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MSC.1/Circ.1612, GUIDANCE FOR NAVIGATION AND COMMUNICATION EQUIPMENT INTENDED FOR USE ON SHIPS OPERATING IN POLAR WATERS

MSC.1/Circ.1614, INTERIM GUIDELINES ON LIFE-SAVING APPLIANCES AND ARRANGEMENTS FOR SHIPS OPERATING IN POLAR WATERS

1. The Maritime Safety Committee, at its 101st session approved the *Guidance for navigation and communication equipment intended for use on ships operating in polar waters*. Guidance is enhancing the safety and efficiency of navigation and communication equipment intended for use on ships operating in polar waters by giving recommendations on general requirements and specific performance standards for navigation and communication equipment.

Subject Guidance is to be read in conjunction with CRS Circular QC-T-312, *Guidelines on statutory certification of ships operating in Polar Waters (Polar Code)*.

MSC.1/Circ.1612, GUIDANCE FOR NAVIGATION AND COMMUNICATION EQUIPMENT INTENDED FOR USE ON SHIPS OPERATING IN POLAR WATERS is attached to this Newsletter.

2. The Maritime Safety Committee, at its 101st session, recognizing the importance of life-saving appliances and arrangements for ships operating in polar waters, with a view to providing interim guidance outlining possible means of mitigating hazards in order to comply with section 8.3 of part I-A of the International Code for Ships Operating in Polar Waters (Polar Code), approved the *Interim guidelines on life-saving appliances and arrangements for ships operating in polar waters*.

Subject Guidelines are to be read in conjunction with CRS Circular QC-T-312, *Guidelines on statutory certification of ships operating in Polar Waters (Polar Code)*.

MSC.1/Circ.1614, INTERIM GUIDELINES ON LIFE-SAVING APPLIANCES AND ARRANGEMENTS FOR SHIPS OPERATING IN POLAR WATERS is attached to this Newsletter.

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MSC.1/Circ.1612
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**GUIDANCE FOR NAVIGATION AND COMMUNICATION EQUIPMENT
INTENDED FOR USE ON SHIPS OPERATING IN POLAR WATERS**

1 The Maritime Safety Committee, at its 101st session (5 to 14 June 2019), approved the *Guidance for navigation and communication equipment intended for use on ships operating in polar waters*, as set out in the annex, prepared by the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR), at its sixth session (16 to 25 January 2019).

2 The Maritime Safety Committee, at its ninety-seventh session (21 to 25 November 2016) had instructed the NCSR Sub-Committee to consider the current navigation and communication requirements in the SOLAS Convention and the need for any amendments, taking into account the extended duration requirements in the International Code for Ships Operating in Polar Waters (Polar Code).

3 The aim of this Guidance is to enhance the safety and efficiency of navigation and communication equipment intended for use on ships operating in polar waters by giving recommendations on general requirements and specific performance standards for navigation and communication equipment.

4 Member States and international organizations are invited to bring the Guidance to the attention of all parties concerned.

ANNEX

GUIDANCE FOR NAVIGATION AND COMMUNICATION EQUIPMENT INTENDED FOR USE ON SHIPS OPERATING IN POLAR WATERS

Purpose

1 The purpose of this Guidance is to enhance the safety and efficiency of navigation and communication equipment intended for use on ships operating in polar waters:

- .1 It gives recommendations on general requirements and specific performance standards for navigation and communication equipment intended for use on ships operating in polar waters.
- .2 It covers:
 - .1 generally, all navigation and communication equipment where equipment or parts of it are exposed to the specific environmental conditions of the polar waters; and
 - .2 specific requirements for equipment which may be influenced by regional effects.
- .3 It aims to establish requirements to facilitate different approaches (e.g. built-in protection, handling requirements, etc.).

