

Technical Regulations TR EEU 050/2021

In accordance with Article 52 of the Treaty on the Eurasian Economic Union dated 29 May 2014 and Paragraph 29 of Annex No. 1 to the Rules of Procedure of the Eurasian Economic Commission approved by Decision No. 98 of the Supreme Eurasian Economic Council dated 23 December 2014, the Council of the Eurasian Economic Commission **decided:**

1. To adopt the attached Technical Regulation of the Eurasian Economic Union "On the Safety of Products Intended for Civil Defence and Protection Against Natural and Man-Made Emergencies" (TR EAEU 050/2021).
2. To establish that the Technical Regulation of the Eurasian Economic Union "On the Safety of Products Intended for Civil Defence and Protection Against Natural and Man-Made Emergencies" (TR EAEU 050/2021) shall enter into force on 1 June 2023.
3. This Decision shall enter into force upon the expiry of 30 calendar days from the date of its official publication.

Members of the Council of the Eurasian Economic Commission:

From the Republic of Armenia	From the Republic of Belarus	From the Republic of Kazakhstan	From the Kyrgyz Republic	From the Russian Federation
M. Grigoryan	I. Petrishenko	A. Smailov	A. Zhaparov	A. Overchuk

ADOPTED
by Decision of the Council
of the Eurasian Economic Commission
dated 5 October 2021 No. 100

TECHNICAL REGULATION

of the Eurasian Economic Union "On the Safety of Products Intended for Civil Defence and Protection Against Natural and Man-Made Emergencies" (TR EAEU 050/2021)

I. Scope of Application

1. This Technical Regulation has been developed in accordance with the Treaty on the Eurasian Economic Union dated 29 May 2014 in order to protect human life and (or) health, property, the environment, animal and plant life and (or) health, and to prevent actions that mislead consumers.

This Technical Regulation establishes requirements mandatory for application and compliance in the customs territory of the Eurasian Economic Union (hereinafter referred to as the Union) for products intended for civil defence and protection against natural and man-made emergencies, placed on the market in the customs territory of the Union (hereinafter referred to as products).

If other Technical Regulations of the Union have been adopted with respect to products, the products shall comply with the requirements of all Technical Regulations of the Union applicable to them.

2. This Technical Regulation applies to objects of technical regulation according to the list set out in the Annex.

3. This Technical Regulation does not apply:

a) to products developed and modified to identify or detect bacteriological (biological) objects and radioactive materials that may be used for military

purposes, or to protect against such objects and materials;

b) to products developed and modified to identify or detect toxic chemicals used in chemical weapons and chemical agents for riot control, or to protect against such chemicals and agents, as well as to components specially developed for these products;

c) to products that are objects of the Customs Union Technical Regulation "On the Safety of Personal Protective Equipment" (TR CU 019/2011).

II. Basic Concepts

4. For the purposes of applying this Technical Regulation, the concepts established by the Protocol on Technical Regulation within the Eurasian Economic Union (Appendix No. 9 to the Treaty on the Eurasian Economic Union dated 29 May 2014), the standard conformity assessment schemes approved by Decision No. 44 of the Council of the Eurasian Economic Commission dated 18 April 2018 (hereinafter referred to as the standard schemes), as well as the concepts defined as follows, shall be used:

"emergency rescue operations" – actions to search for and rescue people, material and cultural assets, protect the environment in an emergency zone and from hazards arising during or as a result of military conflicts, localize and suppress, or reduce the impact of the hazardous factors characteristic of such situations to the lowest possible level;

"emergency rescue equipment" – technical equipment intended for conducting emergency rescue operations;

"accidentally chemically hazardous substance" – a hazardous chemical substance used in industry and agriculture, the accidental release (spill) of which may result in environmental contamination at toxic doses damaging to living organisms;

"automated workstation for the duty dispatcher" – a software-hardware complex of command and communications equipment for receiving, processing, transmitting and displaying information (the situation), intended for receiving and transmitting commands, automating the process of managing civil defence forces and equipment, and protecting against emergency situations;

"automated public warning workstation" – a software-hardware complex for receiving warning signals and information from a civil defence command post and the unified duty dispatch service, processing and displaying such information, generating and transmitting control commands to equipment for launching and monitoring terminal warning devices through all available technical communications, warning and mass-media systems;

"biological (bacteriological) contamination" – penetration into a living organism of an infectious disease agent or products of its vital activity, resulting in the development of an infectious process in the affected organism;

"auxiliary equipment for command and communications equipment" – equipment intended for connecting, generating, converting and processing signals and messages transmitted or received over communications networks, as well as for supplying power to command and communications equipment;

"civil defence" – a system of measures for preparing for and protecting the population, material and cultural assets in the territory of a Member State of the Union from hazards arising during or as a result of military conflicts, as well as during natural and man-made emergencies;

"unified duty dispatch service" – a management body of the state system for emergency prevention and response and recovery of a Member State

of the Union, intended to coordinate the actions of duty and dispatch (duty dispatch) services, civil defence forces and equipment, and emergency prevention and response and recovery within the territory of an administrative-territorial unit;

"civil defence protective structure" – an engineering structure intended to shelter people, equipment and property from hazards arising during or as a result of military conflicts, as well as during natural and man-made emergencies;

"chemical contamination zone" – a territory within which a danger to the health of unprotected people exists if they remain in that territory for an extended period under the relevant conditions. A chemical contamination zone is delimited by the legally established maximum permissible concentrations of exposure to hazardous chemical substances during emergencies or military conflicts;

"emergency zone" – a territory in which an emergency situation has arisen;

"emergency response and recovery" – emergency rescue and other urgent operations carried out when emergency situations arise and aimed at saving lives and preserving people's health, reducing the extent of damage caused to the environment and material losses, as well as localizing emergency zones and terminating the action of the hazardous factors characteristic of such situations;

"conventional weapons" – types of weapons that do not constitute weapons of mass destruction and are equipped with ammunition or incendiary substances;

"terminal warning device" – a technical device that delivers warning signals and information to the population;

"terminal subscriber unit" – a technical device intended to provide an official of a management body (command post) with the necessary communications service;

"hazardous chemical substance" – a chemical substance whose direct or indirect effect on humans may cause acute and chronic diseases or death;

"management body" – a body of the state system for emergency prevention and response and recovery of a Member State of the Union, intended to perform tasks related to managing civil defence and measures for protection against natural and man-made emergencies;

"weapons of mass destruction" – nuclear, chemical, bacteriological (biological) and toxin weapons;

