ELECTROMAGNETIC ENVIRONMENTAL EFFECTS (E3)

COMDTINST 2450.1A
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United States Coast Guard

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COMMANDANT INSTRUCTION 2450.1A

Subj: ELECTROMAGNETIC ENVIRONMENTAL EFFECTS (E3)

Ref: (a) DoD Electromagnetic Environmental Effects (E3 Program), DoD Instruction 3222.03 (series)
(b) Protection of DoD Personnel from Exposure to Radio Frequency Radiation and Military Exempt Lasers, DoD Instruction 6055.11 (series)
(c) Procedures for Conducting a Shipboard Electromagnetic Interference (EMI) Survey (Surface Ships), MIL-STD-1605 (series)
(d) Standard Electromagnetic Interference (EMI) Survey Procedures, NAVSEA-STD407-5291780 (series)
(e) Grounding, Bonding and Shielding for Common Long Haul/Tactical Communication Systems Including Ground Based Communications-Electronics Facilities and Equipment, MIL-STD-188-124 (series)
(f) Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment, MIL-STD-461 (series)
(g) Electromagnetic Environmental Effects Requirements for Systems, MIL-STD-464 (series)
(h) Shipboard Bonding, Grounding, and Other Techniques for Electromagnetic Compatibility, Electromagnetic Pulse (EMP) Mitigation, and Safety, MIL-STD-1310 (series)
(i) Policy and Procedure for Management and Use of the Electromagnetic Spectrum, DoD Instruction 4650.01 (series)
(j) Electromagnetic Spectrum Data Sharing, DoD Instruction 8320.05 (series)
(k) Electromagnetic Spectrum Management Operations in the Electromagnetic Environment, COMDTINST M2400.1 (series)

1. PURPOSE. This Instruction establishes direction for the Coast Guard (CG) Electromagnetic Environmental Effects (E3) Program through the assignment of roles and responsibilities.

2. ACTION. All Coast Guard unit commanders, commanding officers, officers-in-charge, deputy/assistant commandants, chief of headquarter directorates must comply with the provisions of this Instruction.

3. AUTHORIZED RELEASE. Internet Release is Authorized.

4. DIRECTIVES AFFECTED. The Electromagnetic Environmental Effects (E3) Policy, COMDTINST 2450.1, is hereby cancelled

5. DISCUSSON.

   a. This Instruction assigns roles and responsibilities for ensuring the safe operation, mission readiness, and interoperability for all electrical and Command, Control, Communications, Computers, Cyber and Intelligence (C5I) equipment, systems, subsystems, devices, ordnance, hazards to personnel, and fuels within the electromagnetic environment (EME). E3 considerations apply to all platforms, systems, subsystems, facilities, weapons, electric or electronic equipment, networks, sensors, fuels, and ordnance, (hereinafter referred to as equipment, systems, and platforms) developed, procured, acquired, operated, and maintained by the CG.

   b. The achievement of Electromagnetic Compatibility (EMC) in the EME is a paramount objective of the E3 Program. The E3 Program strives to enhance mission readiness and performance by governing E3 equipment, systems, platforms, and personnel, through the prevention, correction, and mitigation of mission degrading E3.

6. DISCLAIMER. This guidance is not a substitute for applicable legal requirements, nor is it itself a rule. It is intended to provide administrative guidance for Coast Guard personnel and is not intended nor does it impose legally-binding requirements on any party outside the Coast Guard.

7. MAJOR CHANGES. This Instruction has been completely rewritten and realigns the E3 Program to existing programs and organizational elements responsible for oversight and implementation of this Instruction and for the operational use of Title 47, Part 15 which governs unlicensed devices in Coast Guard applications.

8. SCOPE AND AUTHORITIES. This Instruction apples to all equipment both commercial off-the-shelf and military. It is recommended the reader become familiar with the directives and publications noted as References (a) through (k) of this Instruction.

9. IMPACT ASSESSMENT. This Instruction is not intended to impact current financial or personnel resources.

10. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS. The Office of Environmental Management, Commandant (CG-47) reviewed this Commandant Instruction and the general policies contained within, and determined that this policy falls under the Department of Homeland Security (DHS) categorical exclusion A3. This Instruction will not result in any substantial change to existing environmental conditions or violation of any applicable federal, state, or local laws relating to the protection of the environment. It is the responsibility of the action proponent to evaluate all future specific actions resulting from this policy for compliance with the National Environmental Policy

Act (NEPA), other applicable environmental requirements, and the U.S. Coast Guard Environmental Planning Policy, COMDTINST 5090.1 (series).

11. DISTRIBUTION. No paper distribution will be made of this Instruction. An electronic version will be located in the Coast Guard Directives System Library internally, and if applicable on the Internet at www.dcms.uscg.mil/directives.

12. RECORDS MANAGEMENT CONSIDERATIONS. Records created as a result of this Instruction, regardless of format or media, must be managed in accordance with the records retention schedule located on the Records Resource Center SharePoint Online site: https://uscg.sharepoint-mil.us/sites/cg61/CG611/SitePages/Home.aspx

13. POLICY.

    a. Roles and Responsibilities.

        (1) The Office of Command, Control, Communications, Computers, Cyber and Intelligence Systems (C5I) Program Management (C5I PMO), COMDT CG-68 is designated the CG Program Office for E3. In this capacity, Commandant (CG-68) will plan and budget resources to the C5I Service Center (C5ISC) in support of E3 Program requirements.