Scope

2 This Guidance provides recommendations on:

- .1 requirements for navigation and communication equipment intended for use on ships operating in polar waters, where technical provisions could reduce the listed effects;
- .2 rules to operate navigation and communication equipment intended for use on ships operating in polar waters, if technical provisions could not protect the equipment from the listed effects; and
- .3 additional requirements for navigation and communication equipment intended for use on ships operating in polar waters, if the equipment is influenced by incorrect data of impaired equipment only.

Structure

3 This Guidance has a modular structure:

- .1 It starts with a general part (Module A) which should be applied to equipment or parts of it exposed to the environmental conditions of polar waters.
- .2 The second module (Module B) is addressing equipment specific topics.
- .3 The third module (Module C) is addressing the handling of incorrect data of impaired equipment.

- .4 The appendix provides information on survival craft and rescue boat communications capabilities.

Application

4 This Guidance is applicable to navigation and communication equipment intended for use on ships operating in polar waters.

Abbreviations

AIS	- Automatic Identification System
DSC	- Digital Selective Calling
ECDIS	- Electronic Chart Display and Information System
EGC	- Enhanced Group Call
ENC	- Electronic Navigational Chart
GNSS	- Global Navigation Satellite System
HF	- High Frequency
LRIT	- Long Range Identification and Tracking
MF	- Medium Frequency
PST	- Polar Service Temperature (defined by Polar Code, part I-A, paragraph 1.2.11)
PWOM	- Polar Water Operational Manual
SART	- Search and Rescue Radar Transponder
SOLAS	- International Convention for the Safety of Life at Sea
THD	- Transmitting Heading Device
VDR	- Voyage Data Recorder
VHF	- Very High Frequency

MODULE A – GENERAL PART RELATED TO EQUIPMENT EXPOSED TO THE SPECIFIC ENVIRONMENTAL CONDITIONS OF POLAR WATERS

Generally, limitations due to environmental conditions should be documented in the Polar Water Operational Manual (PWOM).

A.1 Temperature

A.1.1 If equipment or parts thereof are exposed to the environmental conditions of polar waters, the navigation and communication equipment should keep its specific performance requirements as far as possible.

A.1.2 Exposed portable equipment should be subject to testing in accordance with a recognized procedure,* except that the temperature of the chamber should be reduced to, and maintained at, the specified PST.

A.1.3 In addition, test condition provisions in paragraphs not related to exposure temperature should follow the *General requirements for shipborne radio equipment forming part of the Global Maritime Distress and Safety System (GMDSS) and for electronic navigational aids* (resolution A.694(17)).

* Refer to low temperature test procedure in paragraph 8.4 of IEC 60945.

A.2 Ice accretion

A.2.1 If equipment or parts thereof are exposed to ice accretion, dependent on the polar water and season, the navigation and communication equipment should keep its specific performance requirements, as far as possible.

A.2.2 According to the Polar Code, part I-A, paragraph 4.3.1.1.1, the icing allowance as stability criterion is 30 kg/m² (around 30 mm) on horizontal parts or 7.5 kg/m² (around 7.5 mm) on vertical parts and should be used as maximum criterion for icing for the ship and related navigation and communication equipment exposed to icing with respect to its design and placement on board.

A.2.3 The performance could be ensured by:

- .1 physical protection (e.g. heating);
- .2 operational protection (e.g. removing); or
- .3 design (e.g. location can be easily accessed for removing of ice or the design reduces possible covering of ice).

A.2.4 Where facilities to de-ice equipment are provided, these should result in the performance criteria being met within two hours from power on.

A.2.5 According to the Polar Code, the physical and operational measures should be part of the PWOM.

A.3 Handling of equipment dependent on batteries

A.3.1 According to the Polar Code, part I-A, paragraph 1.2.7, the maximum expected time of rescue means the time adopted for the design of equipment and system that provide survival support. It should never be less than five days (120 h). This requirement may be difficult to meet by some specific equipment requirements, design requirements or handling requirements.

