



# RUSSIAN MARITIME REGISTER OF SHIPPING

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**CIRCULAR LETTER**

**No. 315-05-1258c**

dated 27.08.2019

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Re:

amendments to the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships, 2019, ND No. 2-020101-118-E

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Item(s) of supervision:

automation equipment

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Entry-into-force date:

**01.01.2020**

~~Valid till:~~

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~~Cancels / amends / adds Circular Letter No.~~

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Number of pages:

1+ 3

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Appendices:

Appendix 1: information on amendments introduced by the Circular Letter

Appendix 2: text of amendments to Part IV "Technical Supervision during Manufacture of Products"

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Director General

Konstantin G. Palnikov

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Text of CL:

We hereby inform that in connection with coming in force of IACS Unified Requirement (UR) E10 (Rev.7 Oct 2018) on 01.01.2020 Section 12 of Appendix1, the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships, shall be amended as specified in Appendix 2 to the Circular Letter.

IACS Unified Requirement (UR) E10 (Rev.7 Oct 2018) is posted on the official RS website in the Section "External Normative documents".

The amendments in Appendix 2 apply to equipment whose type approval applications are submitted on 01.01.2020 or after.

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It is necessary to do the following:

1. Familiarize the RS surveyors the interested organization in the area of RS Branch Offices' activity with the content of the Circular Letter.
  2. Apply the provisions of the Circular Letter during the RS practical activity.
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List of the amended and/or introduced paras/chapters/sections:

Appendix 1 to Section 12: paras 3.9, 3.4.2.3, 3.4.1.2

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"Thesis" System No. 19-25399

**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	Section 12, Appendix 1, Para 3.4.1.2	The upper limit of the frequency range at which the level of the generated radio interference electromagnetic field of the equipment shall not exceed 54 dBmV / m has been amended; the frequency range from 1000 to 6000 MHz has been added; the information on radiated interference for equipment designed to transmit radio signals for radio communication has been added	315-05-1258c of 27.08.2019	01.01.2020
2	Section 12, Appendix 1, Para 3.4.2.3	The upper limit of the frequency range at which the equipment shall remain operable has been amended; the information on stability limits for equipment designed to receive radio signals for radio communications has been amended	315-05-1258c of 27.08.2019	01.01.2020
3	Section 12, Appendix 1, Para 3.9	The information on the need to test equipment with the included cooling system, if provided, has been introduced	315-05-1258c of 27.08.2019	01.01.2020

**RULES FOR TECHNICAL SUPERVISION DURING CONSTRUCTION OF SHIPS  
AND MANUFACTURE OF MATERIALS AND PRODUCTS FOR SHIPS**

**ND No. 2-020101-118-E**

**PART IV. TECHNICAL SUPERVISION DURING MANUFACTURE OF PRODUCTS**

**12 AUTOMATION EQUIPMENT**

*APPENDIX 1*

**STANDARDS AND METHODS OF TESTING AUTOMATION EQUIPMENT**

1 Para 3.4.1.2 is replaced by the following text:

**"3.4.1.2 Radiated interference.**

For the equipment arranged on open deck and navigation bridge the levels of the generated radio interference electromagnetic field at a distance of 3 m shall not exceed the following values in the frequency ranges given below:

0,15 – 0,3 MHz — 80 – 52 dBmV;

0,3 – 30 MHz — 52 – 34 dBmV;

30 – 1000 MHz — 54 dBmV,

except for the range 156 – 165 MHz where 24 dBmV shall be established.

Alternatively the peak level of the radiated interference at the distance of 3 m from the body of equipment under test in the range from 156 to 165 MHz shall be 30 dBmV/m.

For the equipment arranged in enclosed machinery and other spaces of the ship, the levels of the generated radio interference electromagnetic field at a distance of 3 m shall not exceed the following values in the frequency ranges given below:

0,15 – 30 MHz — 80 – 50 dBmV;

30 MHz – 100 MHz — 60 – 54 dBmV;

100 – 1000 MHz — 54 dBmV,

except for the range from 156 to 165 MHz where 24 dBmV shall be established.

For frequencies above 1000 MHz, the levels of the generated electromagnetic field of radio interference at a distance of 3 m shall not exceed the following values:

1000 – 6000 MHz — 54 dBmV.

