Releasable

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

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DOD\AF 3450-3550 (Rev. 1) (Sufficient) - Freq-Geo Transition Timeline

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)
AF082636	AF Airborne Radar 1 (AF-3450-8)	*****	0	*****	*****	Airborne Radar	*****	GA	*****	*****	GA	*****	*****	N/A	AOA	Coordinated	12		138
AF082637	AF Airborne Radar 1 (AF-3450-8)	*****	0	*****	*****	Airborne Radar	*****	GA	*****	*****	GA	*****	*****	N/A	AOA	Coordinated	12		138
AF103102	AF Other 4 (AF-3450-15)	*****	*****	*****	*****	Mobile Radar	*****	CA	*****	*****	CA	*****	*****	N/A	AOA	Indefinite		9	
AF103103	AF Other 4 (AF-3450-15)	*****	*****	*****	*****	Mobile Radar	*****	MO	*****	*****	MO	*****	*****	N/A	AOA	Indefinite		9	
AF103104	AF Other 4 (AF-3450-15)	*****	*****	*****	*****	Mobile Radar	*****	CA	*****	*****	CA	*****	*****	N/A	AOA	Indefinite		9	
AF140209	AF Airborne Radar 1 (AF-3450-8)	*****	0	*****	*****	Airborne Radar	USP	USP	xxxxxx	xxxxxxx	USP	xxxxxx	xxxxxxx	N/A	AOA	Coordinated	12		138
AF140210	AF Airborne Radar 1 (AF-3450-8)	*****	0	*****	*****	Airborne Radar	USP	USP	xxxxxx	xxxxxxx	USP	xxxxxx	xxxxxxx	N/A	AOA	Coordinated	12		138
AF152888	AF Other 5 (AF-3450-16)	*****	*****	*****	*****	Other	*****	NM	*****	*****	NM	*****	*****	N/A	AOA	Indefinite		9	
AF160945	AF Other 6 (AF-3450-17)	*****	0	*****	*****	Other	*****	NV	*****	*****	NV	*****	*****	N/A	AOA	Indefinite		9	
AF160948	AF Other 6 (AF-3450-17)	*****	0	*****	*****	Other	*****	NV	*****	*****	NV	*****	*****	N/A	AOA	Indefinite		9	
AF161841	AF Other 6 (AF-3450-17)	*****	*****	*****	*****	Other	*****	NV	*****	*****	NV	*****	*****	N/A	AOA	Indefinite		9	
AF161842	AF Other 6 (AF-3450-17)	*****	*****	*****	*****	Other	*****	NV	*****	*****	NV	*****	*****	N/A	AOA	Indefinite		9	
AF168966	AF Threat System 1 (AF-3450-11)	*****	*****	*****	*****	Mobile Radar	*****	NV	*****	*****	NV	*****	*****	N/A	AOA	Indefinite		9	
AF177528	AF Other 7 (AF-3450-18)	*****	*****	*****	*****	Mobile Radar	*****	NV	*****	*****	NV	*****	*****	N/A	AOA	Indefinite		9	
AF181957	AF Other 6 (AF-3450-17)	*****	*****	*****	*****	Other	*****	NV	*****	*****	NV	*****	*****	N/A	AOA	Indefinite		9	
AF181958	AF Other 6 (AF-3450-17)	*****	*****	*****	*****	Other	*****	NV	*****	*****	NV	*****	*****	N/A	AOA	Indefinite		9	
AF193668	AF Other 3 (AF-3450-14)	*****	*****	*****	*****	Fixed Radar	*****	OH	*****	*****	OH	*****	*****	N/A	AOA	Indefinite		9	
AF193759	AF Other 5 (AF-3450-16)	*****	*****	*****	*****	Other	*****	CA	*****	*****	CA	*****	*****	N/A	AOA	Indefinite		9	
AF194059	AF Other 2 (AF-3450-13)	*****	0	*****	*****	Fixed Radar	*****	TX	*****	*****	TX	*****	*****	N/A	AOA	Indefinite		9	
AF194060	AF Other 2 (AF-3450-13)	*****	0	*****	*****	Fixed Radar	*****	TX	*****	*****	TX	*****	*****	N/A	AOA	Indefinite		9	
AF194061	AF Other 2 (AF-3450-13)	*****	0	*****	*****	Fixed Radar	*****	TX	*****	*****	TX	*****	*****	N/A	AOA	Indefinite		9	
AF202571	AF Other 5 (AF-3450-16)	*****	*****	*****	*****	Mobile Radar	*****	GA	*****	*****	GA	*****	*****	N/A	AOA	Indefinite		9	
AF202682	AF Other 5 (AF-3450-16)	*****	*****	*****	*****	Mobile Radar	*****	CA	*****	*****	CA	*****	*****	N/A	AOA	Indefinite		9	
AF202713	AF Other 5 (AF-3450-16)	*****	*****	*****	*****	Mobile Radar	*****	MO	*****	*****	MO	*****	*****	N/A	AOA	Indefinite		9	
AF202718	AF Other 5 (AF-3450-16)	*****	*****	*****	*****	Mobile Radar	*****	OH	*****	*****	OH	*****	*****	N/A	AOA	Indefinite		9	
AF202841	AF RSE 1 (AF-3450-10)	*****	*****	*****	*****	Other	*****	FL	*****	*****	FL	*****	*****	N/A	AOA	Indefinite		9	
AF203363	AF RSE 1 (AF-3450-10)	*****	*****	*****	*****	Other	*****	FL	*****	*****	FL	*****	*****	N/A	AOA	Indefinite		9	
AF203958	AF Other 5 (AF-3450-16)	*****	*****	*****	*****	Mobile Radar	*****	FL	*****	*****	FL	*****	*****	N/A	AOA	Indefinite		9	
AF203961	AF RSE 1 (AF-3450-10)	*****	*****	*****	*****	Other	*****	FL	*****	*****	FL	*****	*****	N/A	AOA	Indefinite		9	
AF203962	AF RSE 1 (AF-3450-10)	*****	*****	*****	*****	Other	*****	FL	*****	*****	FL	*****	*****	N/A	AOA	Indefinite		9	
AF204164	AF RCS 1 (AF-3450-9)	*****	*****	*****	*****	Fixed Radar	*****	NM	*****	*****	NM	*****	*****	N/A	AOA	Indefinite		9	
AF206930	AF Other 1 (AF-3450-12)	*****	*****	*****	*****	Fixed Radar	*****	NM	*****	*****	NM	*****	*****	N/A	AOA	Indefinite		9	
AF771239	AF Airborne Radar 1 (AF-3450-8)	*****	0	*****	*****	Airborne Radar	USP	USP	xxxxxx	xxxxxxx	USP	xxxxxx	xxxxxxx	N/A	AOA	Coordinated	12		138
AF835460	AF Airborne Radar 1 (AF-3450-8)	*****	0	*****	*****	Airborne Radar	USA	USA	xxxxxxx	xxxxxxxx	USA	xxxxxxx	xxxxxxxx	N/A	AOA	Coordinated	12		138