A.3.2 Based on the interpretation provided in the appendix, the performance of equipment and systems that provide survival support may be maintained throughout the maximum expected time of rescue using design requirements, operational requirements and any other means documented in the PWOM or a combination of these.

A.3.3 Any procedures or measures taken to address ice accretion or the handling of equipment dependent on batteries, as outlined in sections A.2 and A.3 respectively, should be included in the PWOM.

MODULE B – REQUIREMENTS FOR SPECIFIC EQUIPMENT

B.1 Magnetic compass

B.1.1 If the magnetic compass is intended for use in polar waters, the performance in latitudes beyond 70 should be additionally validated with the requirements of resolution A.382(X) on *Magnetic Compasses – Carriage and performance standards*.

B.1.2 The magnetic compass fitted on deck without tarpaulin should be protected against ice accretion as described in section A.2, if it is intended for use in specified latitudes during the relevant trip within polar waters.

B.2 Pelorus, compass bearing device or heading repeater (gyro, magnetic or GNSS-THD compass)

If the related compass device is intended for use in polar waters and exposed to the weather, the pelorus or compass bearing device including their means of correction should be protected against ice accretion as described in section A.2.

B.3 ECDIS

The ECDIS should be capable of displaying ENCs in a projection suitable for higher latitudes, as applicable, for the intended route. Input data of critical input sensors should be handled as described in module C.

B.4 GNSS-receiver

The GNSS-antenna should be protected against ice accretion as described in section A.2.

B.5 Radar reflector

The radar reflector should be protected against ice accretion as described in section A.2.

B.6 Sound reception system

The outdoor microphones of the sound reception system should be protected against ice accretion as described in section A.2.

B.7 Daylight signalling lamp (if fitted on deck)

The daylight signalling lamp (if fitted on deck) should be protected against ice accretion as described in section A.2.

B.8 Radar

The radar antenna should be protected against ice accretion as described in section A.2. Input data of critical input sensors should be handled as described in module C.

B.9 Speed and distance measuring equipment

If underwater sensors are used for measuring speed through water, the performance in very clean water conditions with a significant reduced number of particles in the water, as expected in polar waters, should be validated to be within the requirements of the *Performance standards for devices to indicate speed and distance* (resolution A.824(19)).

B.10 GNSS-THD

The GNSS-THD antenna should be protected against ice accretion as described in section A.2. The performance in latitudes beyond 70° should be additionally validated to be within the requirements of the *Performance standards for marine transmitting heading devices (THDs)* (resolution MSC.116(73)).

B.11 AIS

The AIS antennas should be protected against ice accretion as described in section A.2. Input data of critical input sensors should be handled as described in module C.

B.12 Gyro compass

If the gyro compass is intended for use in polar waters, the performance in latitudes beyond 70° should be additionally validated to be within the requirements of the *Performance standards for gyro compasses* (resolution A.424(XI)).

B.13 Heading or track control system

Input data of critical input sensors should be handled as described in module C.

B.14 LRIT

The function may be limited depending on latitude and selected system (Inmarsat C is limited whereas Iridium may offer a full coverage). The LRIT antennas should be protected against ice accretion as described in section A.2.

B.15 VDR (if fitted on deck)

The float-free release mechanism of the VDR fitted on deck should be protected against ice accretion as described in section A.2.

B.16 Navigation bridge visibility

The navigation bridge windows should be protected against ice accretion as described in section A.2.

B.17 Pilot ladder

The pilot ladder should be protected against ice accretion as described in section A.2.

B.18 Antennas for all radiocommunication equipment

The antennas for radiocommunication equipment should be protected against ice accretion as described in section A.2.

B.19 EGC receiver

The function may be limited, in the case of Inmarsat EGC, depending on latitude. The EGC receiver antennas should be protected against ice accretion as described in section A.2.

B.20 EPIRB

The EPIRB should be protected against ice accretion as described in section A.2.

B.21 Two-way VHF radiophones for use in survival crafts

Two-way VHF radiophones for use in survival crafts should be included in the PWOM.

