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Maritime navigation and radiocommunication equipment and systems –

Part 1:
Shipborne automatic transponder system installation using VHF digital selective calling (DSC) techniques – Operational and performance requirements, methods of testing and required test results

Matériels et systèmes de navigation et de radiocommunication maritimes –

Partie 1:
Installation de systèmes de répondeur automatique de bord de navires utilisant des techniques d'appel sélectif numérique en ondes métriques – Exigences d'exploitation et de fonctionnement, méthodes d'essai et résultats d'essai exigés

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS –

Part 1: Shipborne automatic transponder system installation using VHF digital selective calling (DSC) techniques – Operational and performance requirements, methods of testing and required test results

FOREWORD

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International Standard IEC 61993-1 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

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

FDIS	Report on voting
80/212/FDIS	80/222/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.

Annex B is an integral part of the standard.

Annexes A and C are for information only.

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

INTRODUCTION

In 1995 the IMO instigated work on the development of performance standards for a shipborne automatic identification system (AIS) using VHF digital selective calling (DSC) techniques.

These performance standards were developed into a draft resolution which was expected to be adopted by the IMO Maritime Safety Committee. However, there were objections to this on the grounds that some requirements for AIS were not met by the draft resolution.

The outcome has been that IMO has now developed further performance standards for a “Universal AIS” as a resolution which was adopted by the IMO Maritime Safety Committee in May 1998 as MSC. 74(69) annex 3.

During this period, some countries have gone ahead and implemented operational systems based upon the original IMO draft performance standards for AIS. There is therefore a need for a technical testing standard for such equipment.

At their plenary meeting in September 1997, technical committee 80 came to the following decisions:

– a draft technical standard which had been prepared on the basis of the original IMO performance standards would go ahead with the reference 61993-1, but would not directly refer to any IMO resolution for AIS;
– work would commence at the earliest opportunity on preparing a technical standard for a “Universal AIS” based rigorously upon the IMO resolution MSC.74(69) and a new recommendation ITU-R M.1371. This standard would have the reference 61993-2.

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS –

Part 1: Shipborne automatic transponder system installation using VHF digital selective calling (DSC) techniques – Operational and performance requirements, methods of testing and required test results

1 Scope

This part of IEC 61993 specifies the performance requirements, technical characteristics, operational requirements, methods of testing and required test results for shipborne automatic transponder system installations using VHF digital selective calling (DSC) techniques and is associated with IEC 60945. When a requirement in this standard is different from IEC 60945, the requirement in this standard shall take precedence.

The shipborne transponder installation is intended to assist in the efficient operation of ship-reporting systems and vessel traffic services (VTS) by enabling operators to identify, poll and automatically locate and track ships when they are approaching, entering and sailing within the limits of a ship-reporting system.

The system may also be used for the identification of ships by a ship and ships by aircraft. A description of the system is given in annex C.

This standard

– incorporates the technical characteristics included in ITU-R Recommendation M.825 for transponder systems using DSC and the technical characteristics included in ITU-R Recommendation M.489 for VHF radiotelephone equipment;

– incorporates the technical characteristics of DSC equipment and the operational procedures for its use contained in Recommendations ITU-R M.493 and ITU-R M.541;

– incorporates applicable parts of the performance standards of IMO Resolution A.803 for shipborne VHF radio installations;

– takes account of IMO Resolution A.694 for general requirements; and

– conforms with the International Telecommunication Union (ITU) Radio Regulations where applicable.

This standard for a transponder system is not intended to meet the requirements for a universal automatic identification system (AIS), as detailed in IMO Resolution MSC.74(69) annex 3.

NOTE – All text in this standard whose meaning complies with that in the normative references, namely IMO Resolution A.803(19) and ITU-R Recommendations M.825, M.489, M.493 and M.541 is followed by a reference to the source (number of IMO Resolution or ITU-R Recommendation and paragraph number) in brackets.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61993. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However parties to agreements based on this part of IEC 61993 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative documents referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60945:1996, *Maritime navigation and radiocommunication equipment and systems – General requirements, methods of testing and required test results*

IEC 61097-3:1994, *Global maritime distress and safety system (GMDSS) – Part 3: Digital selective calling (DSC) equipment – Operational and performance requirements, methods of testing and required testing results*

IEC 61097-7:1996, *Global maritime distress and safety system (GMDSS) – Part 7: Shipborne VHF radiotelephone transmitter and receiver – Operational and performance requirements, methods of testing and required test results*

IEC 61162 (all parts), *Maritime navigation and radiocommunicaation equipment and systems – Digital interfaces*

IMO International Convention for Safety of Life at Sea (SOLAS) 1974, as amended

IMO Resolution A.694:1991, *General requirements for shipborne radio equipment forming part of the global maritime distress and safety system (GMDSS) and for electronic navigational aids*

IMO Resolution A.803:1995, *Performance standards for shipborne VHF radio installations capable of voice communication and digital selective calling*

IMO MSC.74(69):1998, *annex 3 – Performance standards for an Universal shipborne automatic identification system (AIS)*

ITU Radio Regulations:1997

ITU-R Recommendation M.489-2:1995, *Technical characteristics of VHF radiotelephone equipment operating in the maritime mobile service in channels spaced by 25 kHz*

ITU-R Recommendation M.493-9:1997, *Digital selective-calling system for use in the maritime mobile service*

ITU-R Recommendation M.541-8:1997, *Operational procedures for the use of digital selective calling (DSC) equipment in the maritime mobile service*

ITU-R Recommendation M.825-2:1997, *Characteristics of a transponder system using digital selective-calling techniques for use with vessel traffic services and ship-to-ship identification*

ITU-R Recommendation M.1371:1998, *Technical characteristics for a universal shipborne automatic identification system using time division multiple access in the VHF maritime mobile band*

ITU-T Recommendation V.11:1996, *Electrical characteristics for balanced double-current interchange circuits operating at data signalling rates up to 10 Mbit/s*

ITU-T Recommendation V.24:1996, *List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE)*

ITU-T Recommendation V.28:1993, *Electrical characteristics for unbalanced double-current interchange circuits*