"toxic agent" – a poisonous chemical substance possessing specific toxic and physicochemical properties and causing injury to people and contamination of the air, terrain, weapons and other equipment;

"damaging factor" – a component of a hazardous phenomenon or process caused by the source of an emergency situation and characterized by physical, chemical and biological actions or manifestations determined or expressed by the relevant parameters;

"emergency prevention" – a set of measures carried out in advance and aimed at reducing as far as possible the risk of emergencies arising, as well as preserving people's health and reducing the extent of damage caused to the environment and material losses if such situations arise;

"radiation shelter" – a civil defence protective structure intended to protect people sheltering therein from exposure to ionizing radiation during radioactive contamination of the area and permitting continuous occupancy for the period established by regulations;

"command posts" – specially equipped structures (premises) or vehicles fitted with the necessary communications and life-support equipment and intended to accommodate management bodies and ensure their effective operation both when emergency situations and military conflicts arise and when they are absent;

"radioactive contamination" – the presence of radioactive substances on a surface, inside a material, in the air, in the human body or elsewhere in amounts exceeding the levels established by the legislation of a Member State of the Union;

"full or partial isolation mode with internal-air regeneration", "mode III" – supplying a civil defence protective structure with air consisting of used air restored to its original composition and properties for reuse by means of specific physicochemical processes and/or compressed air (oxygen) from cylinders, as well as a limited volume of outside air purified **using filter ventilation systems**;

"filter ventilation mode", "mode II" – supplying a civil defence protective structure with outside air purified using filter ventilation systems from gaseous accidentally chemically hazardous and other hazardous chemical substances, aerosols and dust, including radioactive dust and aerosols of hazardous biological agents, to the established maximum permissible concentrations;

"clean ventilation mode", "mode I" – supplying a civil defence protective structure with outside air purified from dust using filter ventilation systems;

"warning system" – an organizational and technical association of forces, communications network channels, broadcasting networks, communications devices and warning devices ensuring the delivery of warning signals and information to the population, officials of

management bodies and civil defence forces for the purposes of emergency prevention and response and recovery;

"communications system" – an organizational and technical association of communications forces and equipment ensuring the exchange of information in the civil defence management system for the purposes of emergency prevention and response and recovery;

"civil defence management system" – an integral part of the state administration system of a Member State of the Union, intended to perform tasks in the field of civil defence and comprising a set of management bodies, command posts and technical equipment ensuring civil defence management;

"communications device" – a technical device that transmits, processes and receives messages in the civil defence management system;

"natural disaster" – a destructive natural and/or natural-anthropogenic phenomenon or process as a result of which a threat to people's life and health may arise or may have arisen, production and/or non-production facilities may be damaged or destroyed, and components of the environment may also be damaged or destroyed;

"technical equipment for emergency monitoring" – products, devices, instruments and information and computing (software-hardware) monitoring complexes intended to monitor the environment and man-made facilities in order to assess, analyze and promptly identify changes in their condition and processes and phenomena occurring therein, as well as to provide information support for decision-making on emergency prevention and response and recovery;

"technical warning device" – a technical device that transmits, processes and receives warning signals and information;

"command and communications equipment" – a technical device that transmits, processes and receives messages in civil defence management, emergency prevention and emergency response and recovery systems;

"shelter" – a civil defence protective structure intended to protect people for the period established by regulations from the calculated effects of damaging factors of nuclear and chemical weapons and conventional weapons, hazardous biological agents, external radioactive radiation and damaging concentrations of accidentally chemically hazardous substances arising during accidents at potentially hazardous facilities, as well as from high temperatures and combustion products during fires;

"protective shelter" – a civil defence protective structure intended to protect people and material and cultural assets from the blast and fragmentation effects of conventional weapons, as well as from injury caused by fragments of building structures during the destruction of buildings and structures as a result of the effects of damaging factors of conventional weapons and natural and man-made emergencies;

"blast effect" – the effect of ammunition in which a target is damaged by the explosion products of a bursting charge and the resulting shock wave;

"chemical contamination" – the spread of hazardous chemical substances in the environment at concentrations or in amounts that create a threat to people, agricultural animals and plants for a certain period;

"emergency situation" means a situation that has developed in a certain territory as a result of an accident, dangerous natural phenomenon, catastrophe, natural or other disaster, which may result in or has resulted in human casualties, damage to human health or the environment, significant material losses, and disruption of people's living conditions.

III. Product Identification Rules

5. Product identification is carried out by the manufacturer (person authorised by the manufacturer), seller, importer, bodies of the Member States of the Union (hereinafter referred to as the Member States) responsible for state control (supervision) over compliance with the requirements of this Technical Regulation, and certification bodies for the following purposes:

a) establishing that the product belongs to the objects of technical regulation under this Technical Regulation;

b) preventing actions that mislead consumers.

6. For the purpose of identifying products in order to establish whether they belong to the objects of technical regulation under this Technical Regulation, the person identifying the product referred to in paragraph 5 of this Technical Regulation shall ensure that the product being identified is not covered by paragraph 3 of this Technical Regulation and belongs to a specific product group provided for in the annex to this Technical Regulation.

7. Product identification is carried out by establishing the identity of its characteristics to the actual characteristics specified in the technical documentation and to the identification features, including its name, type (kind), intended use, technical parameters and characteristics, trademark and (or) name of the manufacturer, and the name of the country in which it was manufactured.

IV. Rules for Placing Products on the Union Market

8. Products covered by this Technical Regulation whose conformity with the requirements of this Technical Regulation has not been confirmed shall not be marked with the single mark of product circulation on the Union

market and shall not be permitted for placing on the Union market.

Products are placed on the Union market if they conform to this Technical Regulation and other Technical Regulations of the Union (Customs Union) applicable to such products, provided that they have undergone conformity assessment in accordance with Section VII of this Technical Regulation and other Technical Regulations of the Union (Customs Union) applicable to them.

V. Product Requirements

1. Requirements for Protective Airtight Devices and Products of Civil Defence Protective Structures

9. The main elements of protective airtight and airtight doors, gates and shutters are:

- a) leaf (leaves) – intended to close the opening and shall be a metal structure made of sheet and section metal. The leaf of a gate may be welded from individual steel sheets;
- b) box (coaming) – intended to transfer the design load from the leaf to the enclosing building structures, as well as to seal the opening, and shall be a frame welded from section metal;
- c) dogging mechanism – intended for locking and sealing the opening and shall include a bevel gearbox, screw rods with wedges and handwheels (handles). The dogging mechanism shall be located on the inner side of the product and ensure that it can be opened and closed from both sides. When tightened, the locking wedges of the bolt shall press the leaf against the box.

