



SLOVENSKI STANDARD

oSIST prEN IEC 63269:2021

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Pomorska navigacijska in radiokomunikacijska oprema in sistemi - Naprave za določanje lokacije preživelih v morju (naprave za reševanje ljudi iz vode) - Minimalne zahteve, metode preskušanja in zahtevani rezultati preskusov

Maritime navigation and radiocommunication equipment and systems - Maritime survivor locating devices (Man Overboard Devices) - Minimum requirements, methods of testing and required test results

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13.200	Preprečevanje nesreč in katastrof	Accident and disaster control
47.020.99	Drugi standardi v zvezi z ladjedelništvom in konstrukcijami na morju	Other standards related to shipbuilding and marine structures

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IEC TC 80 : MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND SYSTEMS	
SECRETARIAT: United Kingdom	SECRETARY: Mr Kim Fisher
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
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TITLE: Maritime navigation and radiocommunication equipment and systems – Maritime survivor locating devices (Man Overboard Devices) – Minimum requirements, methods of testing and required test results

PROPOSED STABILITY DATE: 2025

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND
SYSTEMS – MARITIME SURVIVOR LOCATING DEVICES (MAN
OVERBOARD DEVICES) – MINIMUM REQUIREMENTS, METHODS OF
TESTING AND REQUIRED TEST RESULTS**

FOREWORD

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International Standard IEC 63269 has been prepared by IEC technical committee 80: Maritime navigation and radiocommunication equipment and systems.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

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

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

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

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

The National Committees are requested to note that for this document the stability date is 2025.

THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE.

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1 **MARITIME NAVIGATION AND RADIOCOMMUNICATION EQUIPMENT AND**
 2 **SYSTEMS – MARITIME SURVIVOR LOCATING DEVICES (MAN**
 3 **OVERBOARD DEVICES) – MINIMUM REQUIREMENTS, METHODS OF**
 4 **TESTING AND REQUIRED TEST RESULTS**
 5
 6
 7

8 **1 Scope**

9 This document specifies the minimum requirements for aspects related to operation,
 10 construction, documentation, methods of testing and required test results for ITU-R M.2135
 11 AMRD Group A man overboard (MOB) devices intended for alerting and locating purposes, as
 12 defined by IMO and in accordance with ITU-R M.493 Class-M. This document consists of three
 13 modules where the first module, Module A, covers general requirements and aspects. Further
 14 Module B covers AIS technologies and Module C covers DSC technologies that are required
 15 within MOB equipment.

16 This document incorporates the technical characteristics included in applicable ITU
 17 recommendations. Where applicable, it also takes into account the ITU Radio Regulations. This
 18 document takes into account other associated IEC international standards and existing national
 19 standards, as applicable.

20 This document defines the requirements for coexistence of AIS and DSC technology
 21 incorporated within a single equipment.

22 **2 Normative references**

23 The following documents are referred to in the text in such a way that some or all of their content
 24 constitutes requirements of this document. For dated references, only the edition cited applies.
 25 For undated references, the latest edition of the referenced document (including any
 26 amendments) applies.

27 IMO Resolution MSC.81(70), *Revised recommendation on testing of life-saving appliances*

28 IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

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

31 IEC 61108-1, *Maritime navigation and radiocommunication equipment and systems – Global
 32 navigation satellite systems (GNSS) – Part 1: Global positioning system (GPS) – Receiver
 33 equipment – Performance standards, methods of testing and required test results*

34 IEC 61108-2, *Maritime navigation and radiocommunication equipment and systems – Global
 35 navigation satellite systems (GNSS) – Part 2: Global navigation satellite system (GLONASS) -
 36 Receiver equipment - Performance standards, methods of testing and required test results*

37 IEC 61108-3, *Maritime navigation and radiocommunication equipment and systems – Global
 38 navigation satellite systems (GNSS) – Part 3: Galileo receiver equipment - Performance
 39 requirements, methods of testing and required test results*

40 IEC 61108-5, *Maritime navigation and radiocommunication equipment and systems – Global
 41 Navigation Satellite Systems (GNSS)- Part 5: BeiDou Navigation Satellite System (BDS) –
 42 receiver equipment – performance equipment – performance requirements, methods of testing
 43 and required test results*

