

DECISION**CABINET OF MINISTERS OF THE REPUBLIC OF UZBEKISTAN****ABOUT APPROVAL OF THE GENERAL TECHNICAL REGULATION ON ELECTROMAGNETIC COMPATIBILITY OF TECHNICAL FACILITIES**

In accordance with The Law _ Republic of Uzbekistan "On technical regulation", with a view to establishing uniform requirements for the electromagnetic compatibility of technical means, the Cabinet of Ministers resolves:

1. To approve the General Technical Regulations on the electromagnetic compatibility of technical facilities in accordance with application _ and put it into effect after six months from the date of official publication.

2. To take into consideration that in accordance with the requirements Law _ Of the Republic of Uzbekistan "On Technical Regulation" with the introduction of technical regulations, previously adopted normative documents on standardization for the products indicated in them, work and services are becoming obsolete and become voluntary in the established order.

3. The Agency "Uzstandard" together with the authorized bodies shall take measures on cancellation of the compulsory nature and provision of voluntariness in the application of normative documents on standardization establishing mandatory requirements for the electromagnetic compatibility of technical equipment from the day the General Technical Regulation approved in this resolution is put into effect in accordance with the established procedure.

4. The Ministry for the Development of Information Technologies and Communications of the Republic of Uzbekistan, the Agency "Uzstandard" in conjunction with the National Television and Radio Company of Uzbekistan shall provide broad information to the public, state and economic authorities, business entities on the objectives, content and application of the approved General Technical Regulations.

5. The control over the execution of this resolution shall be entrusted to the Deputy Prime Minister of the Republic of Uzbekistan, U.U. Rosukulova.

Prime Minister of the Republic of Uzbekistan Sh. MIRZIEYEV

Tashkent,

November 21, 2016,

No. 389

ATTACHMENT

to decree _ The Cabinet of Ministers of November 21, 2016 No. 389

**GENERAL TECHNICAL REGULATIONS
on electromagnetic compatibility of technical means
Chapter I. General Provisions****§ 1. The objectives and scope of the General Technical Regulations**

1. This General Technical Regulations (hereinafter referred to as the Technical Regulations) establishes the requirements for the electromagnetic compatibility of technical equipment to be applied in the territory of the Republic of Uzbekistan, which are mandatory for use and performance, in order to protect human life and health, property, environmental protection, prevent actions , misleading consumers about their purpose, safety and energy efficiency.

2. Technical regulations apply to issued technical means capable of generating electromagnetic interference and (or) the operation of which depends on the effect of external electromagnetic interference.

3. The following technical facilities are the objects of technical regulation, to which the Technical Regulations apply:

- products of heavy, power and transport engineering;
- electric cars;
- electrotechnical equipment;

products of chemical and petroleum engineering;
metalworking and woodworking equipment;
Computer Engineering;
devices and means of automation for general industrial use;
instruments and means of automation for specialized purposes;
products of the automotive industry;
products of construction and municipal engineering;
technological equipment for light and food industries and household appliances;
equipment for the regulation of traffic and maintenance of agricultural machinery;
ship equipment;
radio-electronic household appliances;
radar facilities;
radio navigation aids;
nuclear engineering;
aircraft technology;
rocket and space technology;
Medical equipment;

equipment and products of cultural, everyday, economic, educational purposes and theatrical and entertainment enterprises.

4. Requirements of the Technical Regulations do not apply to technical means:

Used by manufacturers of other technical means as their component parts and not intended for independent use;

intended for use only in conditions of isolated electromagnetic environment. The designation of a technical means for use only in conditions of an isolated electromagnetic environment should be established in technical and operational documentation for the specified technical means;

related to defense products supplied for state needs under the state defense order, technical means used to protect information constituting state secrets or relating to those protected in accordance with the law, as well as technical means on which information constitutes a state secret;

passive with respect to electromagnetic compatibility according to [Appendix № 1](#).

5. The effect of the Technical Regulations does not apply to relations associated with the use of the radio-frequency spectrum.