10. The airtightness of protective airtight and airtight doors, gates and shutters shall be ensured by a special seal located around the perimeter of the leaf.

Protective airtight doors, gates and shutters shall ensure the sealing of shelters and protect the people taking shelter from the design impact of an air shock wave, including the effects of nuclear weapons, the blast effect of conventional weapons, falling structural fragments resulting from the destruction of upper building floors, as well as from external radioactive radiation and accidentally chemically hazardous substances.

Protective airtight doors and gates shall be used as external devices for vestibules and as external and internal devices for airlock vestibules.

Protective airtight shutters shall be used as external and internal devices installed in access openings, expansion chambers, filter installation chambers and other similar rooms.

Airtight doors, gates and shutters shall ensure the sealing of shelters based on the design impact of external radioactive radiation and accidentally chemically hazardous substances.

Airtight doors and gates shall be used as internal devices for vestibules and as external and internal devices for the vestibule of a diesel power station.

Airtight shutters shall be used as internal devices and installed in the vestibules of access openings behind the protective airtight shutter and in other similar rooms.

Protective airtight and airtight doors and gates shall be hinged or sliding.

Hinged devices shall be opened and closed by rotating the leaves around hinges welded to the box. For sliding devices, the leaf shall be suspended

from travelling carriages that move along a monorail incorporated into the welded structure of the box (coaming).

In civil defence protective structures, protective airtight and airtight doors, gates and shutters shall be installed in accordance with the design documentation.

Protective airtight and airtight doors, gates and shutters may, with additional justification, be equipped with an interlocking device – an electromagnetic latch that prevents the leaf (leaves) from being unsealed without a signal from the command posts.

All external surfaces of the parts and assemblies of protective airtight and airtight doors, gates and shutters, except for rubbing, non-metallic and galvanised surfaces, shall be painted.

The locking wedges of the dogging mechanism shall move without jerks or jamming, and the bolt, when tightened, shall ensure uniform compression of the seal around the entire perimeter.

Hinged protective airtight and airtight doors, gates and shutters shall be installed so that, on the side of greater pressure (impact), the leaf is pressed against the box and operates under compression.

Hinged protective airtight and airtight doors, gates and shutters shall be installed to open both to the right and to the left; for this purpose, they shall be turned through 180 degrees during installation. If a signalling device is provided, the limit switch should be installed at the top of the box.

The manufacturer, product code and Date of Manufacture shall be indicated on the external side of the leaf of protective airtight and airtight doors, gates and shutters.

11. Blast-resistant protective sections shall be intended to protect ventilation systems from the impact of a shock wave with a pressure of 0,03 – 1,0 MPa. In this case, under the impact of the shock wave, the blast-resistant protective sections shall automatically close ventilation shafts or air ducts and ensure protection against the penetration of the wave into civil defence protective structures.

12. Expansion chambers shall be designed for a load of 0,02 MPa.

13. Airtight valves with manual and electric drives are intended for installation on ventilation system air ducts as shut-off devices and serve to reliably isolate rooms from the external environment or reliably isolate one room from another.

The aerodynamic resistance coefficient of airtight valves with electric and manual drives shall be 0,3.

Airtight valves shall remain operational at air temperatures from minus 50 °C to plus 50 °C as shut-off devices for reliably isolating rooms from the external environment or reliably isolating one room from another.

Airtight valves shall be installed:

at the points where air ducts intersect the external and internal sealing boundaries;

for shutting off various filters used for air purification and regeneration in filter ventilation mode and full or partial isolation mode with internal-air regeneration;

for disconnecting air ducts from rooms containing toxic agents and explosive substances;

on air ducts opened or closed in emergencies (smoke extraction air ducts), or for switching ventilation systems from one operating mode to another.

14. The design of the electric drive of the airtight valve shall provide for:

remote or local signalling in the end positions of the shut-off device ("open" – "closed");

automatic stopping of the shut-off element when the end positions are reached;

automatic stopping of the shut-off element when the specified torque value is exceeded.

The design of the manual drive shall provide for remote or local signalling in the end positions of the shut-off device ("open" – "closed").

15. Pressure relief valves are intended to automatically maintain constant overpressure (back pressure) in adjacent rooms and to supply air from one room to another in one direction only. The valves shall operate (open) due to the force created by the overpressure on the surface of the valve disc and shall be installed on the side of the room with the higher pressure. After the pressure has equalised or the specified pressure differential has been reached, and also when the pressure downstream of the valve increases, the valve shall close under the force of gravity of the weight or under pressure. The valve shall be secured with bolts to the mating flange on the air duct (embedded part).

Pressure relief valves shall be classified according to the nominal bore diameter of the pipe to which they are connected, expressed in millimetres (100, 150, 200, 300 mm).

16. Adjustable blanking plates shall be installed on ventilation openings with a diameter of 150 mm or 200 mm in room walls and used as regulating and shut-off devices.

17. The devices and products shall remain operational when exposed to the following climatic factors:

increase in ambient temperature to 50 °C;

decrease in ambient temperature to minus 50 °C;

increase in relative air humidity to 98 percent at an ambient temperature of 50 °C.

The reliability of the devices and products shall be characterised by the following indicator values:

mean restoration time – not more than 5 hours;

limiting-state criterion – metal corrosion.

The service life of the devices shall be confirmed by the manufacturer in documentary form.

2. Requirements for ventilation units, filters and air regeneration units of civil defence protective structures

18. Fans with electric and combined electric/manual drive shall be used in civil defence protective structures.

Fans with electric and electric-manual drive shall be used depending on the climatic zones for ventilation of shelters with a capacity of not more than 600 people.

Each fan with electric/manual drive shall be equipped with a check valve – airflow indicator.

When operating from the electric drive, the gearbox shall be automatically disconnected from the impeller shaft by means of a switching clutch. In

the absence of electrical power, the shaft shall be operated by rotating the gearbox handle.

The capacity of fans with electric/manual drive when operating from the electric drive and manual drive at a handle rotation speed of 45 min⁻¹ shall ensure the shelter's design air supply requirement, taking into account the aerodynamic resistance of the installed filters.

19. For cleaning outdoor air from dust and aerosol particles of combustion products in all modes, cell filters corresponding to the design capacity of the ventilation system of civil defence protective structures shall be used.