- 44 ITU-R M.493-15, *Digital selective-calling system for use in the maritime mobile service*
- 45 ITU-R M.585, *Assignment and use of identities in the maritime mobile service*
- 46 ITU-R M.1371, *Technical characteristics for an automatic identification system using time*
47 *division multiple access in the VHF maritime mobile band*
- 48 ITU-T Recommendation O.153, *Basic parameters for the measurement of error performance at*
49 *bit rates below the primary rate*
- 50 United Nations *Recommendations on the Transport of Dangerous Goods: Manual of Tests and*
51 *Criteria, 7th Revised Edition, PART III, Section 38.3 (ST/SG/AC.10/11/Rev.7), as amended.*

52 **3 Terms, definitions and abbreviated terms**

53 For the purposes of this document, the following terms, definitions and abbreviated terms apply.

54 ISO and IEC maintain terminological databases for use in standardization at the following
55 addresses:

- 56 • IEC Electropedia: available at <http://www.electropedia.org/>
- 57 • ISO Online browsing platform: available at <http://www.iso.org/obp>

58 **3.1 Terms and definitions**

59 **3.1.1**

60 **freshwater**

61 domestic tap water

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62 **3.1.2**

63 **activation**

64 initial triggering of the MOB device i.e. both parts of the two-step procedure are performed

65 **3.1.3**

66 **active mode**

67 activated mode, transmitting in an emergency situation

68 **3.1.4**

69 **armed**

70 enabling the equipment to be activated manually or automatically

71 **3.1.5**

72 **buoyant lanyard**

73 floating string suitable for attaching the MOB to the user's personal protective equipment

74 **3.1.6**

75 **closed loop**

76 individual transmission to own vessel

77 **3.1.7**

78 **default**

79 value selected or an action taken by the equipment software in the absence of any operator
80 input

81 **3.1.8**

82 **GNSS data**

83 UTC time, position COG and SOG from the GNSS

84 **3.1.9**
 85 **open loop**
 86 transmitting to all ships (broadcast)

87 **3.1.10**
 88 **symbol (as part of the DSC sentence)**
 89 7 binary bits of a 10 bit DSC word that have the information content

90 **3.2 Abbreviations**

91	AIS	Automatic Identification System
92	BER	Bit Error Ratio
93	COG	Course Over Ground
94	CRC	Cyclic Redundancy Check
95	DSC	Digital Selective Calling
96	EIRP	Effective Isotropic Radiated Power
97	EPFS	Electronic Position Fixing System
98	EUT	Equipment Under Test
99	FSK	Frequency Shift Keying
100	GMSK	Gaussian Minimum Shift Keying
101	GNSS	Global Navigation Satellite System
102	ID	Identity
103	IMO	International Maritime Organization
104	ITU-R	International Telecommunication Union Radiocommunication sector
105	ITU-T	International Telecommunication Union Telecommunication sector
106	MMSI	Maritime Mobile Service Identity
107	MOB	Man OverBoard
108	NRZI	Non Return to Zero, Inverted
109	RAIM	Receiver Autonomous Integrity Monitoring
110	RF	Radio Frequency
111	SINAD	(Signal+Noise+Distorsion) to (Noise+Distorsion)
112	SOG	Speed Over Ground
113	SOTDMA	Self-Organized Time Division Multiple Access
114	UTC	Coordinated Universal Time
115	VDL	VHF Data Link
116	VHF	Very High Frequency
117	WGS 84	World Geodetic System 1984

118 **4 Module A – Common requirements and related tests**

119 **4.1 Operational requirements**

120 **4.1.1 Activation**

121 (See 4.10.2.1.1)

122 The MOB device shall be:

- 123 a) capable of being easily activated by unskilled personnel;
- 124 b) fitted with means to prevent inadvertent activation;

125 c) capable of manual activation and deactivation.

126 **4.1.2 Controls**

127 (See 4.10.2.1.2)

128 To avoid inadvertent activation, the equipment shall be activated by the use of two simple, but
129 independent mechanical actions, neither of which on its own shall activate the equipment. The
130 second mechanical action may be replaced by an immersion sensor. Where the second action
131 is replaced by an immersion sensor then the first action shall ensure the equipment is armed
132 for automatic activation when submerged.

