



Department of Defense INSTRUCTION

NUMBER 8320.05

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Incorporating Change 1, November 22, 2017

ASD(NII)/DoD CIO-DoD CIO

SUBJECT: Electromagnetic Spectrum Data Sharing

References: See Enclosure 1

1. PURPOSE. This Instruction:

a. Establishes policy, assigns responsibilities, and provides procedures for the collection, provision, maintenance, and sharing of timely, comprehensive, relevant, accurate, and trusted data used to characterize spectrum-dependent systems and define the electromagnetic environment (EME) in accordance with the authority in DoD Directive (DoDD) ~~5144.1~~ *5144.02* (Reference (a)) and the guidance in DoD Instruction (DoDI) 5025.01 (Reference (b)).

b. Codifies the process for identification of all data required to conduct Joint Electromagnetic Spectrum Operations (JEMSO) and control of the electromagnetic spectrum.

2. APPLICABILITY. This Instruction applies to:

a. OSD, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the Department of Defense (hereafter referred to collectively as the "DoD Components").

b. The United States Coast Guard. The United States Coast Guard will adhere to DoD requirements, standards, and policies in this instruction in accordance with the direction in Paragraph 4a of the Memorandum of Agreement Between the Department of Defense and the Department of Homeland Security (Reference (c)).

c. All Acquisition Category I-IV programs as well as other procurements that contain spectrum-dependent systems.

3. DEFINITIONS. See Glossary.

4. POLICY. It is DoD policy that:

a. The *electromagnetic environment* (EME) is a critical shared joint-use environment that must be effectively monitored and controlled in order to enable successful military operations. This shared environment shall be managed jointly by the DoD Components.

b. The DoD Spectrum Data Administrator (DSDA) shall function as the data administrator for all DoD spectrum-related data, in accordance with section 1 of Enclosure 3 of this Instruction.

c. A Joint Authoritative Data Source shall be established and maintained in accordance with section 2 of Enclosure 3 to ensure DoD spectrum-related data is available, visible, accessible, understandable, and trusted among the DoD Components.

d. The most accurate, complete, and current spectrum-related data, whether existing, new, or modified, shall be made available via the Joint Spectrum Data Repository (JSDR), which shall serve as the Joint Authoritative Data Source for all DoD spectrum-related data, per section 1 of Enclosure 3.

e. A ~~C~~community of *interest* (COI) shall be used as a strategic approach for developing the agreements necessary for meaningful information exchange, and doing so collaboratively across the community of people who share a common interest. An Electromagnetic Spectrum Data COI shall be established and function, in accordance with ~~DoD 8320.02-G~~ *DoDI 8320.07* (Reference (~~ed~~)), to ensure spectrum-related data identification, standardization, collection, provision, and maintenance is provided for meeting the needs of the Department of Defense.

f. Spectrum-related data shall be administered in accordance with the organizational structure defined in section 1 of Enclosure 3.

g. ~~Military Communications-Electronic Board (MCEB)~~ *Military Command, Control, Communications, and Computers Executive Board MC4EB* Publication 8 (Reference (~~de~~)) shall serve as the DoD authoritative data exchange standard for spectrum-related data. Reference (~~de~~) shall be published in the DoD Information Technology Standards Registry (DISR) as a mandated data exchange standard.

h. Spectrum-related data shall be structured according to published data standards.

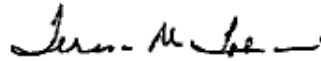
i. Spectrum-related data shall be administered in accordance with DoDD 8320.02 (Reference (~~ef~~)) and section 3 of Enclosure 3.