§ 2. Terms and definitions

6. The following terms and definitions are used in the Technical Regulations:

manufacturer - a legal entity that carries out the production or production and sale of technical means and is responsible for their compliance with the requirements of the Technical Regulations;

marking - information in the form of text, symbol and / or graphic image applied to the product or packaging for the purpose of identifying the product and bringing the information about it to the consumer;

technical means - Any electrical, electronic and electronic products, as well as any product containing electrical and (or) electronic components;

hardware passive with respect to electromagnetic compatibility - a technical device that, by virtue of its design and functional characteristics, when used for its intended purpose without the use of additional means of protection against electromagnetic interference such as shielding or filtration, is unable to create electromagnetic interference that interferes with the functioning of communication equipment and other technical means in accordance with their purpose, and is able to function without deterioration in quality when exposed to electromagnetic interference, corresponding to the electromagnetic environment, for use in which the technical means are intended;

immunity to electromagnetic interference (noise immunity) - the ability of the technical means to maintain the specified quality of operation when exposed to external electromagnetic interference with the regulated values of the parameters;

operational characteristics - a set of mechanical properties and geometric parameters;

electromagnetic compatibility - the ability of radio electronic means to operate simultaneously in real operating conditions with the required quality when radio interference is interfering with them;

electromagnetic environment - a set of electromagnetic phenomena and processes in a given area of space;

electromagnetic interference - an electromagnetic phenomenon or process that reduces or may reduce the quality of the operation of the technical means.

Chapter II. Requirements for the electromagnetic compatibility of technical means

7. The technical means must be manufactured in such a way that when it is used for its intended purpose and the requirements for installation, operation (use), storage, transportation and maintenance are met:

electromagnetic interference created by the technical means and (or) affecting the technical means did not exceed the limits of the permissible levels according to Appendix No. 2, ensuring the functioning of communication facilities and other technical means in accordance with their purpose;

the technical means had a level of immunity to electromagnetic interference (interference immunity), ensuring its functioning in the electromagnetic environment for which it is intended.

Requirements for environmental protection in the manufacture (manufacture), transport, storage, disposal and destruction of technical means, the exploitation (use) of which affects the electromagnetic environment, are established by legislation in the field of environmental control.

Chapter III. Requirements for packaging, labeling and operational documents of a technical device

§ 1. Requirements for the packaging of a technical device

8. Requirements for the packaging of the technical equipment, its spare parts, accessories and operational documentation are regulated in the relevant regulatory documents in the field of technical regulation.

9. The package must ensure the safety of the technical means when storing and transporting by road, rail, river transport, in hermetically sealed aircraft compartments.

10. The technical means in the packed form should be resistant to transportation at an ambient temperature from minus 50 ° C to plus 55 ° C and relative air humidity of 100% at a temperature of plus 25 ° C by road transport covered with tarpaulin, in closed railway cars, holds river transport, in hermetically sealed aircraft compartments, according to the rules applicable to these modes of transport.

11. The technical means in the packed form should be stable to storage for 12 months (from the moment of shipment of the technical means, including the transportation time) in warehouse heated rooms at a temperature from plus 5 ° C to plus 40 ° C and average annual relative humidity of 60% at a temperature of plus 20 ° C, the upper value of humidity can reach 80% at a temperature of plus 25 ° C.

§ 2. Marking of technical means

12. The technical means should be provided with a legible, easily readable and user-accessible marking that persists throughout the life of the product.

13. The marking of a technical tool shall contain the following information:

name of the technical means, type, model, modification, trade name;

name, trademark or trademark of the manufacturer;

name of the country of manufacture;

operating voltage or voltage range;

a conventional designation of the type of current, if the nominal frequency is not specified;

the degree of protection against the ingress of solid particles and moisture provided by the containment;

safety symbols and disposal methods for chemical power sources;

nominal consumed or net power or rated current;

a confirmation of conformity (for certified products);

serial number;

mass of equipment.