133 After activation it shall be simple to deactivate the equipment and the means to deactivate the
134 equipment shall be clearly marked. Means shall be provided to avoid inadvertent deactivation.

135 NOTE Means for preventing inadvertent deactivation can be for example prolonged push of deactivation button,
136 pressing two buttons simultaneously or a procedure requiring two steps.

137 All controls necessary for the correct operation of the equipment shall be so designed that
138 personnel wearing appropriately sized neoprene gloves having a thickness of minimum 5 mm
139 can activate or deactivate the equipment.

140 The switch that operates any self-test function shall be so designed that it returns automatically
141 when released. Activation of the self-test function shall reset automatically after completion of
142 the test including any required transmission.

143 **4.1.3 Indicators**

144 (See 4.10.2.1.3)

145 The MOB device shall be equipped with a means which is either visual or audible, or both visual
146 and audible, to indicate its operational status.

147 The equipment shall be provided with a visual and/or audible indication that equipment is
148 activated and that signals are being emitted. The indicator should be sufficiently bright to be
149 seen by the user in bright daylight.

150 NOTE Bright daylight in this context is considered to be clear sky with the indicator of the MOB device observed
151 in direction away from the sun. Shadowing the indicator from the direct light from sun, for example by hand, is
152 expected.

153 Any audible indicator should have a distinctive alarm tone with a minimum sound output of
154 85 dBA when measured 10 cm from the equipment.

155 The indicator(s) shall clearly distinguish between AIS and DSC transmissions and the following
156 states:

157 when active:

- 158 a) the equipment has been activated;
- 159 b) the equipment is transmitting without GNSS data;
- 160 c) the equipment is transmitting with GNSS data;
- 161 d) equipment has received a DSC acknowledgement and the DSC transmitter has been
162 deactivated remotely;
- 163 e) the equipment is inactive.

164

165 when self-testing:

- 166 f) the equipment is undergoing self-test and is transmitting in self-test mode;

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with a means which is either visual or audible, or both visual
and audible, to indicate its operational status.
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- 167 g) the equipment indicates correct reception of the DSC acknowledgement in self-test mode;
168 h) the equipment has completed a self-test or has been deactivated manually;
169 i) the equipment cannot complete a DSC test because it has not been programmed with a
170 destination MMSI;
171 j) the equipment cannot complete a test because it could not obtain a GNSS position.

172 4.1.4 Water activation function

173 (See 4.10.2.1.4, 4.10.2.1.5)

174 If provided, the water activation function shall be protected against inadvertent activation from
175 salt-water spray or rain. The act of dropping the equipment into water, as part of the drop test
176 in IEC 60945, shall not cause the equipment to activate when the equipment has not been
177 armed.

178 4.1.5 Self-test

179 (See 4.10.2.1.6)

180 The equipment shall include a functional self-test that is functional throughout the operating
181 temperature range. Testing of AIS, GNSS and DSC functionality may be combined in one test
182 or as individual test modes.

183 The equipment shall have self-test pass/fail indicator(s) which shall correctly identify any failure
184 conditions that have been detected by any of the self-test functions. The self-test pass/fail
185 indicator shall also clearly indicate that there is insufficient battery capacity to meet the stated
186 operational lifetime. It shall not be possible for the user to reset this indication.

187 During self-test only recognized test messages as defined in the appropriate ITU-R
188 recommendations shall be transmitted.

189 The means of activating the self-test feature should prevent the test signal from being
190 continuously activated.

191 4.1.6 Automatic shutdown

192 (See 4.10.2.1.7)

193 An automatic transmitter shutdown shall be provided to ensure that transmission does not
194 continue for more than 2 s. This shutdown shall be independent of the operating software.

195 Even if this function activates, the equipment shall attempt to transmit at the next transmission
196 schedule time.

197 4.2 Identifier (Self ID)

198 (See 4.10.2.2)

199 The equipment shall be capable of transmitting self-identification. The identification shall be
200 pre-programmed into the equipment at the time of manufacture and stored in non-volatile
201 memory. After being programmed, it shall not be possible for user to change the self-
202 identification.