5. RESPONSIBILITIES. See Enclosure 2.

6. PROCEDURES. See Enclosure 3.

7. RELEASABILITY. ~~UNLIMITED. This Instruction is approved for public release and is available on the Internet from the DoD Issuances Website at <http://www.dtic.mil/whs/directives>.~~ **Cleared for public release.** *This instruction is available on the Directives Division Website at <http://www.esd.whs.mil/DD/>.*

8. EFFECTIVE DATE. ~~This Instruction is effective upon its publication to the DoD Issuances Website.~~ *This instruction is effective August 18, 2011.*



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Enclosures

1. References
2. Responsibilities
3. Procedures

Glossary

ENCLOSURE 1

REFERENCES

- ~~(a) DoD Directive 5144.1, "Assistant Secretary of Defense for Networks and Information Integration/DoD Chief Information Officer (ASD(NII)/DoD CIO)," May 2, 2005~~
- (a) DoD Directive 5144.02, "DoD Chief Information Officer (DoD CIO)," November 21, 2014, *as amended*
- (b) DoD Instruction 5025.01, "DoD Directives Program," October 28, 2007
- ~~(c) DoD 8320.02-G, "Guidance for Implementing Net-Centric Data Sharing," April 12, 2006~~
- (c) Memorandum of Agreement between the Department of Defense and The Department of Homeland Security Regarding Department of Defense and U.S. Coast Guard Cooperation on Cybersecurity and Cyberspace Operations, January 19, 2017
- (d) DoD Instruction 8320.07, "Implementing the Sharing of Data, Information, and Information Technology (IT) Services in the Department of Defense," August 3, 2015
- ~~(e) Military Command, Control, Communications, and Computers Executive Board (MC4EB) Publication 8, "Standard Spectrum Resource Format (SSRF) Data Exchange Standard," September 25, 2014~~
- ~~(e) DoD Directive 8320.02, "Data Sharing in a Net-Centric Department of Defense," December 2, 2004~~
- (f) DoD Directive 8320.02, "Sharing Data, Information, and Technology (IT) Services in the Department of Defense," August 5, 2013
- ~~(g) DoD Instruction 4650.01, "Policy and Procedures for Management and Use of the Electromagnetic Spectrum," January 9, 2009~~
- ~~(g) DoD Directive 3222.4, "Electronic Warfare (EW) and Command and Control Warfare (C2W) Countermeasures," July 31, 1992~~
- ~~(h) DoD Instruction 4630.8, "Procedures for Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," June 30, 2004~~
- (h) DoD Directive 3222.04, "Electronic Warfare (EW) Policy," March 26, 2014, *as amended*
- (i) DoD Instruction 8330.01, "Interoperability of Information Technology (IT), Including National Security Systems (NSS)," May 21, 2014
- ~~(j) Department of Defense (DoD) Chief Information Officer (CIO) Memorandum, "DoD Net-Centric Data Strategy," May 9, 2003~~
- ~~(j) DoD Directive 5000.01, "The Defense Acquisition System," May 12, 2003~~
- ~~(k) DoD Instruction 5000.02, "Operation of the Defense Acquisition System," December 8, 2008-January 7, 2015, *as amended*~~
- ~~(m) National Security Space Acquisition Policy 03-01, "Guidance for DoD Space System Acquisition Process," December 27, 2004~~
- ~~(m) DoD Discovery Metadata Specification¹~~
- ~~(n) Executive Order 12333, "United States Intelligence Activities," December 4, 1981~~
- ~~(p) DoD 5240.1-R, "Procedures Governing the Activities of DoD Intelligence Components That Affect United States Persons," December 7, 1982, *as amended*~~
- ~~(p) Intelligence Community Directive 501, "Discovery and Dissemination or Retrieval of Information within the Intelligence Community," January 21, 2009~~

¹ Latest version available at <http://metadata.dod.mil/mdr/irs/DDMS/>

ENCLOSURE 2

RESPONSIBILITIES

1. ~~ASSISTANT SECRETARY OF DEFENSE FOR NETWORKS AND INFORMATION INTEGRATION/DoD CHIEF INFORMATION OFFICER (ASD(NII)/DoD CIO); DoD CHIEF INFORMATION OFFICER (DoD CIO). The ASD(NII)/DoD CIO, as the Principal Staff Assistant on spectrum matters within the Department of Defense, the DoD CIO shall:~~

