



# RUSSIAN MARITIME REGISTER OF SHIPPING

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**CIRCULAR LETTER**

**No. 315-07-1443c**

dated 29.09.2020

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Re:

amendments to the Rules for the Classification and Construction of Sea-Going Ships, 2020, ND No. 2-020101-124-E

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Item(s) of supervision:

automation equipment

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Entry-into-force date:

**01.11.2020**

Valid till: -

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Cancels / amends / adds Circular Letter No. -

dated -

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Number of pages: 1+5

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Appendices:

Appendix 1: information on amendments introduced by the Circular Letter

Appendix 2: text of amendments to Part XV "Automation"

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Director General

Konstantin G. Palnikov

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Text of CL:

We hereby inform that the Rules for the Classification and Construction of Sea-Going Ships shall be amended as specified in the Appendices to the Circular Letter.

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It is necessary to do the following:

1. Bring the content of the Circular Letter to the notice of the RS surveyors, interested organizations and persons in the area of the RS Branch Offices' activity.
  2. Apply the provisions of the Circular Letter to the equipment:  
requested for technical supervision during manufacture on or after 01.11.2020; or  
installed on board the ships contracted for construction or conversion on or after 01.11.2020, in the absence of a contract — on board the ships, the keels of which are laid, or which are at a similar stage of construction on or after 01.11.2020.
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List of the amended and/or introduced paras/chapters/sections:

Part XV: paras 2.1.1, 2.1.3, 2.1.6, 2.1.8 and 2.1.11

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**Information on amendments introduced by the Circular Letter  
(for inclusion in the Revision History to the RS Publication)**

Nos.	Amended paras/chapters/sections	Information on amendments	Number and date of the Circular Letter	Entry-into-force date
1	Para 2.1.1	Range of operating ambient temperatures has been specified. Categories of equipment according to heat stability and cold endurance have been introduced	315-07-1443c of 29.09.2020	01.11.2020
2	Para 2.1.3	Categories of equipment according to vibration and shock resistance have been introduced	315-07-1443c of 29.09.2020	01.11.2020
3	Para 2.1.6	Categories of equipment depending on type of power supply have been introduced	315-07-1443c of 29.09.2020	01.11.2020
4	Para 2.1.8	Categories of equipment according to electromagnetic compatibility have been introduced	315-07-1443c of 29.09.2020	01.11.2020
5	Para 2.1.11	Categories of equipment according to corrosion resistance have been introduced	315-07-1443c of 29.09.2020	01.11.2020

## RULES FOR THE CLASSIFICATION AND CONSTRUCTION OF SEA-GOING SHIPS, 2020,

### ND No. 2-020101-124-E

#### PART XV. AUTOMATION

##### 2 DESIGN OF AUTOMATION SYSTEMS, AUTOMATION COMPONENTS AND CONTROL DEVICES

1 **Para 2.1.1** is replaced by the following text:

**"2.1.1** Reliable operation of automation systems, automation components and control devices shall be ensured under the following ambient temperature conditions:

+5 °C to +45 °C in enclosed spaces;

–25 °C to +45 °C on open deck.

Electronic components and devices to be fitted in distribution boards, control panels or enclosures shall reliably operate at ambient temperatures up to +55 °C.

No damage to automation systems, automation components and control devices shall be caused by temperatures up to +70 °C.

Categories of equipment according to heat stability depending on operating conditions are given in Table 2.1.1-1.

Table 2.1.1-1

Category of equipment	Temperature	Description
TH1	up to +55 °C ±2 °C	Equipment not related to categories TH2 and TH3.
TH2	up +70 °C ±2 °C	Components and devices intended for installation in switchboards, control panels or enclosures together with other heat-generating equipment.
TH3	10 °C exceeding the operating temperature or +85 °C ±2 °C, whichever is higher	The equipment for which higher operating temperatures are possible, for example, directly fitted to internal combustion engines, boilers, etc.

Note. Equipment falling into a higher category meets the requirements for all lower categories of equipment.

Categories of equipment according to cold endurance depending on the operating conditions are given in Table 2.1.1-2.

Table 2.1.1-2

Category of equipment	Temperature	Description
TL1	not below +5 °C ±3 °C	The equipment intended for installation in heated spaces.
TL2	not below –25 °C ±3 °C	The equipment installed on the open deck or in unheated spaces.
TL3(DAT) <sup>1</sup>	10 °C below design ambient temperature ( <b>DAT</b> ), or –40 °C ±3 °C, whichever is lower	The equipment installed on the open deck or in unheated open spaces of ships with the distinguishing mark <b>WINTERIZATION(DAT)</b> in the class notation.
<sup>1</sup> Instead of <b>DAT</b> , the value of design ambient temperature shall be indicated in brackets  <b>Note.</b> Equipment falling into a higher category meets the requirements for all lower categories of equipment.		