§ 3. Operational documents for technical means

14. Operational documents for the technical means shall contain:

information specified in paragraph 13 Technical regulations;

information on the designation of the technical means;

characteristics and parameters;

rules and conditions for the installation of a technical means, its connection to the electrical network and other technical means, commissioning, regulation and commissioning, if the fulfillment of the specified rules and conditions is necessary to ensure the compliance of the technical means with the requirements of the Technical Regulations;

requirements for restrictions in the use of a technical tool with regard to its purpose for working in residential, commercial and industrial areas;

rules and conditions for effective and safe use;
rules and conditions for storage, transportation, sale and disposal (if necessary, requirements for them);
information on measures to be taken when a hardware malfunction is detected;
warranty period of the technical means;
manufacturer's warranty;
the period of service (validity) and information about the necessary actions of the consumer at the expiration of this period, as well as the possible consequences if the specified actions are not performed;
the location (postal address) of the manufacturer and the organizations authorized by them for accepting claims from the consumer, as well as performing repairs and maintenance;
the name and location (postal address) of the manufacturer, information for communication with him;
month and year of manufacture of the technical means and (or) information on the place of application and the method of determining the year of manufacture.

15. Operational documents are executed in the state and Russian languages.

Operational documents are carried out on paper. They can be accompanied by a set of operational documents on electronic media. Operational documents included in the set of non-domestic technical equipment can be performed only on electronic media.

Chapter IV. Ensuring compliance with EMC requirements

16. Compliance of the technical means with the Technical Regulations is ensured by meeting its requirements for electromagnetic compatibility.

Chapter V. Identification and carrying out of technical equipment tests

§ 1. Identification

17. The technical means in respect of which the procedures for confirming compliance with the requirements of the Technical Regulations are being carried out, must be identified.

18. Identification of a technical means means the establishment of the identity of the complete conformity of the presented technical means with its characteristics, parameters and characteristics indicated in its marking.

19. When declaring compliance, the identification of the technical means is carried out by the applicant, in the course of certification - by the certification body.

§ 2. Sampling and testing

20. Sampling to determine the compliance of the technical means with the requirements for electromagnetic compatibility is carried out with the purpose of determining the compliance of performance characteristics with the requirements of the Technical Regulations and is carried out in accordance with regulatory documents in the field of technical regulation.

21. Methods of conducting tests to determine the compliance of a technical device with the requirements for electromagnetic compatibility are regulated in accordance with regulatory documents in the field of technical regulation.

Chapter VI. Transitional period

22. Since the entry into force of the Technical Regulations, regulatory documents in the field of technical regulation in force on the territory of the Republic of Uzbekistan and establishing requirements for electromagnetic compatibility of technical means provided for [paragraph 3](#) Technical regulations, before bringing them into line with the Technical Regulations, are applied in a part that does not contradict the Technical Regulations.

23. Certificates of conformity received for a technical facility before the entry into force of this Technical Regulation continue to be valid for the following period:

certificates of conformity for serially produced technical means - within the period established in these certificates;

certificates of compliance for individual batches of technical equipment - during the term of this lot on the market.

Chapter VII. The order of state control

Cm. [previous edition](#).

24. The state control over the observance of the requirements of the Technical Regulations is carried out by the Ministry for the Development of Information Technologies and Communications, the Ministry of Health of the Republic of Uzbekistan, the State Committee of the Republic of Uzbekistan for Ecology and Environmental Protection, the Agency "Uzstandard", as well as other specially authorized state bodies within their competence .

(paragraph 24 as amended [regulations](#) Cabinet of Ministers of the Republic of Uzbekistan of November 14, 2017 No. 915 - National Database of Legislation, 11/15/2017, No. 09/17/915/0259)

Chapter VIII. Responsibility for non-compliance with the requirements of the Technical Regulations

25. Persons guilty of violating the requirements of the Technical Regulations are liable in accordance with the procedure established by law.

