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BS IEC 60533:2015



BSI Standards Publication

Electrical and electronic installations in ships — Electromagnetic compatibility (EMC) — Ships with a metallic hull

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This British Standard is the UK implementation of IEC 60533:2015. It supersedes BS IEC 60533:1999 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee JPEL/18, Electrical installations of ships and of mobile and fixed offshore units.

A list of organizations represented on this committee can be obtained on request to its secretary.

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INTERNATIONAL STANDARD

Electrical and electronic installations in ships – Electromagnetic compatibility (EMC) – Ships with a metallic hull

INTERNATIONAL
ELECTROTECHNICAL
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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references.....	8
3 Terms and definitions	9
4 General	14
5 EMC test plan	15
5.1 Objective.....	15
5.2 Configuration of equipment under test (EUT)	15
5.2.1 General	15
5.2.2 Assembly of EUT	15
5.2.3 EUT interconnecting cables.....	15
5.2.4 Auxiliary equipment.....	15
5.2.5 Cabling and grounding	15
5.3 Test pre-conditioning.....	16
5.3.1 Operational conditions	16
5.3.2 Environmental conditions	16
5.3.3 Test software.....	16
5.4 Acceptance criteria.....	16
5.5 Scope of EMC testing.....	16
6 Emission requirements.....	17
6.1 Conditions during the emission tests	17
6.2 Emission limits	19
6.2.1 General	19
6.2.2 Emission limits for equipment installed in the deck and bridge zone.....	21
6.2.3 Emission limits for equipment installed in the general power distribution zone	21
6.2.4 Emission limits for equipment installed in the special power distribution zone	22
7 Immunity requirements.....	22
7.1 Conditions during the immunity tests	22
7.2 Minimum immunity requirements	22
7.3 System aspects.....	24
8 Test results and test report	24
Annex A (informative) General EMC planning procedures	25
A.1 Overview.....	25
A.2 General procedures.....	25
A.3 EMC management.....	25
A.3.1 General	25
A.3.2 EMC advisory group.....	25
A.3.3 EMC management tasks	26
A.3.4 Rough analysis	26
A.3.5 EMC requirements for equipment	27
A.3.6 EMC interface agreements.....	27
A.3.7 Installation recommendations.....	27
A.3.8 Assessment of conformity with EMC regulations.....	27

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A.3.9	Additional measures	28
A.4	Full EMC analysis.....	28
A.4.1	General	28
A.4.2	Electromagnetic interference matrix (EMI matrix)	28
A.4.3	Collection of data	28
A.4.4	Data processing.....	29
A.4.5	Completing the matrix	33
A.4.6	Calculations	34
A.4.7	Conclusions to be drawn from the matrix	34
A.5	Additional EMC measures	34
A.5.1	General	34
A.5.2	Limitation of electromagnetic emission	34
A.5.3	Limitation of electromagnetic influences	35
A.6	EMC testing	35
A.6.1	Equipment testing	35
A.6.2	System testing	35
Annex B (informative)	Mitigation guidelines	37
B.1	Applicability.....	37
B.2	General technical measures	37
B.2.1	General	37
B.2.2	Equipment and installation groups.....	38
B.2.3	Shielding.....	38
B.2.4	Grounding.....	38
B.2.5	Cable routing	40
B.2.6	Filtering and overvoltage protection.....	42
B.3	Special measures for equipment groups A to G	44
B.3.1	General	44
B.3.2	Measures for group A.....	44
B.3.3	Measures for group B.....	45
B.3.4	Measures for group C	46
B.3.5	Measures for group D	47
B.3.6	Measures for group E.....	47
B.3.7	Measures for group F.....	49
B.3.8	Measures for group G	50
B.4	Organizational measures.....	51
B.4.1	On-board operation	51
B.4.2	Maintenance and repair.....	51
Annex C (informative)	EMC test report	53
Bibliography	54
Figure 1	– Examples for ports	13
Figure 2	– Schematic diagram of zones (example).....	20
Figure A.1	– EMC analysis, flow chart	31
Figure A.2	– EMC analysis, EMI matrix.....	32
Figure A.3	– EMC analysis, frequency survey	33
Figure A.4	– EMC analysis, level survey	33
Table 1	– Equipment test matrix	18