B.22 Navigation lights/360° Search light

The navigation and search lights should be protected against ice accretion as described in section A.2.

B.23 Sound signalling equipment

The sound signalling equipment should be protected against ice accretion as described in section A.2.

B.24 Search and rescue locating device (SART/AIS-SART)

The SART / AIS-SART should be protected against ice accretion as described in section A.2.

MODULE C – HANDLING OF INCORRECT DATA

Depending on the region (latitude) some sensors (e.g. heading, speed) may not work with the accuracy defined in the relevant standards. There should be an automatic warning or a clear indication that the bridge crew is able to decide to use the information for display or for use in any other calculation of connected equipment.

APPENDIX

SURVIVAL CRAFT AND RESCUE BOAT COMMUNICATIONS CAPABILITIES

1 All rescue boats, all lifeboats and all other survival craft carried by the ship, notwithstanding the redundancy in aggregate capacity of survival craft required by SOLAS regulations III/21 and III/31, and taking into account the different possible distress scenarios, are considered able to be released for evacuation simultaneously and should be provided with mandatory communication equipment accordingly.

2 The expressions "shall maintain capability for", "shall be capable of operation during the maximum expected time of rescue" and "are available for operation during the maximum expected time of rescue" used in paragraphs 10.2.2.1, 10.2.2.2, 10.2.2.3 and 10.3.2.3 of part I-A of the Polar Code mean the ability of mandatory communication equipment for use in survival craft, including liferafts, and rescue boats to maintain the ready for operation state within the maximum expected time of rescue at the Polar Service Temperature (PST) assigned to the ship, and, after that, to be capable to perform its functions at the PST assigned to the ship for the operating time not less than that specified in respective existing performance standards.*

Note: For example, it is not required that an EPIRB used for distress alerting continues distress messaging for the maximum expected time of rescue and the two-way VHF radiotelephone apparatus being used for transmitting and receiving on-scene communications does not need to be technically in operation at its highest rated power with a duty cycle of 1:9 for maximum expected time of rescue.

3 Procedures referred to in paragraph 10.3.2.3 of part I-A of the Polar Code can include both operational requirements and any other means, including technical solutions, i.e. thermal insulation, chemical heat sources, additional batteries, rechargeable batteries with respective chargers, etc., and should be documented in the PWOM.

* Refer to the following performance standards: EPIRB - resolutions A.810(19) and MSC.471(101); Radar transponder - resolution A.802(19); AIS-SART - resolution MSC.246(83); Two-way VHF radiotelephone apparatus - resolution MSC.149(77).

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MSC.1/Circ.1614
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**INTERIM GUIDELINES ON LIFE-SAVING APPLIANCES AND ARRANGEMENTS FOR
SHIPS OPERATING IN POLAR WATERS**

1 The Maritime Safety Committee, at its 101st session (5 to 14 June 2019), having considered a proposal by the Sub-Committee on Ship Systems and Equipment, at its sixth session, and recognizing the importance of life-saving appliances and arrangements for ships operating in polar waters, with a view to providing interim guidance outlining possible means of mitigating hazards in order to comply with section 8.3 of part I-A of the International Code for Ships Operating in Polar Waters (Polar Code), approved the *Interim guidelines on life-saving appliances and arrangements for ships operating in polar waters*, as set out in the annex.

2 Member States are invited to bring the annexed Interim guidelines to the attention of ship designers, shipyards, shipowners, ship managers, ship operators and other organizations or persons responsible for life-saving appliances and arrangements for ships operating in polar waters.

3 Member States are also invited to bring the annexed Interim guidelines to the attention of shipmasters, ships' officers and crew and all other parties concerned.

4 The Committee agreed to keep the Interim guidelines under review, taking into account operational experience gained with their application.