- a. Establish policy, oversee its implementation, and provide direction and guidance for all DoD data sharing related to EME and spectrum-dependent systems.
- b. Develop the policies and procedures, in accordance with Reference (ef), to protect spectrum-dependent systems data integrity while enabling their sharing across security domains and with multinational partners, other Federal agencies, and State and local government in accordance with law, policy, and security classification, in coordination with the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)); the Under Secretary of Defense for Intelligence (USD(I)); and the Under Secretary of Defense for Policy (USD(P)).
- c. Guide and oversee the formation and activities of an Electromagnetic Spectrum Data COI to address spectrum-related data requirements and data technology evolution, and to increase data-sharing capabilities among known and unanticipated users.
- d. Advise the Secretary of Defense on issues regarding spectrum-related data management.
- e. Collaborate with the USD(AT&L), the Chairman of the Joint Chiefs of Staff, and other DoD Components, as needed, to ensure collection of spectrum-related data is accomplished during the acquisition and procurement process.

2. DIRECTOR, DEFENSE INFORMATION SYSTEMS AGENCY (DISA). The Director, DISA, under the authority, direction, and control of the ~~ASD(NII)/DoD CIO DoD CIO~~ and in addition to the responsibilities in section 5 of this enclosure, shall:

- a. In accordance with DoDI 4650.01, DoDD ~~3222.4, 3222.04~~, and DoDI ~~4630.8 8330.01~~, (References ~~(fg)~~, ~~(gh)~~, and ~~(hi)~~), and this Instruction, establish and maintain business processes for the consolidation of spectrum-related data that foster the life-cycle interoperability and supportability of information technology (IT) and National Security Systems (NSS) throughout the Department of Defense.
- b. Develop and maintain a spectrum-related data capture capability, supportability tracking, and data maintenance over the spectrum-dependent system life-cycle that enables data visibility, access, and trust throughout the DoD Components.

- c. Establish processes and assign responsibility for the creation, collection, provision, and maintenance of a comprehensive, efficient, and effective spectrum-related data-sharing environment.
- d. Establish, chair, and maintain an Electromagnetic Spectrum Data COI to evaluate and resolve issues associated with spectrum-related data.
- e. Facilitate and monitor spectrum-related data compliance with published standards across the DoD Components.
- f. Develop guidance to federate all spectrum-related data and associated metadata for their discovery and reuse by enterprise services.
- g. Create procedures and assist in the development of policies for enabling spectrum-related data sharing across security domains and with multinational partners, other Federal agencies, and State and local governments.
- h. Establish a DSDA with authority to provide quality assessments and recommended enhancements to spectrum-related data.
- i. Develop a change control process in coordination with other DoD Components to ensure changes to spectrum-related data fields are documented and follow specific approval procedures.
- j. Identify, in conjunction with the Electromagnetic Spectrum Data COI, MC4EB, *JEWC*, and other electromagnetic spectrum stakeholders, the required spectrum-related data needed for current, proposed, and future spectrum-dependent systems to enable correct and complete execution of all *electromagnetic* spectrum *operations* business processes. Maintain these data requirements as published standards and ensure that data-collection processes collect accurate and complete data and that the data collected is shared per Reference (*ef*) and DoD Chief Information Officer Memorandum (Reference (*ij*)).

3. USD(AT&L). The USD(AT&L), in addition to the responsibilities in section 5 of this enclosure, shall:

a. As the DoD Acquisition Executive, ensure the policies outlined in section 4 above the signature of this Instruction are:

(1) Incorporated into the DoD 5000 series acquisition documents (DoDD 5000.01 and DoDI 5000.02 (References (*jk*) and (*kl*)) and National Security Space Acquisition Policy 03-01 (Reference (*lm*))).

(2) Adequately addressed during system acquisitions.

b. Promote innovative, spectrum-efficient technologies to optimize use and effectiveness of available spectrum resources in all acquisitions including advanced concept development, international cooperative programs, and evolutionary acquisitions.

c. Provide a spectrum-dependent systems acquisition expert to support the Electromagnetic Spectrum Data COI.