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
AF 96 TW - RSE Relocation to Eglin Santa Rosa Island (AF-3450-6)	0.0000	0.0000	18.9200	18.9200	1	90			
AF Airborne Radar 1 (AF-3450-8)	0.0000	0.0000	0.0000	0.0000					
AF Airborne Radar Operational Impact Flight Test (AF-3450-2)	3.0400	3.0400	0.0000	3.0400	1	18			
AF Airborne Radar Replacement Project (USAF-3450-4)	1.3500	1.3500	684.7343	686.0843	1	138			
AF Commercial Industry Deployment Coordination (AF-3450-1)	7.7600	7.7600	12.1317	19.8917	1	138			
AF NRTF Spectrum Sharing Optimization (AF-3450-5)	0.2300	0.2300	20.6309	20.8609	1	66			
AF NTTR - Threat Systems (AF-3450-7)	1.2000	1.2000	10.1380	11.3380	1	72			
AF Other 1 (AF-3450-12)	0.0000	0.0000	0.0000	0.0000					
AF Other 2 (AF-3450-13)	0.0000	0.0000	0.0000	0.0000					
AF Other 3 (AF-3450-14)	0.0000	0.0000	0.0000	0.0000					
AF Other 4 (AF-3450-15)	0.0000	0.0000	0.0000	0.0000					
AF Other 5 (AF-3450-16)	0.0000	0.0000	0.0000	0.0000					
AF Other 6 (AF-3450-17)	0.0000	0.0000	0.0000	0.0000					
AF Other 7 (AF-3450-18)	0.0000	0.0000	0.0000	0.0000					
AF RCS 1 (AF-3450-9)	0.0000	0.0000	0.0000	0.0000					
AF RSE 1 (AF-3450-10)	0.0000	0.0000	0.0000	0.0000					
AF Threat System 1 (AF-3450-11)	0.0000	0.0000	0.0000	0.0000					
AF Training Mission Support (USAF-3450-3)	0.0000	0.0000	12.1390	12.1390	1	138			
Sequestration	0.0000	0.0000	0.0000	0.0000			0.0000		
Total	13.5800	13.5800	758.6939	772.2739			0.0000		

