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Maritime navigation and radiocommunication equipment and systems – VHF radiotelephone equipment incorporating Class "D" Digital Selective Calling (DSC) – Methods of testing and required test results

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS –

VHF radiotelephone equipment incorporating Class "D" Digital Selective Calling (DSC) – Methods of testing and required test results

FOREWORD

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International Standard IEC 62238 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
80/352/FDIS	80/359/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 2005. At this date, the publication will be

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- withdrawn;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

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

INTRODUCTION

Equipment designed to this International Standard is intended to provide compatibility with the Global Maritime Distress and Safety System (GMDSS) for fitting to vessels to which the International Convention on the Safety of Life at Sea (SOLAS) 1974 does not apply. Such vessels are typically small commercial vessels, pleasure vessels, fishing vessels, etc.

The equipment does not meet all the requirements of the International Maritime Organization (IMO) for SOLAS vessels. However, it does meet the IMO guidelines for non-SOLAS vessels in that it is capable of maintaining a listening watch on VHF channel 16 simultaneously with a watch on DSC channel 70.

The equipment is further capable of both transmitting and receiving distress alerts by DSC on channel 70, thus providing for the safety of own ship together with the ability to assist other ships in distress.

The emphasis in this standard is on simplicity of operation. The VHF equipment uses DSC controllers based on Class D, which will probably be integrated in the VHF radio equipment but in any event will have the capability to select the radio channels automatically. An input for position information in IEC 61162-1 format is a requirement and the use of automatic position updating is to be encouraged.

Distress calls may only be made by means of a protected dedicated button. Furthermore, channel 16 is required to be selected automatically after transmission of a distress or urgency call.

Position is included in the distress call either through being entered manually or with an internal GPS or an external GPS. Moreover, a DSC expansion sentence is sent after a distress alert to enhance the position resolution to better than 1 nautical mile.

Routine calls require only the input of the called MMSI and a channel number in the case of a ship to ship call. For incoming calls, the radio should be easily configured by the operator to either select automatically or manually the channel number given in the message. Means are provided for the user to enter a temporary group MMSI to permit calling amongst a group of related vessels.

The intended aim of designers of equipment to this international standard is that it should take no longer than 10 min for an operator to learn to use the equipment. This is achieved by the provision of clear simple menus with the most frequently used functions at the top of the menu tree.

As an aid to safety, it is a requirement, in order to prevent the transmission of DSC calls from an unidentifiable ship, that DSC operation is inhibited on a new equipment until the vessel's own MMSI has been entered.

Equipment designed to this standard is fitted with a 50 Ω external antenna socket or connector for use on board vessels and operates in the bands between 156 MHz and 174 MHz allocated to the maritime mobile service.

Equipment designed to this standard will not necessarily have exposed metal work which is isolated from the power supply. Earthing exposed metal work may cause a terminal of the source of electrical energy to be earthed.

MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS –

VHF radiotelephone equipment incorporating Class “D” Digital Selective Calling (DSC) – Methods of testing and required test results

1 Scope

This International Standard covers the minimum requirements for general communication for shipborne fixed installations using a VHF radiotelephone incorporating class “D” Digital Selective Calling.

These requirements include the relevant provisions of the ITU Radio Regulations, ITU-R Recommendations M.493-10 where class D is defined, and incorporate the relevant guidelines of the IMO as detailed in MSC/Circ. 803, MSC/Circ. 862 and Resolution MSC.131(75).

This standard also specifies technical characteristics, methods of measurement and required test results.

Recommended standards for equipment intended to work in high level electromagnetic environments are described and included in annex D.

2 Normative references

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

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

IEC 61162-1, *Maritime navigation and radiocommunication equipment and systems – Digital interfaces – Part 1: Single talker and multiple listeners*

IMO Resolution MSC.131(75):2002, *Maintenance of a continuous listening watch on VHF channel 16 by SOLAS ships whilst at sea and installation of VHF DSC facilities on non-SOLAS ships*

IMO MSC/Circ.803: *Participation of non-SOLAS ships in the Global Maritime Distress and Safety System (GMDSS)*

IMO MSC/Circ.862: *Clarifications of certain requirements in IMO performance standards for GMDSS equipment*

ITU Radio Regulations, Appendix S18: 1998, *Table of transmitting frequencies in the band 156 - 174 MHz for stations in the maritime mobile service*

ITU-R Recommendation M.493-10, *Digital selective-calling system for use in the maritime mobile service*

ITU-R Recommendation M.821-1: 1997, *Optional expansion of the digital selective-calling system for use in the maritime mobile sevice*

ITU-R Recommendation M.825-3, *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.1084-4: 2001, *Interim solutions for improved efficiency in the use of the band 156 -174 MHz by stations in the maritime mobile service*

ITU-R Recommendation M.1371-1: 2001, *Technical characteristics for a universal shipborne automatic identification system using time division multiple access in the VHF maritime mobile band*

ITU-R Recommendation SM.332-4, *Selectivity of receiver*

ITU-T Recommendation E.161, *Arrangement of digits, letters and symbols on telephones and other devices that can be used for gaining access to a telephone network*

ITU-T Recommendation P.53: 1994, *Psophometer for use on telephone-type circuits*