



RUSSIAN MARITIME REGISTER OF SHIPPING

CIRCULAR LETTER

No. 315-23-1658c

dated 12.11.2021

Re:

amendments to the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships, 2021, ND No. 2-020101-139-E

Item(s) of supervision:

Electrical Equipment and Automation Equipment

Entry-into-force date:

01.07.2022

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

~~dated~~

Number of pages: 1+9

Appendices:

Appendix 1: information on amendments introduced by the Circular Letter

Appendix 2: text of amendments to Sections 10 and 12 of Part IV "Technical Supervision during Manufacture of Products"

Director General

Konstantin G. Palnikov

Text of CL:

We hereby inform that in connection with entry into force of IACS unified requirement (UR) E10 (Rev.8 Feb 2021) the Rules for Technical Supervision during Construction of Ships and Manufacture of Materials and Products for Ships shall be amended as specified in the Appendices to the Circular

It is necessary to do the following:

1. Bring the content of the Circular Letter to the notice of the RS surveyors, as well as interested organizations and persons in the area of the RS Branch Offices' activity.
 2. Apply the provisions of the Circular Letter during review and approval of the technical documentation on products as well as when performing technical supervision during manufacture of products, when the requests for service rendering listed above are received on or after 01.07.2022.
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List of the amended and/or introduced paras/chapters/sections:

Part IV: Para 10.5.3.2, Table 10.5.3.2.1, Para 10.5.4.1, Para 10.5.4.2, Para 10.5.4.4, Para 10.6.3.1, Para 10.6.3.2, Para 10.6.3.3, Para 12.6.5, Para 12.6.10, Para 12.6.11, Para 12.6.14, Para 12.6.15.2, Para 12.6.15.3, Para 12.6.15.4, Para 12.6.15.5, Para 12.6.15.6 and Para 12.6.17

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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 10.5.3.2	Title of IEC 60068-2-6 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
2	Table 10.5.3.2.1	Title of IEC 60068-2-6 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
3	Para 10.5.4.1	Title of IEC 60068-2-2 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
4	Para 10.5.4.2	Title of IEC 60068-2-1 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
5	Para 10.5.4.4	Title of IEC 60068-2-30 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
6	Para 10.6.3.1	Title of IEC 60068-2-6 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
7	Para 10.6.3.2	Title of CISPR 16-2-3 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
8	Para 10.6.3.3	Title of IEC 60068-2-3 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
9	Para 12.6.5	Title of IEC 60068-2-6 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
10	Para 12.6.10	Title of IEC 60068-2-30 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
11	Para 12.6.11	Title of IEC 60068- 2- 52 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
12	Para 12.6.14	Title of CISPR 16-2-3 standard and IEC standard 60945 has been corrected	315-23-1658c of 12.11.2021	01.07.2022
13	Para 12.6.15.2	Title of IEC 61000-4-6 has been corrected	315-23-1658c of 12.11.2021	01.07.2022
14	Para 12.6.15.3	Title of IEC 61000-4-4 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
15	Para 12.6.15.4	Title of IEC 61000-4-5 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
16	Para 12.6.15.5	Title of IEC 61000- 4- 2 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
17	Para 12.6.15.6	Title of IEC 61000-4-3 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022
18	Para 12.6.17	Title of IEC 60695-11-5 standard has been corrected	315-23-1658c of 12.11.2021	01.07.2022

**RULES FOR TECHNICAL SUPERVISION DURING CONSTRUCTION OF SHIPS
AND MANUFACTURE OF MATERIALS AND PRODUCTS FOR SHIPS, 2021,**

ND No. 2-020101-139-E

PART IV. TECHNICAL SUPERVISION DURING MANUFACTURE OF PRODUCTS

10 ELECTRICAL EQUIPMENT

1 **Para 10.5.3.2** is replaced by the following text:

"**10.5.3.2** Vibration tests are carried out in compliance with standard IEC 60068-2-6:2007, test Fc."

2 **Table 10.5.3.2.1** is replaced by the following:

"Table 10.5.3.2.1

Method 2 – according to IEC 60068-2-6:2007, Test F_c

Frequency range, in Hz	Amplitude, in mm	Frequency of pass, in Hz	Acceleration g
for usual type of equipment			
$2_{-0}^{+3} - 100$	+1,0	13,2	+0,7
for equipment subject to increased vibration			
$2_{-0}^{+3} - 100$	+1,6	25,0	+4,0
Notes: 1. The test duration at each resonance frequency is at least 90 min. Where a number of resonance frequencies are detected close to each other, test duration shall be 120 min with continuous frequency variation within the detected range. 2. The test duration in case of no resonance condition is 90 min at 30 Hz in each plane.			