ANNEX

INTERIM GUIDELINES ON LIFE-SAVING APPLIANCES AND ARRANGEMENTS FOR SHIPS OPERATING IN POLAR WATERS

1 GENERAL

1.1 These Interim guidelines outline possible means of mitigating hazards in order to comply with section 8.3 of part I-A of the International Code for Ships Operating in Polar Waters (Polar Code) and are intended to assist ship designers and shipowners/operators, as well as Administrations in the uniform implementation of the Polar Code.

1.2 Compliance with these Interim guidelines does not necessarily mean that the ship complies with the Polar Code. There may be other hazards, conditions and mitigating means to be considered in the operational assessment required in section 1.5 of part I-A of the Code. The complexity of a prolonged survival time in a harsh environment should not be underestimated.

1.3 Survival after abandonment will rely on several factors, such as the types and combination of equipment, crew training and good leadership of each survival craft. The expected time of rescue is a defining factor for life-saving appliances and arrangements. Conditions that are not otherwise considered critical may become critical over time.

1.4 While equipment enhancement greatly improves survivability, the human element is a significant factor. The crew should have relevant knowledge of human behaviour in extended survival situations, medical first aid and the management of the resources available.

1.5 Key physical parameters for human survival and human behaviour in a crisis should be taken into account when considering life-saving appliances and arrangements for ships operating in polar waters.

1.6 All references to the LSA Code in these Interim guidelines mean the International Life-saving Appliance (LSA) Code, adopted by the Maritime Safety Committee of the Organization by resolution MSC.48(66), as amended.

1.7 Due to the variability of risk levels in polar waters, some of the mitigation means within these Interim guidelines may not apply to all operations. Any risk mitigation measures applied should be based on the results of the assessment, as required by the Polar Code and the operational limitations identified on the Polar Ship Certificate.

2 CONDITIONS TO CONSIDER

2.1 The Polar Code considers hazards that may lead to elevated levels of risks due to an increased probability of occurrence and/or more severe consequences. The sources of hazards listed in section 3 of the introduction of the Code should be considered for both normal operation and emergency situations.

2.2 These Interim guidelines are based on the following specific operational assessment criteria:

- .1 maximum expected time of rescue;

- .2 operation in low air temperatures (ships with an assigned Polar Service Temperature (PST));
- .3 operation in ice;
- .4 icing of life-saving appliances and arrangements;
- .5 the effect of operation in high latitudes;
- .6 operation in extended periods of darkness; and
- .7 abandonment onto ice or land.

2.3 In the following provisions, the mitigating means are organized based on their relevance in relation to the specific conditions. Some means may be relevant to more than one of the conditions. The final relevance for each individual ship is dependent on the results of the operational assessment required by section 1.5 of part I-A of the Polar Code.

3 MAXIMUM EXPECTED TIME OF RESCUE

3.1 This section provides guidance for the type and amount of survival equipment related to the maximum expected time of rescue.

Personal and group survival equipment

3.2 The following equipment should be available for all persons after abandonment and for the maximum expected time of rescue, which can be stored in survival craft or be a part of the personal survival equipment or group survival equipment and the Polar Water Operational Manual (PWOM) should consider the location, stowage and transfer of life-saving equipment:

- .1 insulated immersion suit or thermal protective aid provided with gloves should be provided with separate gloves, which shall be permanently attached to the suit/protective aid;
- .2 food rations providing a minimum of 5,000 kJ (1,195 kcal) per person per day which should be increased as necessary taking into account the operational assessment;
- .3 at least 2 litres of fresh water per person per day: de-salting apparatus or means to melt ice or snow may supply the amount exceeding the requirements of paragraphs 4.1.5.1.19 and 4.4.8.9 of the LSA Code and there should be a tank or a container of adequate size to collect water from the de-salting apparatus and rainwater collectors;
- .4 anti-seasickness medicine;
- .5 protective clothing of a material with thermal properties taking into account performance of the material when wet and type of survival craft, including head protection, neck and face protection, gloves/mittens, socks, boots, long underpants and sweaters;
- .6 sunglasses or ski goggles appropriate for the expected conditions to protect persons from snow blindness, UV rays, snow ingress and/or cold;

- .7 drinking vessel, preferably with a screw cap;
- .8 polar survival guidance;
- .9 a seasickness bag in addition to the one required by the LSA Code;
- .10 anti-bacterial gel or hand wipes;
- .11 blanket of a material with thermal properties suitable for use on the planned route, for each person on board; and
- .12 other equipment in accordance with section 9.1 of part I-B of the Polar Code, as deemed necessary.