4. USD(I). The USD(I) shall:

a. Collaborate with the ~~ASD(NII)/DoD CIO~~, *DoD CIO*, the USD(P), and the Intelligence Community (IC) CIO in developing policies and procedures to protect spectrum-related data integrity while enabling data sharing across different security classifications, and between the Department of Defense, the IC, and multinational partners, in accordance with this Instruction and Reference (*ef*).

b. Provide experts on IC spectrum-dependent systems, ~~and~~ spectrum access, *and EW systems of effects* to support the Electromagnetic Spectrum Data COI to include, but not limited to, representation from the Defense Intelligence Agency, the National Geospatial-Intelligence Agency, the National Security Agency/Central Security Service, and the National Reconnaissance Office.

c. Ensure spectrum-related data generated by the IC ~~is~~ *and EW are* in conformance with spectrum-related data standards, and that it is visible, accessible, understandable, and trusted among the DoD Components.

d. Identify authorized producers of spectrum-related data for adversary, friendly, neutral, and commercial spectrum-dependent systems.

5. HEADS OF THE DoD COMPONENTS AND USD(AT&L). The Heads of the DoD Components and the USD(AT&L) shall:

a. Provide an expert(s) on their respective Component's operational spectrum management to support the Electromagnetic Spectrum Data COI.

b. Provide operational lessons learned and spectrum-related data feedback to the DSDA.

c. Implement procedures to ensure that all data generated at each stage of the spectrum certification process is complete, accurate, and in conformance with published spectrum-related data standards.

d. Support the implementation of spectrum-related data sharing, including establishing appropriate plans, programs, recommended policies, and procedures in accordance with this Instruction, References (*ed*) and (*ef*), and the direction of the DSDA.

e. Ensure that all current and future spectrum-related data assets are made consistent with this Instruction and recommendations of the DSDA.

f. Designate personnel familiar with their respective Component's spectrum-related data to serve as the primary contact to the DSDA. The designated primary contact to the DSDA shall also identify authoritative data sources that can provide spectrum-related data to the JS DR.

g. Ensure that all spectrum-dependent systems acquisitions submit spectrum-related data consistent with the Component's authoritative data source via the capability identified in paragraph 2.b. of this enclosure.

h. Develop processes and procedures to ensure the integrity of spectrum-dependent systems data throughout their life cycle.

i. Provide spectrum-related data requirements to the DSDA.

6. CHAIRMAN OF THE JOINT CHIEFS OF STAFF. The Chairman of the Joint Chiefs of Staff, in addition to the responsibilities in section 5 of this enclosure, shall:

a. Provide an operational spectrum-related data expert to support the Electromagnetic Spectrum Data COI.

b. Provide operational lessons learned and spectrum-related data feedback to the DSDA.

c. Collaborate with the USD(AT&L); the ~~ASD(NII)/DoD CIO; DoD CIO~~; the Director of Operational Test and Evaluation; ~~the Commander, United States Joint Forces Command~~; and the other Heads of the DoD Components to ensure that lessons learned from Service, combined, joint, and coalition exercises, demonstrations, experiments, and operations are included in Joint Capabilities Integration and Development System (JCIDS) analysis to facilitate improvements in spectrum-dependent systems data accumulation and life-cycle management.

d. In coordination with the ~~ASD(NII)/DoD CIO; DoD CIO~~, ensure this Instruction is incorporated into the JCIDS process.

e. Ensure that the MC⁴EB coordinates and adjudicates recommendations regarding content and definition of MC⁴EB Publication 8.

ENCLOSURE 3

PROCEDURES

1. DATA ADMINISTRATION

a. Administration of spectrum-related data shall be executed by the DSDA in coordination with the DoD Component's designated primary contact to the DSDA.

b. The DSDA shall:

(1) Ensure that the SSRF is registered as the authoritative data standard for spectrum-related data in the DoD Information Technology Standards Registry (DISR).

(2) Develop and conduct spectrum-related data processes to validate data quality, and improve them as appropriate or recommend changes to the proper cognizant data authority. This process improvement shall provide for data integrity, reliability, and completeness of spectrum-related data generation, collection, transfer, storage, correlation, search, and retrieval.

(3) Develop, with the assistance of DoD Component's designated primary contact to the DSDA, methods and processes that enable the collection, maintenance, and sharing of metrics addressing data integrity, data availability, and data security of the JS DR.

(4) Provide a mechanism for operational expertise input to spectrum-related data production and standardization.