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

Interaction Name	Interaction Description
1	Development of Coordination Guidelines For Federal Agencies and Industry: Given the fact that most federal operations will still be in the band upon the award of licenses by the FCC and some federal operations will continue indefinitely in the band, specific coordination guidelines must be developed and published by NTIA (for federal agencies) and the FCC (for non-federal licensees).
2	If interference from commercial wireless to Air Force systems in designated CPA/PUA locations is detected, promptly inform the NTIA. Air Force will work with NTIA and FCC on resolution of interference cases.
3	AF-3450-4; Spectrum Certification: Airborne radar replacement equipment will be required to undergo the spectrum certification process through the NTIA Spectrum Planning Subcommittee (SPS) IAW OMB Circular A-11, Section 31.12(c). This certification is required before agencies can "submit estimates for the development or procurement of major radio spectrum-dependent communications-electronics systems". The spectrum certification process through the NTIA Spectrum Planning Subcommittee can require a number of months to complete for routine equipment developments. It is anticipated that due to the numerous simultaneous certification requests required to enable the modification and/or replacement of the systems identified in this and other agencies' Transition Plans, there will be a significant backlog within the SPS process. It should also be noted that the spectrum certification process is required at each stage of a program's development and thus some of the modified or relocated systems may be required to undergo the SPS review process multiple times. These interactions will begin soon after this Transition Plan is approved and will continue until all affected systems receive spectrum certification approval from the SPS.
4	Frequency Authorization: All systems that require either different frequency assignments in the 3450-3550 MHz band, modification to operate below the 3450-3550 MHz frequency band, or relocation to operate in other federal bands will have to follow the frequency authorization process in order to obtain new frequency authorizations. It is understood that, upon request, NTIA will "reserve" frequency assignments in the identified alternate spectrum bands. however, the formal frequency authorization process through the NTIA Frequency Assignment Subcommittee (FAS) must still be completed at a future time, subsequent to the associated SPS certification process for the systems/equipment and prior to actual operations in the alternate bands and verification/validation of comparable technical capability. These interactions will begin soon after this Transition Plan is approved and will continue until all affected systems become operational as defined by the Transition Plan.