APPENDIX № 1

to [General Technical Regulations](#) on electromagnetic compatibility of technical means

Types of technical equipment that are passive with respect to electromagnetic compatibility, which are not subject to the requirements of the General Technical Regulations on Electromagnetic Compatibility of Technical Means

1. Wires, cords, cables and cable assemblies.
2. Technical means containing only a resistive load and not having automatic switching devices, for example, household electric heaters without thermostats or fans.
3. Electric batteries and batteries and light equipment fed from them without active electronic circuits.
4. Headphones and loudspeakers without gain functions.
5. Protective equipment that creates transient electromagnetic interference of short duration (less than 1 second) as a result of operation in the event of a short circuit or an abnormal situation in the electrical circuit, which does not contain fuses (emergency shutdown devices) with active electronic parts.
6. High-voltage equipment in which possible sources of electromagnetic interference are caused only by localized insulation defects (for example, high-voltage inductors, high-voltage transformers), provided that the equipment does not contain active electronic parts.
7. Capacitors, for example, capacitors for power factor correction.
8. Induction motors.
9. Quartz watch (without additional functions, for example, radio reception).
10. Incandescent lamps.
11. Plugs, sockets, fuses, circuit breakers and circuit breakers without active electronic circuits.
12. Passive antennas for receiving radio and television broadcasts.

APPENDIX № 2

to [General technical regulation](#) on electromagnetic compatibility of technical means

Limits of the permissible levels of electromagnetic interference created by the technical means and / or affecting the technical means, which are not subject to the requirements of the General Technical Regulations on Electromagnetic Compatibility of Technical Means

Section I. Conductive low-frequency electromagnetic interference

§ 1. Harmonics of the power supply voltage.

The levels of electromagnetic interference in the part of the voltage harmonics in low-voltage power supply systems, as well as the values of the sinusoidal distortion coefficient of the voltage curve Cns (in%) are given in [Table No. 1.1](#).

Table № 1.1.

LEVELS of electromagnetic interference in the part of voltage harmonics in low-voltage power supply systems (in% of the main frequency voltage)

Power intensity of electromagnetic interference	Order of harmonics																		
	For _{ns}	odd harmonics (not multiples of 3)								odd harmonics (multiples of 3)					even harmonics				
		5	7th	eleven	13	17th	19	23 - 25	> 25	3	9	15	21	> 21	2	4	6 - 10	> 25	
A	In accordance with the requirements for the technical means of a particular type																		
1	8	6th	5	3.5	3	2	1.5	1.5	*	5	1.5	0.3	0.2	0.2	2	1	0.5	0.2	
2	10	8	7th	5	4,5	4	4	3.5	**	6th	2.5	2	1.7	1	3	1.5	1	1	
X	In accordance with the characteristics of the location of the technical means																		

* 0.2 + 12.5 / n (where n is the harmonic number).

** from 3.5 to 1.0 (decreases with increasing frequency).

Notes:

1. The intensity A is used for power supply systems protected from electromagnetic interference, and for technical facilities that can be susceptible to voltage harmonics in the supply network (instrumentation laboratory equipment, process control and computer facilities).
2. The intensity of 1 is applied to the public network. It can also be used for power supply systems for industrial enterprises with a low level of electromagnetic interference (small and medium-sized industrial enterprises).
3. Degree 2 is used for power supply systems for industrial enterprises.
4. Degree X is used for industrial enterprises with an increased level of electromagnetic disturbances (metallurgy, power engineering and others).

§ 2. Signals transmitted through power lines of power supply systems.

1. Power lines are designed for transmission of electrical energy, but can also be used to transmit control signals. The signal transmission systems along the power lines can be classified into one of four types:
 - a) control systems used by power supply organizations in general distribution networks in the frequency range from 100 Hz to 3 kHz (usually below 500 Hz), with signal level up to 9% U_{nom} (U_{nom} - rated voltage of the electrical network);
 - b) control systems used by power supply organizations in general distribution networks in the frequency range from 3 kHz to 95 kHz and with signal levels up to 2.5% U_{nom} ;
 - c) transmission systems for electrical networks of domestic and industrial consumers of electric energy in the frequency range from 95 kHz to 500 kHz with signal levels of 0.6% and up to 5% U_{nom} ;
 - d) systems with the transmission of signals in the form of parcels over the distribution network, where nonsinusoidal shape markers superimposed on the form of mains voltage are used.
2. In the [table no . 1.2](#) . The levels of electromagnetic interference in the part of signals transmitted in power supply systems are given.

