confusion from non-federal users due to a lack of a single focal point for interface with services for sharing plans that satisfies 5G requirements while protecting critical national security capabilities Benefit: Establishes a DoD government engineering team to facilitate efficient flexible use of the 3450-3550 MHz band. Providing a single focal point for coordinating with the wireless industry has proven critical during prior relocation efforts and reduces overall DoD transition plan costs by minimizing redundancies and identifying opportunities to re-use prior spectrum relocation fund technology investments</p>
<p>DISA-3450-2: Engineering Coordination Services</p>	<p>Objective(s): Provide enterprise engineering contractor services in coordination with the MILDEPS to refine coordination areas identified in the DoD AMBIT sharing framework, for information sharing between MILDEPS and commercial users Define standard analysis methods Define a business process for coordinating shared spectrum access System or Sites: All DoD CPA and PUA sites Readiness/Capability Impact: Inability to provide management support for information sharing with industry, defining standard analysis methods, and defining a shared spectrum access business process Benefit: Provides the commercial licensees a single point of contact for coordinating and deconflicting spectrum access and conducts day to day engineering analysis in support of industry and government coordination</p>
<p>DISA-3450-3: Automated Spectrum Coordination System (ASCS) Development</p>	<p>Objective(s): Establish an interim coordination portal to coordinate initial commercial access. Develop a robust, dynamic capability for avoiding interference between DoD and commercial users through autonomous deconfliction and notification of DoD spectrum use in the 3450-3550 MHz band System or Sites: All DoD CPA and PUA sites Readiness/Capability Impact: Provides situational awareness, increases automation in spectrum access management and policy dissemination (governance) Benefit: Enables expeditious commercial access; streamlines flexible use coordination; reduces manual coordination requirements; improves transparency of DoD spectrum usage data; advances U.S. global leadership in 5G and beyond</p>
<p>Project Background</p>	<p>As agreed during the AMBIT effort, DoD will implement sharing via modifications to standard operating procedures (SOPs), tactics, techniques, and procedures (TTPs) or other operational-related means. Modifications to or replacement of some DoD equipment are required to restore comparable capability.</p>

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Note Name	Note Text
Timing of Funding Both Pre- and Post- Auction	DoD's timelines are based on the assumption that DoD will receive pre-auction funds no later than April 2021 and post auction funding in FY23Q1. If the auction date is accelerated, DoD assumes that post-auction funding will be received in FY22Q3. Additionally, DoD's costs and timelines assume that annual SRF disbursements will be received in Q1 of each FY. Should any receipt of funds be delayed, timelines and costs may need to be adjusted accordingly.

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DOD\DSO 3450-3550 (Rev. 1) (Sufficient) - Excluded Info

Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
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