DOD\AF 3450-3550 (Rev. 1) (Sufficient) - Impact Factors

Factor Name	Factor Description
Incumbent Support	Incumbents will support interference testing to determine feasibility of co-existence and necessary equipment alterations, and they will support as necessary to address interference issues.
Transition Plan Includes Sensitive Information Not Releasable to the Public	In accordance with 47 USC 929 - National Security and Other Sensitive Information, the DoD CIO has determined that there is a legal basis for non-disclosure of certain information and that public disclosure of information designated CUI, taken in the aggregate as presented in this TP, would be detrimental to national security. Withholding the sensitive information has no impact on fulfillment of this transition plan as the protection areas and exclusion zones are already known to the public.

DOD\AF 3450-3550 (Rev. 1) (Sufficient) - Notes

Note Name	Note Text
3450-3550 MHz CPA and PUA	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. 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.
5G Assumptions	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. (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 (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) (3) Maximum Power Input: +35 dBm/m2 (4) 1 dB Compression (P1dB): -25 dBm for continuous wave signals referenced at antenna port (5) 20 MHz channels (6) Tower Height of 100 meters: Adjusted due to FCC requirement for an interference reporting declaration boundary
AF-3450-1	*****
AF-3450-2	*****
AF-3450-3	*****
AF-3450-4	*****
AF-3450-5	*****
AF-3450-6	*****
AF-3450-7	*****

DOD\AF 3450-3550 (Rev. 1) (Sufficient) - Notes

Note Name	Note Text
AMBIT Risks and Mitigation to DoD	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: a. Backlobe/sidelobe suppression b. Sparse signal processing c. Receiver noise reduction 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.
Checkpoints	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, Air Force 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).
Executive summary	Air Force Executive Summary: The Department of the Air Force 3450-3550 MHz Transition plans includes seven separate projects that support airborne radar, radar cross section (RCS) test, and radar signal emulators at test and training ranges. The transition plan focuses on operational air spaces in and around Little Rock AFB, AR and Ft Bragg, NC supporting the USAF Airborne Radar, White sands Missile Range National RCS Test Facility, the Nevada Test and Training Range, and Eglin AFB, FL.

DOD\AF 3450-3550 (Rev. 1) (Sufficient) - Notes

Note Name	Note Text
Modification of Assignments	Upon conclusion of the transition, frequency assignments which authorize use in geographical areas that fall outside of CPAs and PUAs listed in US Footnote 431B will be modified to reflect operations shall not cause harmful interference to non-Federal operations in areas outside of the identified CPAs and PUAs.
Project Background	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.
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.

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

Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF082636	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF082636	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF082636	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF082636	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF082636	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF082636	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF082636	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF082636	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF082637	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF082637	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF082637	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF082637	Receiver Bandwidth	Operations Security Information	NSDD 298

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

Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF082637	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF082637	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF082637	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF082637	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF103102	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF103102	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF103102	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF103102	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF103102	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF103102	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF103102	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF103102	Transmitter Longitude	Operations Security Information	NSDD 298

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

Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF103102	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF103103	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF103103	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF103103	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF103103	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF103103	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF103103	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF103103	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF103103	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF103103	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF103104	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF103104	Emission Bandwidth	Operations Security Information	NSDD 298

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

Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF103104	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF103104	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF103104	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF103104	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF103104	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF103104	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF103104	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF140209	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF140209	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF140209	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF140210	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF140210	Emission Bandwidth	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF140210	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF152888	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF152888	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF152888	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF152888	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF152888	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF152888	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF152888	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF152888	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF152888	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF160945	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF160945	Emission Bandwidth	Operations Security Information	NSDD 298