Table No. 1.2.

LEVELS of electromagnetic interference in the part of the signals transmitted through the power lines (in percent to the nominal voltage of the power supply)

Degree of intensity of electromagnetic interference	Frequency band, kHz			
	0.1 - 3	3 - 95	95 - 148.5	148.5 - 500
A (network without signal transmission)	In accordance with the requirements for the technical means of a particular type			
1 (near the signal transmitter)	5% ((0.1 - 0.5) kHz) from 5% to 1.3% ((0.5 - 3) kHz)	((3 - 9) kHz) * 5% ((9 - 95) kHz)	0.6 (residential areas) (%) 5 (industrial zones) (%)	(2 - 0.6) **
X (the presence of resonances)	In accordance with the characteristics of the location of the technical means			

* Values are not standardized.
** The values are given in mV.

Notes:

1. The intensity A is also used for electrical networks in which signals penetrating from adjacent electrical networks may be present.
2. The intensity level 1 is applied for the range (0.1 - 3) kHz, the values correspond to normal levels of interference penetration in real structures. For other ranges, the values indicate the maximum permissible interference penetration level measured at full impedance.
3. The intensity of X is applied when the signals are usually more or less attenuated in the network. However, in certain cases of resonance, the signals can be amplified.

§ 3. Vibration of the power supply voltage.

Levels of electromagnetic interference in the part of voltage fluctuations in the power supply, dips and short-term interruptions of the power supply voltage, unbalance of voltages in three-phase power supply systems, changes in the frequency of the supply voltage in the corresponding electromagnetic environment shall not exceed the specified values given in [Table 1.3](#) .

§ 4. Dips and short-term power interruptions.

The levels of electromagnetic interference in the part of dips and short interruptions in power supply systems are given in Table 1.3 .

§ 5. Voltage unbalance in three-phase power supply systems.

Levels of electromagnetic disturbances in the voltage asymmetry part in power supply systems are given in Table 1.3 .

§ 6. Frequency in power supply systems.

The levels of electromagnetic interference in the part of voltage and frequency changes in power supply systems are given in Table 1.3 .

Table No. 1.3.

LEVELS of electromagnetic interference in the part of voltage and frequency changes in power supply systems

Degree of intensity of electromagnetic interference	Type of electromagnetic interference					
	Voltage deviations, % U_{nom}	Voltage fluctuations, % U_{nom}	Voltage dips ((10 - 99)% U_{nom}), duration, s	Short-time power interruptions (> 99% U_{nom}) duration, s	Three-phase voltage asymmetry U_{ob}/U_{pr} , %	Changes in the frequency of the supply voltage, %
A	In accordance with the requirements for the technical means of a particular type					
1	± 10	<3	<0.8	<0.6	2	2
2	± 10	<10	<3	<60	3	2
X	In accordance with the characteristics of the location of the vehicle					
U_{nom} - rated voltage of the power supply system U_{ob} - voltage of negative sequence components in a three-phase system U_{pr} - the voltage of the components of a direct sequence in a three-phase system						

§ 7. Induced low-frequency stresses.

Levels of low-frequency conductive electromagnetic interference, which are common asymmetric voltages induced in nearby signal cables and control cables, are given in Table 1.4 .

Table number 1.4.

LEVELS of common unbalanced voltages of low-frequency conductive electromagnetic interference, induced in signal cables and control cables (in volts)

Degree of interference intensity	Interference caused by currents flowing in the power supply cables at the network frequency and harmonic frequencies		
	Rated operating conditions		Emergency conditions
	50 Hz to 1 kHz *	from 1 kHz to 20 kHz	50 Hz to 1 kHz
A	In accordance with the requirements for the technical means of a particular type		
1	0.05-1	0.05	100
2	0.15 - 3	0,15	300
3	0.5 - 10	0.5	1000
4	1 - 20	1	3000 **
X	In accordance with the characteristics of the location of the technical means		
* The level of electromagnetic interference increases with increasing frequency. ** Stresses can be limited by conditions of insulation breakdown.			