20. If prefilters are used in Modes I and II, cell filters with a purification coefficient of not less than 0,8, corresponding to the design capacity of the shelter ventilation system, shall be installed upstream of them.

For fine cleaning of outdoor air from dust and aerosol particles in all modes, prefilters installed downstream of the cell filters shall be used.

21. Cell filters shall be regenerated when the aerodynamic resistance of the network reaches 160 Pa, replacing the contaminated filters with reserve filters for the duration of their treatment.

22. Prefilters used in Modes I and II shall have the following characteristics:

- a) capacity – not more than 1000 m³/h;
- b) resistance to airflow – not more than 265 Pa;
- c) standard oil mist penetration coefficient – not more than 14 percent.

23. If, during peacetime, cleaning outdoor air from dust is not required, provision shall be made for the possibility of dismantling the cells of the cell filters or the prefilter cassettes.

Outdoor air shall be cleaned of toxic agents, radioactive substances and biological agents in filter-absorbers.

24. Provision shall be made for regeneration of indoor air in regenerative cartridges with a protective action time of not less than 5 hours at an initial carbon dioxide concentration of 20 ± 2 mg/l.

During peacetime, regenerative cartridges may be used only in emergency situations.

3. Technical Equipment for Control and Communications

25. Technical equipment for control and communications is divided into the following groups according to operating conditions:

- a) for stationary premises and structures;
- b) for civil defence protective structures;
- c) for mobile command posts;
- d) for open spaces.

26. Technical equipment for control and communications shall function under the following conditions:

- a) when located in an open space:

ambient temperature – from minus 50 °C to plus 50 °C;

relative air humidity – from 30 percent to 95 percent;

atmospheric pressure – from 74,8 to 106,7 kPa;

enclosure protection rating – not lower than IP 54;

b) when located in enclosed heated premises:

ambient temperature – from minus 10 °C to plus 45 °C;

relative air humidity – from 30 percent to 78 percent.

27. The automated workstation for the duty dispatcher shall ensure:

- a) receipt and transmission of control commands, automation of the process of managing civil defence forces and equipment, as well as protection against emergency situations;
- b) software compatibility and technical interfacing of automated workstations with one another at all levels of civil defence management and with automated workstations of interacting management bodies;
- c) information security.

28. The terminal subscriber unit shall provide the official of the management body with:

- a) access to the necessary communications services;
- b) the ability to control visual and audio information for the purposes of managing resources, communications services and data transmission.

29. Auxiliary equipment for command and communications equipment shall ensure:

- a) generation, conversion and processing of signals and messages transmitted or received over communications and data transmission networks;
- b) protection of information against unauthorised access;

c) power supply for automated workstations for the duty dispatcher and terminal subscriber units.

4. Technical equipment for warning of hazards arising during military conflicts or as a result of such conflicts, as well as emergencies

30. Technical warning devices are divided into the following groups:

a) by functional purpose:

automated public warning workstation;

equipment for launching terminal warning devices;

terminal warning device;

6) by operating conditions:

for permanent premises and structures;

for civil defence protective structures;

for mobile command posts;

for open spaces.

31. The automated public warning workstation shall ensure:

a) software compatibility and technical interfacing of automated public warning workstations with one another at all levels of civil defence management and with automated workstations of interacting management bodies;

6) receipt of warning signals and information from management bodies at all levels;

в) receipt of data from monitoring systems for natural and man-made emergencies and analysis of such data, preparation of warning information, a list of subscribers to be warned and technical equipment used for public warning;

г) generation and transmission of warning signals and information in the following modes:

circular;

group;

selective;

д) transmission of the following types of warning signals and information:

audible warning;

voice message;

text message;

video message;

е) automatic repeated transmission of undelivered warning signals and information until confirmation is received or the number of transmission attempts specified **during configuration is reached;**

ж) transmission of pre-recorded warning signals and information on magnetic (electronic) media or by direct transmission;

з) recording of warning signals and information;

и) the possibility of promptly entering warning information or editing warning information entered previously;

- к) conducting two-way voice-message exchanges in conference mode with one or a group of automated public warning workstations, with sound recording capability;
- л) preparation (recording) and storage of audio, voice, text and video messages, warning programmes, and options and modes for their transmission;
- м) setting the priority for warning subscribers (managing the order in which subscribers are warned in the warning list);
- н) periodic monitoring of the condition of technical equipment for public warning and communications channels in standby mode and during transmission of warning signals and information;
- о) suspension or cancellation of a warning session on command;
- п) real-time visualisation of the warning process, displaying the list of warning objects, the warning time (for each object) and the channels through which the warning is carried out;
- р) generation of databases containing information on the progress and results of warning (with the possibility of printing this information);
- с) integrated use of communications networks and channels for transmitting warning signals and information.

32. Equipment for launching terminal warning devices is intended for switching communications channels and broadcasting networks and for switching terminal warning devices on (off) to transmit warning signals and information. Equipment for launching terminal warning devices shall ensure:

- а) operation of terminal warning devices using 2 independent types of communication;

- 6) switching of communications channels and broadcasting networks;
- в) switching terminal warning devices on (off) to transmit warning signals and information;
- г) operation over digital and analogue communications networks and channels, **and various combinations of communications channels.**

33. Terminal warning device **of the "voice reproduction unit" type** is intended for transmitting audible warning signals and information and shall be installed in places where people are present, both indoors and in open spaces.

Terminal warning device **of the "voice reproduction unit" type** shall ensure:

reproduced frequency range of the voice channel – not less than 0,3 – 3,4 kHz;

reliable reception of voice information corresponding to the following characteristics:

syllable intelligibility – not less than 90 percent;

word intelligibility – not less than 97 percent.

The acoustic pressure level generated by a terminal warning device of the "voice reproduction unit" type on the acoustic axis, measured in an open area in windless conditions, shall be established by the developer for a sinusoidal signal with a frequency of 1 kHz. A deviation of the acoustic pressure of up to minus 14 dB from the level at a frequency of 1 kHz is permitted within the declared frequency range of the acoustic unit. The generated pressure parameter shall be measured at a distance of 30 m from the terminal warning device of the "voice reproduction

unit" type on the acoustic axis in windless conditions.

When installed in an open space, the terminal warning device **of the "voice reproduction unit" type** shall operate reliably under the following conditions:

ambient temperature – from minus 50 °C to plus 50 °C;

relative air humidity – from 30 percent to 95 percent;

atmospheric pressure – from 74,8 kPa to 106,7 kPa;

degree of enclosure protection – not lower than IP 54.