"

3 **Para 10.5.4.1** is replaced by the following text:

"**10.5.4.1** Tests for heat stability are carried out in compliance with standard IEC 60068-2-2:2007."

4 **Para 10.5.4.2** is replaced by the following text:

"**10.5.4.2** Tests for cold endurance are carried out in compliance with standard IEC 60068-2-1:2007."

5 **Para 10.5.4.4** is replaced by the following text:

"**10.5.4.4** Tests for humidity resistance. Tests for humidity resistance are carried out in compliance with standard IEC 60068-2-30:2005, test Db."

6 **Para 10.6.3.1** is replaced by the following text:

"**10.6.3.1** The check of the voltage level and field strength of radio interference generated by equipment is carried out with use of devices with a quasi-peak detector specified in CISPR 16-1 -2:2016 and 16-2-1:2017, GOST P 51319-99 in compliance with the procedure set forth in 12.6.14, Section 12. The bandwidth of a radio interference meter shall be 200 Hz in the frequency range 0,01 to 0,15 MHz, 9 kHz in the frequency range 0,15 to 30 MHz, and 120 kHz in the frequency range 30 to 2000 MHz excepting the range 156 to 165 MHz where the bandwidth shall be 9 kHz."

7 **Para 10.6.3.2** is replaced by the following text:

"**10.6.3.2** The following tolerable levels of radiated electromagnetic emission are set for the equipment installed on the open deck and navigation bridge.

An electromagnetic field at a distance of 3 m in the following frequency ranges shall be:

150 to 300 kHz – 80 to 52 dB $\mu\text{V}/\text{m}$;

300 kHz to 30 MHz – 52 to 34 dB $\mu\text{V}/\text{m}$;

30 MHz to 2000 MHz – 54 dB $\mu\text{V}/\text{m}$, but 24 dB $\mu\text{V}/\text{m}$ for the frequency range 156 to 165 MHz.

The voltage of emission in supply and input-output circuits measured with use of the artificial mains network according to CISPR 16-2-3:2016 in the following frequency ranges shall be:

10 to 150 kHz – 96 to 50 dB $\mu\text{V}/\text{m}$;

150 to 350 kHz – 60 to 50 dB $\mu\text{V}/\text{m}$;

350 kHz to 30 MHz – 50 dB $\mu\text{V}/\text{m}$.

8 **Para 10.6.3.3** is replaced by the following text:

"**10.6.3.3** The following tolerable levels of radiated electromagnetic emission are set for the equipment installed in the machinery and other enclosed spaces of a ship.

An electromagnetic field at a distance of 3 m in the following frequency ranges shall be:

150 kHz to 30 MHz – 80 to 50 dB $\mu\text{V}/\text{m}$;

30 to 100 MHz – 60 to 54 dB $\mu\text{V}/\text{m}$;

100 to 2000 MHz – 54 dB $\mu\text{V}/\text{m}$, but 24 dB $\mu\text{V}/\text{m}$ for the frequency range 156 to 165 MHz.

The voltage of emission in supply and input-output circuits measured with use of the artificial mains network according to CISPR 16-2-3:2016 in the following frequency ranges shall be:

10 to 150 kHz – 120 to 69 dB $\mu\text{V}/\text{m}$;

150 to 500 kHz – 79 dB $\mu\text{V}/\text{m}$;

500 kHz to 30 MHz – 73 dB $\mu\text{V}/\text{m}$."

12 AUTOMATION EQUIPMENT

9 **Para 12.6.5** is replaced by the following text:

"12.6.5 Vibration tests.

The tests are carried out in compliance with standard IEC 60068 2-6:2007 (test F_c).

The tests are carried out for checking the capability of products to perform their functions and maintain the parameter values within the limits specified in documentation for the products and test programs in case of sinusoidal vibration in the specified test conditions.

The test shall be carried out under mechanical and (or) electrical loads, the type, parameters and control methods of which shall be specified in the documentation for the products and test programme.

For the check it is recommended to select parameters, the changing of which allows to consider the stability of the product in general (e.g., vibronoise level, distortion of output signal or changing its value, circuit continuity, instability of contact resistance, etc.).

The method of fastening of the equipment for tests shall be indicated in the technical documentation with due account of the possible positions of the equipment in service. If the technical documentation specifies different methods of fastening in service of equipment, the latter shall be tested using each method of fastening. If the technical documentation specifies different methods of fastening during operation of the equipment, it shall be tested using the method of fastening which is the most dangerous.