(5) Establish a spectrum-related data feedback mechanism to alert authorized data producers to errors in data production.

(6) Design, implement, and maintain the JS DR to be the authoritative data source for spectrum-related data specifically pertaining to the management of the electromagnetic spectrum.

(7) Identify, evaluate, and approve, with the assistance of DoD Component's designated primary contact to the DSDA, the authoritative data sources to be used by the JS DR. The authoritative data sources do NOT have to reside within the JS DR to be authoritative; however, sufficient controls must be placed on all data sources to ensure that they remain authoritative, whether or not they reside within the JS DR.

(8) Provide administrative support to the Electromagnetic Spectrum Data COI and register it in the COI directory.

(9) Establish a review process to ensure that the spectrum data requirements are up to date and meet the needs of the users.

(10) Maintain integrity, availability, and security of the JS DR and spectrum-related data in transit.

(11) Liaise and, when possible, align with other national and international organizations for spectrum-related data standardization.

c. For spectrum-related data, each DoD Component shall:

(1) Establish a primary contact to the DSDA per paragraph 5.f. of Enclosure 2. Each DoD Component's primary contact shall be a member of the Electromagnetic Spectrum Data COI, and be responsible for identifying the Component's authoritative data sources to be used by the JS DR and for ensuring the Component spectrum-related data is maintained. Once the spectrum supportability process has been completed in accordance with Reference (fg), the Component's primary contact to the DSDA shall assume ownership of the spectrum-dependent system data and ensure data integrity is maintained while duplicate data for like equipment procured by different procuring sources are deconflicted.

(2) Notify the DSDA and update the contact information whenever there is a change to the Component's primary contact to the DSDA.

d. The Electromagnetic Spectrum Data COI, in coordination with the MC4EB and other electromagnetic spectrum stakeholders, shall define which entities (e.g., Combatant Command, Services) should provide other types of spectrum-related data that is required to conduct JEMSO. Spectrum-related data includes but is not limited to, unit location, platform electronic fit, and unit table of organization and equipment. For each type of data, a data administrator shall be identified by the Electromagnetic Spectrum Data COI.

2. JS DR

a. The JS DR shall be designed for the unanticipated user to access and, if necessary, in accordance with the applicable governance profile, update spectrum-related data while maintaining overall integrity of the JS DR. The JS DR shall include but not be limited to:

(1) Data of spectrum-dependent systems characteristics, including spectrum certification data.

(2) Data of spectrum-dependent tests and training ranges, including frequency clearances and frequencies required to support new system test or emerging threats.

(3) EME data.

(4) Electromagnetic compatibility (EMC) data.

(5) Electromagnetic environmental effects (E3) data.

- (6) Host nation spectrum coordination data.
- (7) Spectrum regulatory data.
- (8) Alliance spectrum data.
- (9) Coalition spectrum data.

b. The JS DR shall provide common standard interfaces to enable data-pull from the DoD Component's authoritative data sources so spectrum-related data are visible, accessible, and trusted throughout the Department of Defense. The decision as to which databases may be used as authoritative data sources for the JS DR is the responsibility of the DSDA.

3. DATA ASSETS

a. Spectrum-related data assets shall be made visible by creating and associating metadata "data tagging," including discovery metadata, for each asset.

b. Discovery metadata shall conform to the DoD Discovery Metadata Specification (Reference (~~h7~~)).

c. DoD metadata standards shall comply with applicable national and international consensus standards for metadata exchange whenever possible.

d. All metadata shall be discoverable, searchable, and retrievable using DoD-wide capabilities.

e. All spectrum-related metadata schemas shall be registered in the DoD Metadata Registry.

f. Metadata shall include the classification level of each spectrum-related data element.

g. Initial dissemination of EME spectrum data derived from signals intelligence or other intelligence sources shall be conducted via authorized vehicles in accordance with Executive Order 12333, DoD 5240.1-R, and Intelligence Community Directive 501 (References (~~h0~~), (~~ep~~), and (~~pq~~)).

