



Defence
Safety Authority

DSA 03.OME Part 1: Defence Code of Practice (DCOP) 111

Electromagnetic Environmental Effects (E3)



Version Record

Version 2.0

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Version changes: see amendment table.

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Preface

Requests for Change

1. Proposed changes, recommendations, or amendments to DOSR Regulations and Guidance can be submitted to the DOSR Regulations and Publications Team:

Email Address: dsa-dosr-prg@mod.gov.uk

Postal Address: Juniper #5004, Level 1, Wing 4, Abbey Wood North, Bristol, BS34 8QW

2. Any post and grammar change proposals can be approved or rejected by the DOSR without involvement of the associated Working Group.

3. Technical change proposals should be submitted to the associated Working Group for review and approval or rejection.

4. When incorporating changes, care is to be taken to maintain coherence across regulations.

5. Changes effecting Risk to Life will be published immediately. Other changes will be incorporated as part of routine reviews.

Review Process

6. The DOSR team will ensure OME Regulations remain fit for purpose by conducting regular reviews through the DOSR Governance Committees, consulting with MOD Stakeholders and other Defence Regulators as necessary on interfaces and where there may be overlaps of responsibility.

Further Advice and Feedback

7. For further information about any aspect of this document, or questions not answered within the subsequent sections, or to provide feedback on the content, contact the DOSR Regulations and Publications Team.

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Amendment Record

Version	Section	Para	Amendment Summary	Agreed	Date
1.0	all	all	Document created	Regs-Pubs-2	Jun 2025
2.0	1	Reg	Regulation removed	Regs-Pubs-2	Feb 2026

DSA 03.OME DCOP 111: Electromagnetic Environmental Effects (E3)

Background

1. The electromagnetic environment that OME may be subjected to will depend on the manufacture to target or disposal sequence (MTDS) encountered through the lifecycle of the product. As such, it is crucial to understand the response of OME to the electromagnetic effects determined to be credibly encountered during the lifecycle. The electromagnetic environmental effects of concern are:

- a. Hazards of Electromagnetic Radiation to Ordnance (HERO)
- b. Electrostatic Discharge (ESD)
- c. Electromagnetic Pulse (EMP)
- d. Lightning (Direct and Indirect)
- e. Electromagnetic Compatibility with connected and adjacent systems (EMC)
- f. Radio Frequency Directed Energy Weapons (RFDEW)
- g. Induced Transient Energy
- h. Low Frequency Static and Magnetic Fields

2. These hazards can change over time, due to the electromagnetic environments that OME is stored and operated in. Furthermore, these risks can evolve due to ageing of the OME, changes in the electromagnetic environment, and changes in the use cases of materiel.

3. The Accountable Person should demonstrate that they understand the risks posed by the electromagnetic environment to the OME and are managing the risks to be ALARP and tolerable throughout the entire MTDS.

Electromagnetic Environmental Effects Acceptable Means of Compliance

4. This DCOP provides a framework to ensure that suitable and sufficient evidence is available to demonstrate that a tolerable risk level against identified electromagnetic environments and the determined susceptibility of the OME has been achieved.

5. The following are the acceptable internationally recognised standards relevant to the design and test of OME against electromagnetic environmental effects. Demonstrating conformance against the relevant standards is expected to be

sufficient to claim compliance against the regulation, subject to confirmation that the Configuration, Role, and Environment (CRE) as tested is valid for UK service:

- a. Defence Standard 59-114: Safety Principles for Electrical Circuits in Systems Incorporating Explosive Components
 - b. Defence Standard 59-411: Electromagnetic Compatibility
 - c. Defence Standard 07-085: Design Requirements for Weapons and Associated Systems
 - d. STANAG 4370: Environmental Testing
 - (1) AECTP-100: Environmental Guidelines for Defence Materiel
 - e. STANAG 4868: Electrical and Electromagnetic Environmental Conditions and Test Methods
 - (1) AECTP-250: Electrical and Electromagnetic Environmental Conditions
 - (2) AECTP-500: Electromagnetic Environmental Effects Tests and Verification
 - f. STANAG 4297 / AOP-15: Guidance on the Assessment of the Safety and Suitability for Service of non-Nuclear Munitions for NATO Armed Forces
6. DSA 02.OME allows for an Alternative Acceptable Means of Compliance (AAMC) to be used if agreed and approved by DOSR (DSA-DOSR-PERMISSIONS@mod.gov.uk), which should be discussed at the earliest opportunity in the project lifecycle.

Demonstrating Compliance

7. Compliance should be demonstrated as a coherent case detailing the claims, argument, and evidence (CAE) against the latest edition of the applicable standards as identified above as AMC. The CAE should include (as a minimum) the following to ensure the best chances of the best possible outcome of the task:
- a. A comprehensive compliance matrix against the requirements of the applicable standard(s).
 - b. A rationale should be provided for any requirements which are not applicable to the system.
 - c. Compliance determinations against the remaining applicable requirements should be provided with justification including references to the relevant supporting documentation.
8. The UK E3 National Authority for OME is the DOSR who have delegated the DE&S Weapons Technical Services (WTS) Electromagnetic Environmental Effects (E3) Team (DES-WTS-E3@mod.gov.uk) to undertake this role on their behalf.

9. The NATO E3 STANAGs include requirements to engage with a National Authority to conduct the following:
 - a. Assessment and determination of compliance, qualification and/or characterisation of a product and/or a process to established standards.
 - b. Tailoring the requirements where alternative and/or equivalent acceptable evidence has been demonstrated.
 - c. Assessment and acceptance of design proposals.
 - d. Obtaining and sharing compliance, qualification and/or characterisation assessments including ant non-compliances and waivers with other NATO nations.
10. Any technical queries regarding E3 to OME should be directed to WTS E3, or another demonstrably competent organisation.