The tests shall be conducted in three mutually perpendicular directions in relation to the equipment within two cycles (the cycle means the continuous variation of frequency within the required range from the lowest to the highest and vice versa $f_1 \rightarrow f_2 \rightarrow f_1$, where f_1 and f_2 are the lowest and highest frequency range accordingly) in each direction. The speed variation rate shall

be sufficient to check and record of the necessary parameters but not more than two octave per minute.

If the technical documentation specifies different methods of fastening during operation of the equipment, it shall be tested using the method of fastening which is the most dangerous.

The tests shall be carried out on regular shock-mounts, if any. Shock-mounted products shall be hard-mounted in tests for detecting resonance frequencies.

Categories of equipment according to vibration resistance depending on the operating conditions are given in Table 12.6.5.

Table 12.6.5

Category of equipment	Description
V1	Equipment operated under normal service conditions.
V2	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	The equipment intended for operation under the conditions of increased vibration, e.g. in exhaust-gas receivers or diesel engine injection systems, etc.

For the equipment of category V1 the tests shall be carried out at the following vibration conditions:

within the frequency range of 2_{-0}^{+3} Hz — 13,2 Hz - amplitude ± 1 mm;
within the frequency range of 13,2 Hz — 100 Hz – acceleration $\pm 0,7g$.

For the equipment of category V2 the tests shall be carried out at the following vibration conditions:

within the frequency range of 2_{-0}^{+3} Hz — 25 Hz - amplitude $\pm 1,6$ mm;
within the frequency range of 25 Hz — 100 Hz – acceleration $\pm 4,0g$.

For the equipment of V3 category the tests shall be carried out at the following vibration conditions:

within the frequency range of 40 Hz — 2000 Hz, acceleration $\pm 10,0g$ at the temperature of 600 °C, duration 90 min.

During the test, resonance frequencies, at which the performance characteristics of the equipment are impaired, are determined. The time of search shall be sufficient to reveal resonance.

When resonance frequencies are detected, the amplitude of which exceeds the normal one by two and more times, the tests shall be conducted on each resonance frequency during at least 90 min.

Where a number of resonant frequencies are detected close to each other, the test may be conducted during 120 min with smooth frequency variation within the detected range.

The test duration in case of no resonance condition is 90 min at 30 Hz.

The equipment shall be considered to have passed the tests, if in the process of vibration effect it retains its parameters within the prescribed limits and remains undamaged."

10 **Para 12.6.10** is replaced by the following text:

"12.6.10 Damp heat tests. The tests shall be carried out in compliance with standard IEC 60068- 2- 30:2005 (тест D_b)..

Before and after the tests the insulation resistance measurement of equipment shall be carried out under standard environmental conditions.

The test shall start with $+25$ °C ± 3 °C and at least 95 % humidity.

The tests shall be carried out with $+55$ °C ± 2 °C and at least 95 % humidity. The duration of the tests shall include two cycles 2 x (12 h + 12 h).

The equipment shall be operating during the complete first cycle and switched off during the second cycle except for the functional test.

The functional tests shall be carried out during the first two hours of the first cycle at the test temperature and during the last two hours of the second cycle at the test temperature.

Duration of the second cycle can be extended due to more convenient handling of the functional test.

Insulation resistance measurements and performance test during 1 — 3 hours shall be carried out following removal from the cold chamber and recovery at standard atmosphere conditions.

The equipment of any design shall be tested in regular enclosures, except for the equipment having degree of protection against penetration of water being 4 (IPX4) and over, the covers of which during the tests in the chamber shall be open. The tests shall be conducted with the equipment being put periodically into operation.

The equipment shall be considered to have passed the tests, if in the process of effect it retains its parameters within the prescribed limits and remains undamaged."

11 **Para 12.6.11** is replaced by the following text:

"12.6.11 Tests for exposure to salt mist (corrosion resistance).

The tests shall be carried out in compliance with standard IEC 60068-2-52:2017, test K_b.

Categories of equipment according to corrosion resistance depending on the operating condition are given in Table 12.6.11.

Table 12.6.11

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

Before and after the tests the insulation resistance measurement of equipment shall be carried out under standard environmental conditions.

Before the test, the initial functional test shall be performed. The equipment shall be operating during conditioning.

For the equipment of category C0 the tests for resistance to sea mist (corrosion resistance) are not required.

For the equipment of category C1 the tests shall be carried out in 4 cycles. Each cycle consists of the following stages:

salt solution atomization during 2 h;

storage of the equipment in the chamber during 7 days.

Functional tests of the equipment shall be carried out on the seventh day of each storage period.