This is a preview of "BS IEC 60533:2015". [Click here to purchase the full version from the ANSI store.](#)

Table 2 – Emission limits (deck and bridge zone)	21
Table 3 – Emission limits (general power distribution zone)	22
Table 4 – Minimum immunity requirements for equipment.....	23
Table A.1 – EMC-matrix, explanation of symbols	34
Table B.1 – Signal types and cable categories.....	41

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRICAL AND ELECTRONIC INSTALLATIONS IN SHIPS – ELECTROMAGNETIC COMPATIBILITY (EMC) – SHIPS WITH A METALLIC HULL

FOREWORD

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International Standard IEC 60533 has been prepared by IEC technical committee 18: Electrical installations of ships and of mobile and fixed offshore units.

This third edition cancels and replaces the second edition, published in 1999. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- Introduction has been supplemented;
- scope and title have been modified to limit the application of the standard to installations in ships with metallic hulls only;
- the normative references have been updated;
- further explanation for *in-situ* testing has been given in 5.1;
- numbering of CISPR-Standards in Tables 1, 2 and 3 has been updated;

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- title of Annex B has been changed;
- requirements on cable routing in Annex B have been amended;
- new Annex C EMC test report has been added.

The text of this standard is based on the following documents:

FDIS	Report on voting
18/1460/FDIS	18/1471/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this standard may be issued at a later date.

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INTRODUCTION

Electrical installations of ships with electric and/or electronic systems need to operate under a wide range of environmental conditions.

The control of undesired electromagnetic emission ensures that no other device on board will be unduly influenced by the equipment under consideration. Suitable limits are specified.

On the other hand, the equipment needs to function without degradation in the normal electromagnetic environment. The limit values for immunity, specified in this International Standard, have been chosen under this assumption. Equipment which is tested and installed in accordance with this International Standard meets the relevant IMO requirements. Special risks, for instance lightning strikes, transients from the operation of circuit breakers and electromagnetic radiation from radio transmitters are also covered.

Complex electric and/or electronic systems require EMC planning in all phases of design and installation, considering the electromagnetic environment, any special requirements and the equipment performance.

This third edition of IEC 60533 is applicable to electromagnetic compatibility of all electrical and electronic installations in ships with metallic hull.

It is based on the assumption that the ship is constructed in such a way that metallic hull and structure parts will significantly attenuate electromagnetic disturbance from the outer deck environment to the inner deck environment and vice versa.

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ELECTRICAL AND ELECTRONIC INSTALLATIONS IN SHIPS – ELECTROMAGNETIC COMPATIBILITY (EMC) – SHIPS WITH A METALLIC HULL

1 Scope

This International Standard specifies minimum requirements for emission, immunity and performance criteria regarding electromagnetic compatibility (EMC) of electrical and electronic equipment for ships with metallic hull. Additional or divergent requirements for ships with non-metallic hull will be given in a future International Standard (IEC 62742).

This International Standard assists in meeting the relevant EMC requirements as stated in SOLAS 74, Chapter IV, Regulation 6 and Chapter V, Regulation 17. Reference to this International Standard is made in IMO Resolution A.813(19).

The normative part of this International Standard has been prepared as a product family EMC standard.

This International Standard further gives guidelines and recommendations on the measures to achieve EMC in the electrical and electronic installations of the following equipment groups:

- a) group A: maritime navigation and radio communication equipment and systems;
- b) group B: power generation and conversion equipment;
- c) group C: equipment operating with pulsed power;
- d) group D: switchgear and controlgear;
- e) group E: intercommunication and signal processing equipment and control systems;
- f) group F: non-electrical items and equipment;
- g) group G: integrated systems.

The basic EMC standard for groups A and C is IEC 60945. The EMC requirements according to IEC 60945 apply additionally for

- bridge mounted equipment;
- equipment in close proximity to receiving antennas;
- equipment capable of interfering with the safe navigation of the ship and with radio communication.

Effects on humans, like exposure to electromagnetic fields, and basic safety requirements such as protection against electric shock and dielectric strength tests for equipment are not within the scope of this International Standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050 (all parts), *International Electrotechnical Vocabulary* (available at: www.electropedia.org)