3.3 Personal survival equipment should be packed in a waterproof floatable carrier bag. The personal survival equipment may be stored at the assembly or embarkation stations and should be clearly marked with the size of the person they are intended for (if applicable). The content should include, as a minimum, all equipment needed during the abandonment and the initial part of the survival phase. The carrier bag should also function as each person's personal storage area for equipment handed out during the survival phase in order to keep the survival craft or shelter tidy and habitable.

Capacity of survival craft

3.4 The capacity of each survival craft should comply with the following:

- .1 The seating capacity of each survival craft should be adjusted taking into account polar clothing, additional equipment including all persons carrying their intended personal survival equipment and space for occupants to stand and move in turns.
- .2 Where additional personal and group survival equipment is carried in accordance with paragraphs 8.3.3.3.2 and 8.3.3.3.3 of chapter 8 of part 1-A of the Polar Code, adequate space for the stowage of the equipment should be provided. The total combined weight including additional equipment may not exceed the weight determined for the type approval of the survival craft.

Equipment in survival craft

3.5 The following equipment should be available in the survival craft:

- .1 Effective means of communicating important messages from the person in charge of the survival craft, unless the Administration considers the survival craft small enough to ensure that all important messages can be heard by all persons on board, taking into account the noise level caused by the lifeboat engine, harsh weather, etc.
- .2 In addition to the tools required in paragraph 4.4.8.27 of the LSA Code, the lifeboat should be provided with tools and critical spare parts for minor adjustments of the equipment and components to ensure operability during the survival phase.

3.6 Notwithstanding the requirement in paragraph 4.4.8 of the LSA Code that all lifeboat equipment should be as small and of as little mass as possible, it is important that all items are robust to retain their functionality for the maximum expected time of rescue.

3.7 Survival craft should be of a type complying with the following:

- .1 Survival craft should be fitted with handholds or handhold lines to safeguard persons who are standing upright or moving inside the craft in a seaway.
- .2 Survival craft should provide a habitable environment for all persons on board that prevent exposure to a long-term CO₂ concentration of more than 5,000 ppm for the maximum expected time of rescue. The ventilation should be considered in context with heating requirements to achieve a habitable temperature in the survival craft.
- .3 Each seat in a lifeboat should be provided with a backrest.

4 SHIPS OPERATING IN LOW AIR TEMPERATURE

4.1 This section applies to ships intended to operate in low air temperatures, as defined in the Polar Code, part I-A, regulation 1.2.12.

4.2 All life-saving appliances and arrangements should remain operational and ready for immediate use at the polar service temperature (PST) or at the temperatures specified by the LSA Code, whichever is the lowest. The manufacturer should provide information of additional tests including temperature ranges which the equipment is intended for. This information should be a part of the operating and maintenance manual.

4.3 In the survival craft, the combination of personal survival equipment, ventilation, insulation and heating means, if provided, should be capable of maintaining a habitable inside air temperature when the outside air temperature is equal to the PST. All cold surfaces should be insulated, in particular the surfaces in direct contact with the persons, e.g. seats.

4.4 Installed heating systems, if provided, and their power sources should be capable of operation during the maximum expected time of rescue.

4.5 Means should be provided to avoid icing or dew on the windows of the lifeboat steering position, in order to maintain a proper lookout.