Upon completion of the fourth test cycle after reinstatement (washing and drying of the sample) the insulation resistance shall be measured and the functional tests shall be carried out during 4 — 6 h.

Upon finalization of tests it is necessary to make sure that there is no evidence of corrosion or it is exclusively superficial.

The equipment shall be considered to have passed the tests, if during and after the tests it retains its parameters within the prescribed limits and remains undamaged."

12 **Para 12.6.14** is replaced by the following text:

"12.6.14 Tests for the level of radiated electromagnetic emission.

The tests shall be carried out in accordance with standards CISPR 16-2-3:2016 and IEC 60945:2020 for the frequency range of 156 — 165 MHz.

During tests, the equipment shall operate under normal test conditions, and the setting of controls affecting the level of emissions shall be varied in order to ascertain the maximum emission level. If the equipment has more than one energized state, the state which produces the maximum emission level shall be ascertained, and full measurements for that state shall be made.

Categories of equipment according to electromagnetic compatibility depending on the operating conditions are given in Table 12.6.14.

Table 12.6.14

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.

For the equipment of category E1, the levels of radiated electromagnetic emission at a distance of 3 m shall not exceed the following values within the frequency ranges stated below:

0,15 — 0,3 MHz - 80 — 52 dB μ V/m;

0,3 — 30 MHz - 52 — 34 dB μ V/m;

30 — 1000 MHz - 54 dB μ V/m;

1000 — 6000 MHz - 54 dB μ V/m;

except for the range 156 — 165 MHz where 24 dB μ V/m shall be established.

Alternatively, the radiation limit at a distance of 3 m from the enclosure port over the frequency in the range from 156 to 165 MHz shall be 30 dB μ V/m peak.

For the equipment of category E2, the levels of radiated electromagnetic emission at a distance of 3 m shall not exceed the following values within the frequency ranges stated below:

0,15 — 30 MHz - 80 — 50 dB μ V/m;

30 MHz — 100 MHz - 60 — 54 dB μ V/m;

100 — 1000 MHz - 54 dB μ V/m;

1000 — 6000 MHz - 54 dB μ V/m;

except for the range from 156 to 165 MHz where 24 dB μ V/m shall be established.

The transmission bandwidth of the receiver for 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 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. 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 or for rotation of the equipment itself located in the orthogonal plane of the antenna at its middle point level.

The wireless equipment (wi-fi router, etc.) may be exempted from limit, within its communication frequency range."

12 **Para 12.6.15.2** is replaced by the following text:

"12.6.15.2 Tests for resistance to conducted radio frequency interference.

The tests shall be carried out in compliance with standard IEC 61000-4-6:2013.

During the tests, the radio frequency voltages are generated, which arise in the power supply, control and signalling circuits due to operation of the electric power converters, echo sounders, shipboard radio transmitters on frequencies below 80 MHz.

The tests shall be carried out with the use of a generator connected sequentially to each coupler and decoupler. The unused input terminals of the couplers and decouplers used for connection of the test generator shall be loaded by an equivalent with noninductive impedance equal to the characteristic impedance of the cable. The test generator shall be tuned for each circuit design of the coupler and decoupler; whilst so doing, the additional and tested equipment

shall be disconnected and replaced by a noninductive resistors of suitable ratings (when the cable impedance is 50 Ohm additional resistances shall be 150 Ohm). The test generator shall be tuned in such a way as to provide a non-modulated voltage of the required level at the input terminals of the equipment being tested.

The equipment shall remain operable (functioning criterion A) at the following levels of the test signal:

for the equipment of E2 category (refer to Table 12.6.14), the effective voltage value: 3 V at the frequency varying in the range from 150 kHz to 80 MHz. For the equipment of E1 category (refer to Table 12.6.14), the effective voltage value shall be increased up to 10V at points with frequencies: 2 MHz, 3 MHz, 4 MHz, 6,2 MHz, 8,2 MHz, 12,6 MHz, 16,5 MHz, 18,8 MHz, 22 MHz and 25 MHz;

the frequency variation rate: $\leq 1,5 \times 10^{-3}$ decade/s (or 1 % / 3 s);

modulation depth: 80 %;

modulation frequency 1000 Hz.

Note. At the modulation frequency of the input signal being 1000 Hz the modulation frequency of the interference signal may be chosen to be 400 Hz."

14 **Para 12.6.15.3** is replaced by the following text:

"12.6.15.3 Test for resistance to nanosecond pulse interference due to burst electrical fast transient in the AC supply lines, signal, data and control circuits.

The tests shall be carried out in compliance with standard IEC 61000-4-4:2012.