2 **Para 2.1.3** is replaced by the following text:

**"2.1.3** Depending on the category of equipment, reliable operation of automation systems shall be ensured at vibrations conditions specified in Table 2.1.3-1.

Table 2.1.3-1

Category of equipment	Vibration conditions	Description
V1	Within the frequency range of $2_{-0}^{+3}$ Hz — 13,2 Hz with shift amplitude of ±1 mm; within the frequency range of 13,2 Hz — 100 Hz with an acceleration of ±0,7g	Equipment not related to categories V2 and V3.
V2	Within the frequency range of $2_{-0}^{+3}$ Hz — 25 Hz with shift amplitude of ±1,6 mm; within the frequency range of 25 Hz — 100 Hz with an acceleration of ± 4,0g	The equipment operating under the conditions of increased vibration (e.g. the equipment to be installed directly on the internal combustion engines, air compressors, etc.).
V3	Within the frequency range of 40 Hz — 2000 Hz with an acceleration of ±10,0g at the temperature of 600 °C, duration 90 min	The equipment intended for operation under the conditions of increased vibration, e.g. in exhaust-gas receivers or diesel engine injection systems, etc.
<b>Note.</b> The equipment of category V2 meets the requirements for the equipment of category V1.		

Depending on the category, automatic equipment shall also operate reliably at shocks with the parameters specified in Table 2.1.3-2.

Table 2.1.3-2

Category of equipment	Shock parameters	Description
G0	Not rated	The equipment intended for installation on berth-connected ships and fixed offshore platforms.
G3	With an acceleration of 3,0g, duration of 6 or 30 ms, number of shocks of 100 ±5 in each position	The equipment not related to the category G0 intended for installation on floating offshore oil-and-gas production units, ships of no ice class or ships of <b>Ice1, Ice2, Ice3</b> ice classes.
G5	With an acceleration of 5,0g, duration of 6 or 30 ms, number of shocks of 100 ±5 in each position	The equipment intended for installation on ships of ice classes <b>Arc4 — Arc9, Icebreaker6 — Icebreaker9</b> .
Note. Equipment falling into a higher category meets the requirements for all lower categories of equipment.		

3 **Para 2.1.6** is replaced by the following text:

"**2.1.6** Electrical and electronic components and devices shall operate reliably in case of deviation of the power parameters listed in Table 2.1.6-1 from nominal values.

Table 2.1.6-1

Power parameter	Deviation from nominal value		
	Long-term, %	Short-term	
		%	Time, s
Voltage (a. c.)	+6 ... -10	+20	1,5
Frequency	+5	+10	5
Voltage (d. c.)	+10	5	Cyclic deviation
		10	Ripple

Automatic equipment supplied from accumulator batteries shall operate reliably with the following voltage variations from the nominal value:

from +30 to -25 % for the equipment, which is not disconnected from the battery during battery charging;

from +20 to -25 % for the equipment, which is disconnected from the battery during battery charging.

Categories of the equipment depending on type of power supply are given in Table 2.1.6-2.

Table 2.1.6-2

Category of equipment	Description
P1	The equipment supplied from the battery connected to a charging battery.
P2	The equipment not connected to the battery during charging.

The operability of automation systems shall not be affected by three successive power supply interruptions during 5 min with switching-off time of 30 s in each case."

4 **Para 2.1.8** is replaced by the following text:

"**2.1.8** Provision shall be made to ensure the electromagnetic compatibility of automation equipment as specified in 2.2, Part XI "Electrical Equipment" and to keep the radio interference from it to a permissible level.

Categories of equipment according to electromagnetic compatibility depending on the operating conditions are given in Table 2.1.8.

Table 2.1.8

Category of equipment	Description
E1	Equipment installed on the open deck and navigation bridge.
E2	Equipment installed in enclosed machinery and other enclosed spaces of the ship.

5 **Para 2.1.11** is replaced by the following text:

**"2.1.11** Automation equipment shall be made of materials resistant to marine environment or shall be reliably protected from its harmful effect.

Categories of equipment according to corrosion resistance depending on the operating conditions are given in Table 2.1.11.

Table 2.1.11

Category of equipment	Description
C0	The equipment intended for installation indoors.
C1	The equipment intended for installation on the open deck or in open spaces.
<p>Note. Equipment falling into a higher category meets the requirements for all lower categories of equipment.</p>	