203 The equipment identifier is described in in ITU-R M.585.

204 Programming Self ID as 97200yyyy shall be available for testing purposes.

205 The Self ID for equipment shall be 972xxyyyy, where

- 206 • xx = manufacturer ID 01 to 99;
- 207 • yyyy = the sequence number 0000 to 9999.

208 Manufacturers IDs are issued by CIRM¹. Manufacturers shall only use manufacturer IDs that
 209 have been issued to them by CIRM, except for testing purposes where the ID xx=00 can be
 210 used.

211 4.3 Construction

212 (See 4.10.2.3, 4.10.2.4)

213 The equipment shall:

- 214 a) be capable of floating (not necessarily in an operating position) if it is not intended to be
 215 fitted to the lifesaving equipment;
- 216 b) be equipped with a buoyant lanyard, suitable for use as a tether;
- 217 c) be of a highly visible colour on all surfaces where this will assist detection;
- 218 d) have a smooth external construction to avoid damaging the lifesaving equipment.

219 The equipment may optionally have a light to assist detection by human eye for search and
 220 rescue purposes with an intensity of at least 0,75 cd perpendicular to the face of the light source.

221 NOTE The optional light may be steady or flashing.

222 4.4 Environment

223 (See 4.10.2.5)

224 The equipment shall meet the environmental condition requirements of IEC 60945 for
 225 equipment category Portable.

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226 4.5 Battery

227 (See 4.10.2.7, 4.10.2.8)

228 The equipment shall have its own battery or batteries and shall not depend upon any external
 229 source of power for its operation when activated. The batteries shall be an integral part of the
 230 equipment.

231 The life of the battery as defined by its expiry date shall be established by the manufacturer.
 232 The expiry date of the battery shall be the battery cell manufacturing date plus no more than
 233 half the useful life of the battery. The useful life of the battery is defined as the period of time
 234 after the date of battery cell manufacture that the battery will continue to fully operate the
 235 equipment at the required radiated power, after allowing for all losses over the useful life of the
 236 battery. When calculating the useful life of the battery, the following losses, at a temperature of
 237 +20 °C ± 5 °C, shall be included:

- 238 a) self-testing, monthly, with GNSS data available where applicable;
- 239 b) self-discharge of the battery;
- 240 c) stand-by loads.

241 The manufacturer shall provide evidence to support the above battery life calculations including
 242 the time for self-testing and assuming typical GNSS acquisition time where applicable.

243 The battery of an armed device shall have a minimum useful life of at least two years. The
 244 installation date shall be no more than one year from the date of manufacture of the battery.
 245 The battery shall be clearly and durably marked with its date of manufacture. The equipment

¹ Comité International Radio-Maritime, www.cirm.org

246 shall be clearly marked with the expiry date of the battery. The calculation shall assume that
247 the device is armed on the date of manufacture.

248 NOTE For example a battery that has a useful life of 10 years from the date of manufacture, cannot have an expiry
249 date that exceeds 5 years from the date of manufacture and would have to be capable of providing enough power
250 for 10 years of self-testing, self-discharge and stand-by loads in addition to the operational power requirement of the
251 device.

252 The battery shall have sufficient capacity to operate for 12 hours over the operating temperature
253 range of the equipment, and to provide for testing of the functions on the equipment.

254 It shall not be possible to connect the battery with the polarity reversed. Where individual battery
255 cells could be fitted, protection for reverse polarity shall be provided within the equipment.

256 **4.6 GNSS position source**

257 (See 4.10.2.9)

258 An internal GNSS receiver shall be used as the source for equipment position reporting.

259 The GNSS receiver shall meet the following requirements from at least one of the standards:
260 IEC 61108-1, IEC 61108-2, IEC 61108-3 or IEC 61108-5 as applicable: position accuracy,
261 acquisition, re-acquisition, receiver sensitivity, RF dynamic range, position update, effects of
262 specific interfering signals. The minimum update rate shall be once per minute and provide a
263 resolution of one ten-thousandth of a minute of arc and use WGS 84 datum.

