INTERNATIONAL STANDARD

IEC 60533

Second edition
1999-11

Electrical and electronic installations in ships – Electromagnetic compatibility

Installations électriques et électroniques à bord des navires – Compatibilité électromagnétique

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Consolidated publications

Consolidated versions of some IEC publications including amendments are available. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

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- **IEC web site***
- **Catalogue of IEC publications**
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- **IEC Bulletin**
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Terminology, graphical and letter symbols

For general terminology, readers are referred to IEC 60050: *International Electrotechnical Vocabulary* (IEV).

For graphical symbols, and letter symbols and signs approved by the IEC for general use, readers are referred to publications IEC 60027: *Letter symbols to be used in electrical technology*, IEC 60417: *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets* and IEC 60617: *Graphical symbols for diagrams*.

* See web site address on title page.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRICAL AND ELECTRONIC INSTALLATIONS IN SHIPS – ELECTROMAGNETIC COMPATIBILITY

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60533 has been prepared by IEC technical committee18: Electrical installations of ships and of mobile and fixed offshore units.

This second edition cancels and replaces the first edition, published in 1977, and constitutes a technical revision.

The following changes have been made:

– Section 7 "Methods of measurement and suppression techniques" has been deleted. The methods of measurement have been aligned with CISPR 16-1, CISPR 16-2 and the IEC 61000 series. The requirements of IEC 60945 and IEC 60092-101, IEC 60092-204 and IEC 60092-504 have been incorporated as far as possible.
– A new annex A "IMO Resolution A.813 (19) has been added as an informative part.
– A new annex B "General EMC planning procedures" has been prepared as an informative part of this standard.
– A new annex C "Measures to achieve EMC" has been prepared as an informative part of this standard. It contains guidelines and recommendations for organizational and technical measures to achieve EMC.
– Equipment and installation groups A to E have been updated to include "non-electrical items and equipment" and "integrated systems" in annex C.
– Chapter II "Vital interference suppression components" has been deleted. This topic is now sufficiently described in the referenced IEC standards given in annex C.

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

FDIS	Report on voting
18/870/FDIS	18/874/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 3.

Annexes A, B and C are for information only.

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

The committee has decided that this publication remains valid until 2004-01.

At this date, in accordance with the committee's decision, the publication will be

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

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 standard, have been chosen under this assumption. Equipment which is tested and installed in accordance with this 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 second edition is applicable to electromagnetic compatibility of all electrical and electronic installations in ships.