When installed in enclosed heated premises, the terminal warning device of the "voice reproduction unit" type shall operate reliably under the following conditions:

ambient temperature – from minus 10 °C to plus 45 °C;

relative air humidity – from 30 percent to 78 percent;

34. The terminal warning device of the "siren" type is intended for transmitting audible warning signals of the "siren" type and shall be installed in places where people are present, both indoors and in open spaces.

The terminal warning device of the "siren" type shall ensure transmission of continuous and intermittent siren signals.

The acoustic pressure level generated by the terminal warning device of the "siren" type in the area of operation declared by the developer shall be established by the developer and measured in an open area in horizontal directions at a distance of 30 m from the axis of the terminal warning device of the "siren" type in

windless conditions. The frequency of sound oscillations shall be 400 - 450 Hz.

When installed in an open space, the terminal warning device of the "siren" type shall operate reliably under the following conditions:

ambient temperature - from minus 50 °C to plus 50 °C;

relative air humidity - from 30 percent to 95 percent;

atmospheric pressure - from 74,8 kPa to 106,7 kPa;

degree of enclosure protection - not lower than IP 54.

When installed in enclosed heated premises, the terminal warning device of the "siren" type shall operate reliably under the following conditions:

ambient temperature - from minus 10 °C to plus 45 °C;

relative air humidity - from 30 percent to 78 percent.

35. Technical warning devices, except for terminal warning devices of the "siren" type, shall maintain operability when centralised power supply is disconnected for at least 6 hours in standby mode and at least 1 hour in warning signal and information transmission mode.

Technical warning devices shall meet the following requirements:

mean time between failures shall be at least 30 000 hours;

service life shall be specified by the manufacturer in the technical (design, engineering, process and/or operating) documentation.

Technical warning devices shall be powered from an alternating-current network with a voltage of 230 – 400 V ($\pm 10 - 15$ percent) and a frequency of 50 ± 1 Hz. **Power supply from direct-current networks with a voltage of 60 ± 12 V, 48 ± 12 V, 12 ± 2 V and other voltages in accordance with the technical documentation is permitted.**

36. The following safety requirements apply to emergency rescue equipment:

a) the design of emergency rescue equipment shall ensure:

electrical safety;

fire safety;

explosion safety;

radiation safety;

protection against exposure to hazardous chemical substances;

maintenance safety;

resistance to overpressure;

6) the design of emergency rescue equipment shall provide protection against erroneous actions by operating personnel when controlling such equipment;

b) the design of emergency rescue equipment, the materials, lubricants, oils, etc. used, when exposed to damaging factors, shall preclude the possibility of forming sources of ignition, the occurrence of electrical voltage on parts of the emergency rescue equipment, the formation of internal ionising radiation sources with parameters exceeding the maximum permissible limits established by the legislation of the Member

States, radiation safety standards and applicable sanitary rules, as well as the possibility of the sudden occurrence of vapours of hazardous chemical substances in the air of the operating area where operating personnel are present;

г) depending on their functional purpose, emergency rescue vehicles shall be equipped with means for purifying atmospheric air from the effects of damaging factors to supply air to operating personnel and evacuated victims;

д) emergency rescue equipment shall have emergency stop devices in the event of impaired operability, including sudden power disconnection (which may result in an emergency situation);

е) the electrical equipment and electrical networks of emergency rescue equipment (if provided) shall be reliably protected against mechanical damage during operation and exposure to external environments, while protection of all electrical networks against overloads and short circuits shall be ensured;

ж) the safety of emergency rescue equipment shall not be reduced under the influence of external climatic and mechanical factors permitted by the operating conditions;

з) compliance with safety requirements shall be ensured throughout the entire service life of emergency rescue equipment;

и) the storage and service lives established for emergency rescue equipment and its components shall be documented by the manufacturer;

к) operating documents shall be supplied with each item of emergency rescue equipment.

37. The following intended-use requirements apply to emergency rescue equipment:

a) depending on their type and class, emergency rescue equipment shall be used for land, mountain, surface-water (underwater) and underground emergency rescue operations and for organising priority life support for the population in zones of:

radioactive contamination;

chemical contamination;

destruction;

fires;

floods and inundation;

biological (bacteriological) contamination;

b) emergency rescue equipment shall have the mobility and productivity required to implement such organisational and technological principles for conducting emergency rescue operations as timeliness, continuity, all-weather capability, a high pace and effectiveness of their performance;

c) emergency rescue equipment mounted on a transport platform shall have high cross-country capability, the ability to maintain directional stability and the possibility of free manoeuvring at the operating speed specified for the designated work area;

d) emergency rescue equipment of the same type and class shall be electrically and mechanically compatible in terms of their resistance to fluctuations in supply voltage and changes in supply voltage frequency;

e) emergency rescue equipment incorporating radio-electronic devices as functional elements shall be resistant to radio interference;

f) emergency rescue equipment shall be resistant to external effects characteristic of the emergency environment in which such equipment is used and shall retain its characteristics and parameters when exposed to damaging factors (physical-mechanical and physicochemical);

g) radio-electronic emergency rescue equipment shall have Electromagnetic Compatibility and operate without unacceptable mutual interference in its own electromagnetic environment;

h) robotic emergency rescue equipment shall perform emergency rescue operations without a person being directly present in the hazardous zone.

38. The following reliability requirements shall apply to emergency rescue equipment.

In terms of the nature of their operation, emergency rescue equipment shall be classified as products intended for repeated cyclic use, failures of which do not result in catastrophic consequences.

The following reliability indicators shall be specified for emergency rescue equipment:

failure-free operation;

durability;

maintainability;

storability;

readiness.

39. Emergency rescue equipment shall remain operational when exposed to:

- a) mechanical factors;
- b) climatic and other natural factors (temperature, pressure, humidity);
- c) radiation factors (radioactive substances and their components);
- d) chemical factors (hazardous chemical substances);
- e) factors of special environments (dust, elements of reinforced-concrete structures, etc.);
- f) thermal factors (fire).