        (2) Under the direction of Commandant (CG-68), C5ISC will coordinate with appropriate offices within the Acquisitions Directorate, Commandant (CG-9), the Assistant Commandant for Capability, Commandant (CG-7), all Logistics Service Centers, and appropriate U.S. Navy organizational elements to ensure E3 control and common E3 requirements are united and sustained throughout the entire lifecycle of equipment, systems and platforms.

        (3) C5ISC will assist FORCECOM and Area Command staff as necessary in the development of new instructions and associated Tactics, Techniques, and Procedures (TTP) to ensure awareness of the total EME.

    b. E3 Control. E3 control is considered a structural design requirement at the total platform system level. E3 control must be implemented per Reference (a) which establishes the requirements and procedures for implementing the DoD E3 Program. Adequate E3 control will be engineered into all equipment, systems, and platforms per References (a) through (k). All electrical and electronic systems, subsystems, and equipment, including ordnance containing electrically initiated devices, must be mutually compatible in their intended EME without affecting operational mission readiness.

c. Common E3 Requirements. E3 control, specifications, standards, and handbooks establish the verification requirements, operational performance requirements, and specify developmental and operational test methodologies that must be employed in the development, acquisition and deployment of equipment, systems, and platforms in support of CG missions.

   (1) Each CG project manager or formally established Program Management Office, laboratory, and/or facility is accountable for the implementation and enforcement of E3 requirements and program considerations in the achievement of EMC within its respective area of responsibility.

   (2) All local command doctrine, and associated tactics, techniques and procedures (TTP) must consider E3 in the operational employment of equipment, systems, and platforms.

   (3) E3 must be included in modeling, simulation, and war-gaming to ensure EME situational awareness in the evolution of new instructions, organization, training, materiel, leadership and education of personnel and platform capabilities.

   (4) Equipment, systems, and platforms must meet their EMC operational performance requirements in the intended EME without experiencing any performance degradation from E3.

d. Acquisitions and Sustainment. As per Reference (i), E3 control will apply to all phases of the acquisition process and must be implemented as early as possible in the requirements definition, conceptual refinement, technology development, system development and demonstration, production, and deployment phases for all equipment, systems, and platforms. E3 requirements must be addressed in each phase of Time Compliance Technical Order or Engineering Change Proposal (TCTO/EC) development.

e. Analytical Tools and Databases. Analytical tools and databases for EMC analysis and E3 assessment will be developed and/or maintained to predict, prevent, and correct E3 deficiencies in systems for the intended operational EME and must comply with Reference (j). Where required standards and specifications for EMC do not exist or need correction, they will be developed or updated promptly.

f. Tactics, Techniques, and Procedures (TTP). TTP must consider E3 factors in the operational employment of equipment, systems, and platforms. Consideration of E3 factors in modeling ensures awareness of the total EME in the evolution of new TTP.

g. Unlicensed Devices. The use of Part 15, Title 47 of the Code of Federal Regulations "unlicensed" devices in CG applications is discouraged. Unlicensed devices must cease operations when interfering with an authorized licensed device(s) and must accept the interference to include interference that causes undesirable impact. CG commands considering procurement of an unlicensed device(s) must comply with References (a), (i) and (k).

h. Supporting Capabilities. Capabilities for detecting, reporting, solving, and correcting immediate operationally degrading EMC problems will be developed and maintained. These capabilities require TTP for detecting and reporting electromagnetic incompatibilities and electromagnetic interference (EMI) which degrades mission

effectiveness; identifying sources of the problems and determining necessary corrective actions; and rapid acquisition and implementation of required corrective actions.

14. FORMS/REPORTS. The forms referenced in this Instruction are available on the Coast Guard Standard Workstation or on the Internet: www.dcms.uscg.mil/Our-Organization/Assistant-Commandant-for-C4IT-CG-6/The-Office-of-Information-Management-CG- 61/Forms-Management/.

15. SECTION 508. This Instruction was created to adhere to Accessibility guidelines and standards as promulgated by the U.S. Access Board. If changes are needed, please communicate with the Coast Guard Section 508 Program Management Office at Section.508@uscg.mil.

16. REQUEST FOR CHANGES. Units and individuals may formally recommend changes through the chain of command using the Coast Guard Memorandum. Comments and suggestions from users of this Instruction are welcomed. All such correspondence may be emailed to Commandant (CG-672) at: HQS-SMB-CG-672@uscg.mil.

/CHRISTOPHER A. BARTZ/
Rear Admiral, U.S. Coast Guard
ASSISTANT COMMANDANT FOR C4IT
(CG-6)

Appendix A. Definitions

Appendix A. DEFINITIONS

Electromagnetic Environmental Effects (E3) – The impact of the electromagnetic environment upon the operational capability of military forces, equipment, systems, and platforms.

Electromagnetic Compatibility (EMC) – The ability of systems, equipment, and devices that use the electromagnetic spectrum to operate in their intended environments without causing or suffering unacceptable or unintentional degradation because of electromagnetic radiation or response

Electromagnetic Environment (EME) – The resulting product of the power and time distribution, in various frequency ranges, of the radiated or conducted electromagnetic emission levels encountered by a military force, system, or platform when performing its assigned mission in its intended operational environment.

Electromagnetic Interference (EMI) – Any electromagnetic disturbance, induced intentionally or unintentionally, that interrupts, obstructs, or otherwise degrades or limits the effective performance of electromagnetic spectrum-dependent systems and electrical equipment.