Equipment intended to transmit radio signals for the purpose of radio communication (e.g. wi-fi router, remote radio controller) may be exempted from limit, within its communication frequency range.

To make measurements, use shall be made of a quasi-peak measuring receiver. The transmission Band width of the receiver in the frequency range from 0,15 to 30 MHz and from 156 to 165 MHz shall be 9 kHz and in the frequency range from 30 to 156 MHz and from 165 MHz to 1 GHz — 120 kHz.

The size of the measuring antenna in the direction to the equipment being tested shall not exceed 20 % of the distance thereto. At frequencies more than 80 MHz a possibility shall be provided of changing the height of the antenna centre position in relation to earth from 1 to 4 m.

The test room shall have a metal earthed plane. The equipment to be tested shall be presented in full set with all the cables connecting devices and installed in the normal working position. If the equipment to be tested consists of several units, the connecting cables between the basic and all other units shall have a maximum length stated in the firm's (manufacturer's) specification. The existing inlets and outlets of the equipment to be tested shall be connected to the equivalents of usually used auxiliary equipment with the use of cables of maximum length specified by the firm (manufacturer).

The surplus length of the cables shall be coiled and located at 30 — 40 cm (horizontally) from the connectors to which they are hooked up. If this is impracticable, the positioning of the surplus length of the cables shall meet the stated requirements as close as possible.

The measuring antenna shall be located at a distance of 3 m from the equipment to be tested. The antenna centre shall be located above the earthed plane by at least 1,5 m. To determine the maximum interference level the antenna which measures the electric field strength shall be adjusted in the vertical extent only and be capable of rotating to obtain horizontal and vertical polarization. The antenna itself shall remain parallel to the floor. In order to determine the maximum interference level, provision shall be made for movement of the antenna around the equipment to be tested or for rotation of the equipment itself located in the orthogonal plane of the antenna at its middle point level."

2 **Para 3.4.2.3** is replaced by the following text:

**"3.4.2.3 Resistance to electromagnetic field.**

Tests shall be carried out in compliance with standard IEC 61000-4-3.

During these tests, the test electromagnetic field is set up, which arises on board ships when radio transmitters, e.g. shipboard fixed and portable VHF radio sets adjacent to the equipment operate on frequencies over 80 MHz.

The equipment being tested shall be installed in a suitable screened space or in an anechoic chamber the dimensions of which are commensurable with the equipment. The equipment being tested shall be installed in the uniform (homogenous) field zone and insulated from the floor by a dielectric base. The tests shall be carried out in all orientations (on all sides) of the equipment.

The frequency variation rate shall not exceed  $1,5 \times 10^{-3}$  decades/s (or 1 % /3s). During the tests, the frequencies at which the equipment is most sensitive to the interference shall be particularly checked.

The equipment shall remain operable (operability criterion A) when arranged in a modulated electric field with the strength of 10 V/m and when the frequency varies in the range from 80 MHz to 6 GHz. The modulation frequency shall be 1000 Hz  $\pm$ 10 % at the modulation depth of 80  $\pm$  10 %. When the modulation frequency of the input signal of the equipment being tested is 1000 Hz, the modulation frequency of the interference signal may be chosen to be 400 Hz.

If an equipment is intended to receive radio signals for the purpose of radio communication (e.g. wi-fi router, remote radio controller), then the immunity limits at its communication frequency do not apply."

3 **Para 3.9** is replaced by the following text:

**"3.9 Tests of the equipment for heat stability.**

Tests of the automaton equipment for heat stability may also be performed in accordance with IEC Publication 60068-2-2, at a temperature of  $55 \pm 2$  °C, with duration of 16 h, or for the equipment to be mounted in switchboards, consoles or housing together with other heat-generating equipment at  $70 \pm 2$  °C with duration of 16 h. The equipment shall be operating during conditioning and testing equipment operating during conditioning and bring tested with cooling system on if provided. The functional test shall be carried out during the last hour at the test temperature.

The equipment tests for which higher operating temperatures are possible, for example, directly fitted to internal combustion engines, boilers, etc., shall be carried out at a temperature of 10 °C exceeding the working temperature, or at  $85 \pm 2$  °C, whichever is higher, with duration of 16 hours."