40. The following general requirements shall apply to emergency rescue equipment:

- a) emergency rescue equipment of any class shall have a block-modular design with the maximum possible unification of the transport platform, technical equipment, tools and auxiliary equipment;
- b) the design of the body, its dimensions and the relative arrangement of its elements shall ensure the strength and operational reliability of the component parts and components, as well as the maximum possible prevention of environmental pollution during operation;
- c) the design of the block-modular elements of emergency rescue equipment shall ensure performance of all functions in accordance with the intended purpose of the emergency rescue equipment under the effect of damaging factors and shall have the minimum possible overall dimensions, with free access to component parts for maintenance and repair without dismantling assemblies and units;

d) the mass, dimensions and other parameters of emergency rescue equipment, for all configurations with working tools and instruments, shall comply with the values established for the relevant class and type of emergency rescue equipment;

e) the design of emergency rescue equipment shall permit its use at any time of the year and day throughout the declared service life and shall protect functional equipment and technical equipment against overloads caused by violation of operating limits, sudden interruption of power supply, damage by rodents and biological pests;

f) internal (on-board) power sources shall be autonomous and ensure the specified time of continuous operation and autonomous functioning of emergency rescue equipment;

g) the strength characteristics of materials shall ensure the reliability of emergency rescue equipment when exposed to external factors (mechanical, climatic, radiation, special-environment and thermal factors);

h) component parts of emergency rescue equipment shall, depending on their intended purpose, permit treatment with:

water, aqueous solutions of surfactants and alcohol-based solutions;

degassing, disinfecting and decontaminating solutions;

an air stream;

mechanical action using non-metallic brushes;

i) the materials used in the manufacture of emergency rescue equipment, as well as the working surfaces of mechanism and instrument parts, shall have protective coatings preventing corrosion and abrasive deterioration;

j) the methods for connecting parts and assembly units to one another in emergency rescue equipment shall ensure reliable and rapid connection manually or automatically and shall prevent incorrect assembly;

k) self-propelled emergency rescue equipment and emergency rescue equipment mounted on a transport platform shall be equipped with lighting devices, distinctive light-and-sound systems and acoustic signalling devices. During hours of darkness and in unlit premises, such emergency rescue equipment may be operated only with the lighting devices and distinctive running lights switched on.

41. The following transportability requirements shall apply to emergency rescue equipment:

a) emergency rescue equipment shall be capable of being transported by all available modes of transport, with or without a transport container;

b) self-propelled transportation of emergency rescue equipment mounted on the chassis of vehicles shall be ensured throughout the entire service life without reducing functional effectiveness;

c) transportation of emergency rescue equipment by air, rail or water shall be ensured without reducing its technical condition and without limiting range or speed;

d) dismantling operations shall be simple and take the minimum possible time. Partial dismantling of emergency rescue equipment without loss of the ability to move under its own power is permitted;

e) each item of emergency rescue equipment shall have a standard set of devices for wire-free securing during transportation by any mode of transport;

f) self-propelled emergency rescue equipment and emergency rescue equipment mounted on a transport platform shall have devices enabling them to be towed by another vehicle.

42. The following manufacturability requirements shall apply to emergency rescue equipment:

- a) accessibility and convenience of maintenance and repair;
- b) the specified reliability ensuring restoration of operability during operation by the standard crew.

43. Emergency rescue equipment shall meet the following special requirements:

- a) self-propelled emergency rescue equipment and emergency rescue equipment mounted on a transport platform shall be equipped with communications devices and navigation equipment;
- b) all emergency rescue equipment equipped with communications devices and navigation equipment shall have at least 2 power sources (main and backup) for powering radio equipment.

5. Technical Equipment for Emergency Monitoring

44. Technical equipment for emergency monitoring shall comply with the classification according to its functional purpose.

45. Monitoring of emergencies of a technogenic nature shall be carried out with regard to:

- a) technological processes;
- 6) engineering life-support and safety systems;

- в) engineering (load-bearing) structures of buildings and structures;
- г) facilities for the transportation and storage of hazardous chemical substances and explosives;
- д) radioactive contamination, and chemical and biological contamination of the environment.

46. Monitoring of emergencies of a natural nature shall be carried out with regard to:

- а) geological processes and phenomena;
- б) meteorological processes and phenomena;
- в) hydrological processes and phenomena;
- г) natural fires.

47. Technical equipment for emergency monitoring shall operate in continuous and (or) periodic monitoring modes.

48. Technical equipment for emergency monitoring shall provide information support for the performance by management bodies of the following functions:

- а) emergency risk management;
- б) emergency forecasting;
- в) assessment of the effectiveness of emergency prevention based on monitoring results;
- г) information exchange between the state emergency prevention and response systems of the Member States.

49. Technical equipment for emergency monitoring shall perform the following functions in real time:

a) sensors and measuring instruments for monitoring changes in the state of environmental parameters or individual environmental components shall monitor the parameters characterizing the potential hazard posed by emergency sources;

6) data transmission equipment shall ensure that messages concerning hazardous changes in environmental parameters or individual environmental components, characterizing the potential hazard posed by emergency sources, are transmitted through management bodies to the state authorities of the Member States and facility managers;

в) information and computing (software-hardware) monitoring systems shall provide information support for decision-making at the level of the state authorities of the Member States and facility managers to prevent emergencies and respond to their consequences.

50. Information and computing (software-hardware) monitoring systems, data transmission equipment, and sensors and measuring instruments for monitoring changes in the state of environmental parameters or individual environmental components shall ensure compatibility and information and technical interfacing with the automated systems of management bodies in accordance with the technical specifications (requirements) for their connection (interfacing), as determined by those bodies.

51. When monitoring emergencies, information and computing (software-hardware) monitoring systems and data transmission equipment shall ensure protection of information against unauthorized access.

52. The use of public communications network channels is permitted when monitoring emergencies.

53. In the event of an information transmission failure (temporary loss of connection), information and computing (software-hardware) monitoring systems shall ensure:

- a) retention of the information being transmitted in a queue (databases);
- б) cyclic repetition of attempts to transmit information from the queue until this operation is completed successfully;
- в) clearing of the queue after all information has been transmitted successfully.

54. The average delay in issuing messages from sensors and measuring instruments for monitoring changes in the state of environmental parameters or individual environmental components shall not exceed 30 seconds from the moment of a critical change in the monitoring parameters.

55. The reliability indicators of technical equipment for emergency monitoring shall have the following values:

- a) availability factor – at least 99,8 percent;
- б) mean operating time to failure – at least 10 000 hours.

56. Technical equipment for emergency monitoring shall provide for diagnostics of:

- a) the operability of technical equipment for emergency monitoring;
- б) the interfacing of technical equipment for emergency monitoring with the systems being monitored;
- в) the interfacing of technical equipment for emergency monitoring with external systems;

г) the operational status of the operator of the technical equipment for emergency monitoring by obtaining responses to automatically sent test messages.