264 The manufacturer shall provide evidence that an internal GNSS device cold start is forced at
265 every activation of equipment (cold start refers to the absence of time dependent or position
266 dependent data in memory, which might affect the acquisition of the GNSS position).

267 **4.7 Labelling** [https://standards.iteh.ai/catalog/standards/sist/8960c8a5-5df6-4e16-bacd-
268 d4b62c5b15bd/osist-pren-iec-63269-2021](https://standards.iteh.ai/catalog/standards/sist/8960c8a5-5df6-4e16-bacd-d4b62c5b15bd/osist-pren-iec-63269-2021)

(See 4.10.2.10)

269 The equipment shall be provided with a label, or labels, permanently affixed to the exterior of
270 the equipment. All labelling shall be resistant to deterioration by prolonged exposure to sunlight,
271 and shall not be unduly affected by seawater or oil, and shall be abrasion resistant. The
272 equipment labelling shall contain the following information:

- 273 a) manufacturer serial number;
- 274 b) adequate instructions to enable the user to activate or deactivate the equipment;
- 275 c) self-test instructions;
- 276 d) the name and address of the manufacturer;
- 277 e) the equipment model number;
- 278 f) regulatory authority markings, if required;
- 279 g) a warning to not block the GNSS antenna;
- 280 h) the compass safe distance;
- 281 i) a warning to the effect that the locating device should not be operated except in an
282 emergency;
- 283 j) the date on which the primary battery will need to be replaced. Simple means shall be
284 provided for changing this date when the primary battery is replaced;
- 285 k) safety warning and disposal statement, as applicable;
- 286 l) the Self ID of the equipment (see 4.2).

287 **4.8 Battery safety**

288 (See 4.10.2.11)

289 Batteries shall meet the requirements of the United Nations Recommendations on the Transport
 290 of Dangerous Goods: Manual of Tests and Criteria, 7th Revised Edition, PART III, Section 38.3
 291 (ST/SG/AC.10/11/Rev.7), as amended.

292 **4.9 Documentation**

293 (See 4.10.2.6, 4.10.2.12)

294 The manufacturer shall provide an operation manual including the following:

- 295 a) intended use of an equipment;
- 296 b) complete instructions for testing and operating the equipment;
- 297 c) general battery information (for example battery replacement instructions, battery type,
 298 safety information regarding battery use and disposal);
- 299 d) information on when battery replacement is required;
- 300 e) minimum operating life time, operating, and stowage temperature ranges;
- 301 f) instructions on actions to be taken in the case of inadvertent activation;
- 302 g) a warning to the effect that the device should only be activated in an emergency;
- 303 h) information on the intended areas of use i.e. the equipment is intended to be used on sea
 304 water and may not activate in freshwater such as rivers and lakes;
- 305 i) instructions for fitting / attaching the equipment to the user and for correct operation in the
 306 water in an emergency;
- 307 j) applicable warning statements;
- 308 k) a warning such as the following, "WARNING: This equipment is for use in an emergency only.
 309 It is not intended for routine tracking of persons or property."
- 310 l) a warning such as the following, "WARNING - If self-test is performed more frequently than
 311 stated in manufacturer's recommendations, then battery life may be reduced.";
- 312 m) generic statement on safety hazards.

313 **4.10 Methods of testing and required test results**

314 **4.10.1 Test conditions**

315 **4.10.1.1 General**

316 The manufacturer shall, unless otherwise agreed, set up the equipment under test (EUT) and
 317 ensure it is operating normally before testing commences.

318 Electrical power shall be supplied during performance tests by the batteries which form a part
 319 of the EUT. A power supply may be substituted in place of the battery for extreme power supply
 320 tests, see 4.10.1.3.

321 Within 1 minute of activation, the requirements of this document shall be met.

322 The EUT shall be tested against the general requirements contained in IEC 60945 as applicable
 323 to the equipment category "portable". The low temperature test may be combined with the
 324 battery test. If measurements of compass safe distance are required then the EUT is not
 325 required to be in the powered condition. The radiated emission test is replaced by the spurious
 326 emission test.

327 Where access facilities are required to enable any specific test, these shall be provided by the
 328 manufacturer.

329 For the purposes of IEC 60945 the following definitions apply.