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

Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF160945	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF160945	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF160945	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF160945	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF160945	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF160945	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF160948	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF160948	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF160948	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF160948	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF160948	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF160948	Receiver Longitude	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF160948	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF160948	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF161841	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF161841	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF161841	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF161841	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF161841	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF161841	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF161841	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF161841	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF161841	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF161842	Center Lower Frequency	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF161842	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF161842	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF161842	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF161842	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF161842	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF161842	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF161842	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF161842	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF168966	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF168966	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF168966	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF168966	Receiver Bandwidth	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF168966	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF168966	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF168966	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF168966	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF168966	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF177528	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF177528	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF177528	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF177528	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF177528	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF177528	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF177528	Transmitter Latitude	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF177528	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF177528	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF181957	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF181957	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF181957	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF181957	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF181957	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF181957	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF181957	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF181957	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF181957	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF181958	Center Lower Frequency	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF181958	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF181958	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF181958	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF181958	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF181958	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF181958	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF181958	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF181958	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF193668	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF193668	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF193668	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF193668	Receiver Bandwidth	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF193668	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF193668	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF193668	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF193668	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF193668	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF193759	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF193759	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF193759	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF193759	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF193759	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF193759	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF193759	Transmitter Latitude	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF193759	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF193759	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF194059	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF194059	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF194059	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF194059	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF194059	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF194059	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF194059	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF194059	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF194060	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF194060	Emission Bandwidth	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF194060	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF194060	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF194060	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF194060	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF194060	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF194060	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF194061	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF194061	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF194061	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF194061	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF194061	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF194061	Receiver Longitude	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF194061	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF194061	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF202571	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF202571	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF202571	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF202571	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF202571	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF202571	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF202571	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF202571	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF202571	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF202682	Center Lower Frequency	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF202682	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF202682	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF202682	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF202682	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF202682	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF202682	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF202682	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF202682	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF202713	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF202713	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF202713	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF202713	Receiver Bandwidth	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF202713	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF202713	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF202713	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF202713	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF202713	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF202718	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF202718	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF202718	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF202718	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF202718	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF202718	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF202718	Transmitter Latitude	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF202718	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF202718	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF202841	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF202841	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF202841	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF202841	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF202841	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF202841	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF202841	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF202841	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF202841	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF203363	Center Lower Frequency	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF203363	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF203363	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF203363	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF203363	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF203363	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF203363	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF203363	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF203363	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF203958	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF203958	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF203958	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF203958	Receiver Bandwidth	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF203958	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF203958	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF203958	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF203958	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF203958	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF203961	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF203961	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF203961	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF203961	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF203961	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF203961	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF203961	Transmitter Latitude	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF203961	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF203961	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF203962	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF203962	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF203962	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF203962	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF203962	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF203962	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF203962	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF203962	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF203962	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF204164	Center Lower Frequency	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF204164	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF204164	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF204164	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF204164	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF204164	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF204164	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF204164	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF204164	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF206930	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF206930	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF206930	Operation Area	Operations Security Information	NSDD 298
Frequencies	AF206930	Receiver Bandwidth	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Frequencies	AF206930	Receiver Latitude	Operations Security Information	NSDD 298
Frequencies	AF206930	Receiver Longitude	Operations Security Information	NSDD 298
Frequencies	AF206930	Transmitter Latitude	Operations Security Information	NSDD 298
Frequencies	AF206930	Transmitter Longitude	Operations Security Information	NSDD 298
Frequencies	AF206930	Upper Frequency	Operations Security Information	NSDD 298
Frequencies	AF771239	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF771239	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF771239	Receiver Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF835460	Center Lower Frequency	Operations Security Information	NSDD 298
Frequencies	AF835460	Emission Bandwidth	Operations Security Information	NSDD 298
Frequencies	AF835460	Receiver Bandwidth	Operations Security Information	NSDD 298
Notes	AF-3450-1	Note Text	Operations Security Information	NSDD 298

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Table	Row	Column	CUI Category	Safeguarding and/or Dissemination Authority
Notes	AF-3450-2	Note Text	Operations Security Information	NSDD 298
Notes	AF-3450-3	Note Text	Operations Security Information	NSDD 298
Notes	AF-3450-4	Note Text	Operations Security Information	NSDD 298
Notes	AF-3450-5	Note Text	Operations Security Information	NSDD 298
Notes	AF-3450-6	Note Text	Operations Security Information	NSDD 298
Notes	AF-3450-7	Note Text	Operations Security Information	NSDD 298