57. The service life of technical equipment for emergency monitoring shall be documented and confirmed by the manufacturer.

58. Sensors and measuring instruments for monitoring changes in the state of environmental parameters or individual environmental components, as well as data transmission equipment, shall be resistant to mechanical and climatic factors.

59. Technical equipment for emergency monitoring shall be included in equipment supplied with guaranteed power from backup power sources for at least 2 hours.

60. Technical equipment for emergency monitoring shall remain operable at permissible deviations in mains voltage:

a) when reduced by up to 15 percent;

б) when increased by up to 10 percent.

61. The software of information and computing (software-hardware) monitoring systems shall meet the following requirements:

a) the availability of a convenient, intuitive graphical interface shall be ensured;

б) the design style and graphics quality of dialogue windows shall correspond to the design style of the operating system used;

в) the operator shall work through interactive manipulation of screen forms integrated into the menu.

62. Structurally, technical equipment for emergency monitoring shall be designed according to the modular and block-and-unit principle and shall ensure:

- a) interchangeability of replaceable components of the same type;
- б) protection against unauthorized access to the parameter control elements;
- в) access to all elements, assemblies and units requiring adjustment or replacement during operation.

6. Product Marking Requirements

63. The product and packaging shall bear marking containing the following information:

- a) the product name and its type (kind), brand and model;
- б) the intended use, principal technical parameters and characteristics of the product;
- в) the name of the country of manufacture;
- г) the location and address of the legal entity that is the manufacturer (the address of the place of business (if the addresses differ), telephone numbers and (or) email addresses);
- д) the trademark (if available);
- е) the Date of Manufacture (month, year);
- ж) the service life (shelf life);
- з) the composition of the raw materials (if necessary);

и) the manufacturer's warranty obligations (if necessary);

к) the product batch number (if necessary).

64. The marking shall be applied in Russian and, where required by the legislation of the Member States, in the state language (state languages) of the Member State in whose territory the product is sold. Where necessary, additional marking in other languages is permitted, provided that its content is identical to the text.

65. If it is impossible to apply the marking directly to the product, the marking shall be applied to the packaging and included in the technical documentation for the product. The manufacturer shall independently determine whether it is possible or impossible to apply the marking to the product.

Product marking shall be clear, legible and applied in a location accessible for inspection.

VI. Ensuring Product Compliance with the Requirements of the Technical Regulation

66. Product compliance with this Technical Regulation shall be ensured either by directly fulfilling its requirements or by fulfilling the requirements of standards included in the list of international and regional (interstate) standards, or, in their absence, national (state) standards, the application of which on a voluntary basis ensures compliance with the requirements of this Technical Regulation (hereinafter, the list of standards whose application ensures compliance with this Technical Regulation).

Technical devices that are objects of technical regulation covered by this Technical Regulation and classified as measuring instruments or technical systems and devices with measuring functions shall be subject to state regulation in the field of ensuring the uniformity of measurements in

accordance with the legislation in the field of ensuring the uniformity of measurements of the Member States and Union law in the field of ensuring the uniformity of measurements.

67. Methods for product examination (testing) and measurement shall be established in standards included in the list of international and regional (interstate) standards, or, in their absence, national (state) standards containing rules and methods for examination (testing) and measurement, including sampling rules, necessary for the application and fulfilment of the requirements of this Technical Regulation and for conformity assessment of objects of technical regulation.

Conformity Assessment of Products

68. Products to which this Technical Regulation applies shall undergo conformity assessment for compliance with the requirements of this Technical Regulation before being placed on the market in the customs territory of the Union.

69. Conformity assessment of products for compliance with the requirements of this Technical Regulation shall be carried out in accordance with this section on the basis of standard conformity assessment schemes, taking into account the specific features established by this Technical Regulation.

Conformity assessment of products for compliance with the requirements of this Technical Regulation shall be carried out in the form of certification under one of the following schemes:

for serially manufactured products – 1c and 2c;

for a batch of devices – under scheme 3c;

for a single device – under scheme 4c.

70. For conformity confirmation, the applicants shall be a legal entity or an individual registered in the territory of a Member State in accordance with its legislation as an individual entrepreneur:

for serially manufactured products – the manufacturer (the person authorised by the manufacturer);

for a batch of products (single product unit) – the manufacturer (the person authorised by the manufacturer), seller (importer).

71. When carrying out certification, the applicant shall:

a) submit a certification application and a document package, which includes:

a copy of the technical (design, engineering, process and/or operating) documentation for the products, as well as a copy of the document (documents) in accordance with which the products were manufactured (standard, company standard, technical specifications or another document) (if available);

a list of standards (indicating their designations and titles, as well as sections (clauses and subclauses), if compliance with the requirements of this Technical Regulation can be ensured by applying individual sections (clauses, subclauses) of these standards rather than the standards as a whole), included in the list of standards whose application ensures compliance with this Technical Regulation (if applied by the applicant);

a description of the technical solutions adopted and the risk assessment results confirming compliance with the requirements of this Technical Regulation, if the standards included in the list of standards whose application ensures compliance with this Technical Regulation are absent or have not been applied (if necessary);

a copy of the certificate for the quality management system applicable to the production of the products being certified, confirming that the management system implemented by the manufacturer complies with the requirements of the relevant management system standard and issued by a management system certification body (for scheme 2c);

copies of test and measurement reports for product samples (if available);

a copy of the contract with the manufacturer (including a foreign manufacturer), providing for assurance of the compliance of products supplied to the customs territory of the Union with the requirements of this Technical Regulation and liability for non-compliance of such products with the specified requirements (for the person authorised by the manufacturer) (for scheme 1c);

copies of the supply contract and shipping documents identifying the single product unit or batch of products, including its size (for schemes 3c and 4c);

information on the applicant's registration or record (individual, identification) number assigned upon State Registration of a legal entity or an individual as an individual entrepreneur in accordance with the legislation of the Member State;

other documents selected by the applicant that served as the basis for conformity confirmation of the products with the requirements of this Technical Regulation, as well as with the requirements of other Technical Regulations of the Union (Customs Union) applicable to them (if available).

The certification application and document package shall be submitted to one of the accredited certification bodies included in the Unified Register of Conformity Assessment Bodies of the Union and holding valid accreditation in the required scope of accreditation (hereinafter referred to as the certification body).

The certification application shall be prepared by the applicant in accordance with the standard conformity assessment schemes.