During these tests, the fast low-energy transient processes generated by the equipment the switching on of which is accompanied by sparking at contacts shall be simulated.

The equipment shall remain operable (operability criterion B) if pulse voltage with the following parameters is applied to the inlets of the supply sources:

pulse rise time: 5 ns (between 10 % and 90 % amplitude level);

duration of unit pulse: 50 ns (at 50 % value);

amplitude: 2kV – when applied to the supply circuits relative to the casing;

amplitude: 1 kV – when applied to the signal, control and communication supply circuits;

unit pulse recurrence frequency: 5 kHz or 100 kHz (pulse recurrence frequency 5 kHz is more applicable during the tests, nevertheless, frequency 100 kHz is more realistic. The equipment manufacturer shall define the recurrence frequency for the particular product);

pulse burst duration: 15 ms;

burst recurrence period: 300 ms;

duration: 5 min for each positive and negative pulse polarity."

15 **Para 12.6.15.4** is replaced by the following text:

"12.6.15.4 Tests for resistance to conducted radio frequency interference.

The tests shall be carried out in compliance with standard IEC 61000-4-5:2017.

These tests simulate effects of the pulse voltages induced by switching "ON" or "OFF" high power inductive consumers.

The equipment shall retain its performance (performance criterion B), when pulses of the following characteristics are applied to its power lines:

pulse rise time: 1,2 μ s (front time);

pulse duration: 50 μ s (time to half value));

amplitude (peak): 1 kV line/earth;

amplitude: 0,5 kV line/line;

recurrence frequency: ≥ 1 pulse/min;

pulse number: 5 pulses for each positive and negative pulse polarity.

Short circuit current:

pulse rise time: 8 μ s (front time);

pulse width: 20 μ s (time to half value);

repetition rate: ≥ 1 pulse/min;

No. of pulses: 5 per polarity."

16 **Para 12.6.15.5** is replaced by the following text:

"12.6.15.5 Tests for electrostatic discharge resistance.

The tests shall be carried out in compliance with standard IEC 61000-4-2:2008.

During these tests the discharges of the static electricity are simulated which can arise when persons touch the appliance.

The discharges from the generator shall be applied to those points and surfaces that could normally be reached by the operator. In testing the preferable method is the contact discharge. If use of the contact method is impossible (where painted surfaces are available) air discharge shall be used.

The equipment shall continue to operate as intended after the tests (performance criterion B), at the following parameters of electrostatic discharges:

amplitude: 6 kV — for contact discharge,

amplitude: 2 kV, 4 kV and 8 kV — for air discharge;

Number of pulses: 10 per polarity.

If voltage test is satisfactory of 8 kV for air discharge, air discharge voltage tests of 2 kV and 4 kV may not be carried out."

17 **Para 12.6.15.6** is replaced by the following text:

"12.6.15.6 Tests for resistance to electromagnetic field.

The tests shall be carried out in compliance with standard IEC 61000-4-3:2020.

During these tests electromagnetic fields radiated by different transmitters are simulated as may occur when persons touch the appliance, e.g. shipboard fixed and portable VHF radio sets adjacent to the equipment operate on frequencies over 80 MHz.

The equipment shall remain operable (performance criterion A) at the following parameters of the electromagnetic field:

frequency range: 80 MHz to 6 GHz;

frequency sweep rate: $\leq 1,5 \times 10^{-3}$ decade/s (or 1 % / 3 s);

field strength: 10 V/m;

modulation depth: 80 %;

modulation frequency: 1000 Hz.

Note. 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."

18 **Para 12.6.17** is replaced by the following text:

"12.6.17 Flame retardant tests.

The tests shall be carried out in compliance with standards IEC 60695-11-5:2017.

The part of the product enclosure shall be tested that most likely is liable to flame during the normal operation or at fault.

The tests shall be carried out under the following conditions:

flame applications: 5 times 15 s each;

interval between each application: 15 s or 1 time 30 s at once.

The test is performed with the equipment or housing of the equipment shall be tested.

Criteria of assessment of the test results:

the burnt-out or damaged part of the specimen by not more than 60 mm long;

no flame, no incandescence or - in the event of a flame or incandescence being present, it shall extinguish itself within 30 s of the removal of the needle flame without full combustion of the test specimen;

any dripping material shall extinguish itself in such a way as not to ignite a wrapping tissue. The drip height is 200 mm \pm 5 mm.

For the one-off products or single shipment of products, for which no CTO is required, it is allowed not to perform flame retardant tests, and the manufacturer shall confirm (submit the appropriate certificates for materials of the product or the manufacturer written statement of compliance) compliance of the product with the requirements for flame retardant."