4.6 In order to avoid exposure to cold air, toilet equipment should be provided inside the survival craft.

4.7 Liferafts should be provided with inflatable floors or equivalent and all persons should be wearing insulated immersion suits instead of thermal protective aids.

4.8 Survival craft and containers for group survival equipment in their stowed position should have means to mitigate the freezing of drinking water supplies.

4.9 Lifeboats should be provided with suitable low temperature grade fuel and lubrication oil for the engine and suitable low temperature grade oil for the steering gear, as necessary, or be fitted with a heating system to maintain fuel and lubrication oil at the appropriate viscosity for operation.

5 SHIPS OPERATING IN ICE

5.1 This section applies to Category A and B ships and ice strengthened Category C ships.

5.2 All survival craft should be arranged for launching in such a way that they will not be damaged or cause sufficient impact to injure persons on board.

5.3 Survival and rescue craft and their fittings should be so constructed as to prevent damage from contact with ice when loaded with its full complement of persons and equipment.

5.4 A survival craft should withstand a controlled deployment into the ice conditions expected for the operational area and its propeller, rudder or other external fittings should be capable of operating in such conditions.

6 SHIPS OPERATING IN CONDITIONS WITH RISK OF ICING OF LIFE-SAVING APPLIANCES AND ARRANGEMENTS

6.1 This section applies to ships operating in conditions where ice accretion is likely to occur on life-saving appliances and arrangements.

6.2 Means should be provided to ensure the function of launching appliances, release mechanisms, hydrostatic release units and marine evacuation systems in the expected conditions of icing.

6.3 Lifeboats and rescue boats should maintain positive metacentric height (GM) when loaded as required by paragraph 4.4.5.1 of the LSA Code and with an additional ice load of 30 kg/m² on exposed horizontal surfaces and 7.5 kg/m² for the projected lateral area of each side of the lifeboat.

6.4 Means for removing ice should be provided for all survival craft likely to accumulate ice.

6.5 Entrances, hatches and means of ventilation should be designed and equipped in a way that they can be operated during icing condition to allow mitigation of ice accretion and remove the accumulated ice.

7 SHIPS OPERATING IN HIGH LATITUDES

7.1 This section applies to ships operating in areas of high latitudes.

7.2 Lifeboats and rescue boats on ships proceeding to latitudes over 80°N should be fitted with a non-magnetic means for determining heading. It should be possible to supply the means with power from two independent batteries.

8 SHIPS OPERATING IN EXTENDED PERIODS OF DARKNESS

8.1 This section applies to all ships operating in polar waters during extended periods of darkness.

8.2 Survival craft exterior and interior lights should be capable of being in operation for the extended periods of darkness during the maximum expected time of rescue. Lifeboat searchlights should be capable of being in continuous operation for the maximum expected time of rescue.

9 ABANDONMENT TO ICE OR LAND

9.1 This section applies to ships where the assessment required by paragraph 1.5 of part I-A of the Polar Code identifies a potential of abandonment onto ice or land.

9.2 Special consideration should be given when operating in areas with dangerous wildlife. Additional flares and/or a flare gun should be provided.

Shelter

9.3 The combination of a chosen type of shelter, type of personal thermal protection and other mitigating means should provide a habitable environment on ice or land, while adequately protecting against cold, wind and sun.

9.4 When determining the capacity of the shelters, the expected environmental condition in the operating area should be considered. For ships operating in low air temperature, the calculation should take into account that it might be unsafe for persons to stay outside the shelter, even for short periods. Hence, the same considerations as for survival craft should be taken into account.

9.5 Shelters should have insulated floor or other means to minimize heat transfer to the surface.

Group survival equipment

9.6 The container for group survival equipment when fully loaded should have a size, shape and mass that enables it to be towed through icy water, and also allows two crew members to pull it out the water and tow it on ice or on land.

9.7 Unless the group survival equipment is carried in the survival craft, means should be provided to launch the containers to water, ice or land without damage to the container or its contents. Means to launch such containers should be independent of the ship power system.