The certification application shall also contain the batch identification features (for schemes 3c and 4c);

b) after completion of the conformity confirmation procedures, affix the single mark of product circulation on the Union market in accordance with the procedure approved by the Eurasian Economic Commission;

c) notify the certification body in advance of changes to the production process that may affect the products' compliance with the requirements of this Technical Regulation (for schemes 1c and 2c).

72. When carrying out certification, the certification body shall:

a) analyse the certification application and document package submitted by the applicant and notify the applicant of the decision taken, specifying the conditions for carrying out certification;

b) carry out product identification in accordance with Section III of this Technical Regulation and product sampling for testing and measurements;

c) organise testing and measurements of product samples in an accredited testing laboratory (centre) included in the Unified Register of Conformity Assessment Bodies of the Union (hereinafter referred to as the accredited testing laboratory (centre));

d) carry out production condition analysis (for scheme 1c);

e) analyse the results of the work performed in accordance with the requirements of the certification scheme applied and decide whether to issue or refuse issuance of the certificate of conformity of the products with the requirements of this Technical Regulation (hereinafter referred to as the certificate of conformity);

f) if the results of the analysis of the document package, testing and measurements of product samples, and production condition analysis submitted by the applicant and performed in accordance with the requirements of the certification scheme applied are positive, prepare the certificate of conformity using the uniform form approved by the Eurasian Economic Commission and issue it to the applicant;

g) enter information on the certificate of conformity in the Unified Register of Issued Certificates of Conformity and Registered Declarations of Conformity;

h) carry out periodic assessment of certified products during the validity period of the certificate of conformity 1 time per year by means of:

testing and measurements of product samples in an accredited testing laboratory (centre) and/or production condition analysis (for scheme 1c);

testing and measurements of product samples in an accredited testing laboratory (centre) and analysis of the results of the periodic assessment of the certified management system by a management system certification body (for scheme 2c);

i) if the results of the periodic assessment of the certified products are positive, confirm the validity of the certificate of conformity, as indicated in the relevant periodic assessment report;

j) if the results of the periodic assessment of the certified products are negative, decide to suspend or cancel the certificate of conformity;

k) communicate the decision on the results of the periodic assessment of the certified products to the applicant.

73. Where certification is carried out under schemes providing for management system certification, work on management system

certification shall be performed by a management system certification body registered in the territory of a Member State in accordance with its legislation and accredited within the accreditation systems of that state.

74. The validity period of the certificate of conformity shall be:

- a) for serially manufactured products – established for a period not exceeding 5 years;
- b) for a batch of products (single product unit) – not established.

75. After completion of certification, the certification body and the applicant shall compile and retain an evidence package confirming the products' compliance with the requirements of this Technical Regulation, which includes:

- a) the documents provided for in subparagraph "a" of paragraph 71 of this Technical Regulation;
- b) the product identification and/or sampling report(s) for products (samples);
- c) the report(s) on testing and measurements;
- d) the production condition analysis results (for scheme 1c);
- e) the certificate of conformity (a copy of the certificate of conformity).

76. The document package compiled after the product conformity confirmation procedure shall be retained by the applicant for the following periods:

- a) for serially manufactured products – at least 5 years from the date on which the certificate of conformity ceases to be valid;

b) for a batch of products (single product unit) – at least 5 years from the date on which the sale of the batch of products (single product unit) ends.

77. Documents and materials confirming the results of certification shall be retained by the certification body that issued the certificate of conformity for at least 5 years from the date on which the validity period of the certificate of conformity ends.

VIII. Marking with the single mark of product circulation on the Union market

78. Products complying with the requirements of this Technical Regulation, as well as the requirements of other Technical Regulations of the Union (Customs Union) that apply to them, and that have undergone the conformity confirmation procedure for compliance with the requirements of this Technical Regulation and other Technical Regulations of the Union (Customs Union) that apply to them, shall be marked with the single mark of product circulation on the Union market.

79. Marking with the single mark of product circulation on the Union market is carried out prior to placing products on the market.

80. The single mark of product circulation on the Union market is applied to each product unit by any method ensuring its clear and legible image throughout the entire service life (shelf life) of the product.

81. If the single mark of product circulation on the Union market cannot be applied directly to the products due to their specific features, it may be applied to the packaging and technical documentation.

APPENDIX
to the Technical Regulation
of the Eurasian Economic Union
"On the Safety of Products"

Intended for
Civil Defence and Protection
Against Natural and Man-Made
Emergencies"
(TR EAEU 050/2021)

LIST

of objects of technical regulation to which the Technical Regulation of the Eurasian Economic Union "On the Safety of products intended for civil defence and protection against natural and man-made emergencies" (TR EAEU 050/2021) applies

1. Technical equipment for civil defence protective structures

1. Protective airtight devices and products of civil defence protective structures:

- a) protective airtight and airtight doors, gates and shutters;
- b) blast-resistant protective sections;
- c) expansion chambers;
- d) airtight valves;
- e) overpressure valves;
- f) adjustable plugs.

2. Ventilation units, filters and regenerative units of civil defence protective structures:

- a) fans with electric/manual drive;
- b) electrically driven fans;

- c) cell filters;
 - d) prefilters;
 - e) regenerative cartridges and units (using various regeneration technologies).
- 2. Technical equipment for control, communications and warning
 - 3. Command and communications equipment:
 - a) automated workstation for the duty dispatcher;
 - b) terminal subscriber unit;
 - c) auxiliary equipment.
 - 4. Technical equipment for public warning of hazards arising during or as a result of military conflicts, as well as of emergency situations:
 - a) automated warning workstation (APM);
 - b) equipment for launching and monitoring terminal warning devices;
 - c) terminal warning device.
 - 3. Emergency rescue equipment
 - 5. Emergency rescue vehicles.
 - 6. Robotic emergency rescue equipment.
 - 7. Emergency rescue tools.
 - 8. Victim search equipment.
 - 9. Water obstacle crossing equipment for emergency rescue operations.

10. Life-support equipment for rescuers and victims:

10.1. Mobile buildings and structures.

10.2. Frame tents (pneumatic-frame tents).

10.3. Special protective clothing (equipment) for emergency rescue operations:

10.3.1. General-purpose rescuer protective clothing.

10.3.2. Special protective clothing (equipment) for rescuers.

10.3.3. Hand, foot and head protection for rescuers.

4. Technical equipment for emergency monitoring

11. Information and computing (software-hardware) monitoring complexes.

12. Data transmission equipment.

13. Sensors and measuring instruments for monitoring changes in the condition of environmental parameters or individual components thereof.

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