GLOSSARYPART I. ABBREVIATIONS AND ACRONYMS

ASD(NII)/DoD CIO	Assistant Secretary of Defense for Networks and Information Integration/DoD Chief Information Officer
CIO	Chief Information Officer
COI	community of interest
DISA	Defense Information Systems Agency
DISR	DoD Information Technology Standards Registry
<i>DoD CIO</i>	<i>DoD Chief Information Officer</i>
DoDD	DoD Directive
DoDI	DoD Instruction
DSDA	Department Spectrum Data Administrator
E3	electromagnetic environmental effects
EMC	electromagnetic compatibility
EME	electromagnetic environment
JCIDS	Joint Capabilities Integration and Development System
JEMSO	Joint Electromagnetic Spectrum Operations
JSDR	Joint Spectrum Data Repository
IC	Intelligence Community
IT	information technology
MCEB	Military Communications Electronic Board
<i>MC4EB</i>	<i>Military Command, Control, Communications, and Computers Executive Board</i>
NSS	National Security Systems
SSRF	Standard Spectrum Resource Format
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics
USD(I)	Under Secretary of Defense for Intelligence
USD(P)	Under Secretary of Defense for Policy

PART II. DEFINITIONS

These terms and their definitions are for purposes of this Instruction.

acquisition categories. Categories established for acquisition programs to facilitate decentralized decision making and execution and compliance with statutorily imposed requirements. The categories determine the level of review, decision authority, and applicable procedures. While the description and decision authority for acquisition categories I-III are defined in Reference (~~k~~), acquisition category IV refers to all other acquisition programs that are not otherwise designated acquisition category I, IA, II, or III and therefore the milestone decision authority is delegated to a level below that required for acquisition category III.

authoritative data source. A recognized or official data production source with a designated mission statement, source, or product that publishes reliable and accurate data for subsequent use by customers. An authoritative data source may be the functional combination of multiple separate data sources.

COI. Defined in Reference (~~ef~~).

data. Defined in Reference (~~ef~~).

data administrator. Entity responsible for maintaining data integrity, data availability, and data security. The administrator anticipates the user's needs and provides for data access and storage, and is responsible for the design, implementation, and maintenance of the databases.

data asset. Defined in Reference (~~ef~~).

data integrity. The assurance that data is consistent and correct. Data integrity is used to ensure that data is complete, identically maintained during any operation (such as transfer, storage, or retrieval), is preserved for its intended use, and meets the data quality expectation.

data interoperability. The ability to exchange data across system or organization boundaries and to have that data correctly interpreted by all parties.

data owner. Entity that can authorize or deny access to certain data and is responsible for its accuracy, integrity, and timelines.

data producer. Defined in Reference (~~ed~~).

data tagging. The association of discovery metadata with data assets.

E3. The impact of the electromagnetic environment upon the operational capability of military forces, equipment, systems, and platforms. It encompasses all electromagnetic disciplines, including electromagnetic compatibility and electromagnetic interference; electromagnetic vulnerability; electromagnetic pulse; electromagnetic protection; hazards of electromagnetic

radiation to personnel, ordnance, and volatile materials; and natural phenomena effects of lightning and precipitation static.

EMC. Defined in Reference (fg).

EME. Defined in Reference (fg).

enterprise. Defined in Reference (ef).

interoperability. Defined in Reference (hi).

IT. Defined in Reference (hi).

JEMSO. Activities in the joint warfighting arena carried out by joint electromagnetic spectrum operators (Combatant Command staffs, joint tactical forces, and others) whose objective is to successfully plan and execute joint or multinational operations across the warfighter's operational environment.

metadata. Defined in Reference (ef).

NSS. Defined in Reference (ef).

spectrum management. Defined in Reference (fg).

spectrum-dependent systems. Defined in Reference (fg).

spectrum-related data. Refers to the data required to plan and execute spectrum management and electronic warfare operations, including spectrum-dependent systems characteristics, spectrum certification, EME, EMC, E3, host nation, alliance, coalition, force structure, platform, geo-location information, and regulatory data.

supportability. Defined in Reference (hi).

unanticipated users. Those individuals that meet the criteria for accessing a restricted resource, but have not been pre-registered to access the resource.