§ 8. Voltage of a constant component in AC power supply networks.

The voltage levels of the DC component in AC power supply networks are not standardized by the Technical Regulations.

Section II. Emitted low-frequency electromagnetic interference

§1. Magnetic fields.

Levels of electromagnetic interference in the part of low-frequency magnetic fields without taking into account emergency conditions in power supply systems are given in Table 2.1 . The mean-square value of the alternating voltage or the intensity of a constant magnetic field is indicated.

Table № 2.1.

**LEVELS of
electromagnetic interference in the part of low-frequency magnetic fields (in A / m)**

Degree of intensity of electromagnetic interference	Frequency of interference				
	Constant current ¹	Frequency of electric traction ²	The industrial frequency, 50 Hz ³	Harmonics of the fundamental frequency of the network ((0.1 - 3) kHz) ⁴	Frequencies not related to the main frequency of the network ⁵
A	In accordance with the requirements for the technical means of a particular type				
1	3	1	3	3 / n	0,015
2	10	3	10	10 / n	0.05
3	thirty	10	thirty	30 / n	0,15
4	100	thirty	100	100 / n	0.5
X	In accordance with the characteristics of the location of the technical means				
¹⁾ In addition to the magnetic field of the Earth, the intensity is approximately 20 to 60 A / m, depending on the location, 1 m above the ground.					
²⁾ At 20 m from the track. The strength of the magnetic field increases significantly when approaching the track. The voltage of 1 A / m in 20 m from the track and 1 m above the ground corresponds to the use of a locomotive with a power of approximately 3000 kW. Some railroad automation and telemechanics systems can create magnetic fields with greater intensity than for the intensity level 1.					
³⁾ For air lines when measured at 1 m above the Earth's surface. For residential and commercial areas, when measured at a distance of 0.3 m from electrical appliances, the magnetic field has a strength of 1 to 10 A / m.					
⁴⁾ Where n is the order of the harmonics					
⁵⁾ When using audio communication systems with inductive frames, the average value of the field strength in the frequency band from 100 Hz to 5 kHz can be 0.1 A / m.					

§ 2. Electric fields.

The levels of electromagnetic interference in the part of low-frequency electric fields in the corresponding electromagnetic environments shall not exceed the established levels given in Table No. 2.2 .

Table No. 2.2.

**LEVELS of
electromagnetic interference in the part of low-frequency electric fields (in kV / m, at a height of 1 m above the ground)**

Degree of intensity of electromagnetic interference	Source of electromagnetic interference		
	DC power lines	power lines at the frequency of 16 ² / ₃ Hz	power lines at a frequency of 50 Hz
A	In accordance with the requirements for the technical means of a particular type		
1	0.1	0.1	≤ 0,1 ¹⁾
2	1	0.3	≤ 1 ²⁾
3	10	1.0	≤ 10 ³⁾
4	20	3.0	≤ 20 ⁴⁾
X	In accordance with the characteristics of the location of the technical means		
¹⁾ Electromagnetic conditions of living quarters, far from aerial electric lines.			
²⁾ Outdoors under air electric lines with voltage up to 30 kV. Inside rooms under air electric lines with voltage up to 765 kV.			
³⁾ Outdoors under air electric lines with voltage up to 400 kV.			
⁴⁾ On high-voltage substations with voltage up to 400 kV and under air electric lines with voltage up to 765 kV.			

Section III. Conductive high-frequency electromagnetic interference

§ 1. Stresses or currents induced (undamped oscillations).

The values of the induced common asymmetric voltages and currents are given in Table No. 3.1 and are calculated for the case when the impedance with respect to the reference ground is 150 Ω and there is no modulation.

Table № 3.1.

LEVELS of electromagnetic interference in the part of induced voltages and currents of continuous oscillations

Degree of intensity of electromagnetic interference	Bandwidth					
	from 10 kHz to 150 kHz *		from 0.15 MHz to 27 MHz		from 27 MHz to 150 MHz	
	voltage, V	current, mA	voltage, V	current, mA	voltage, V	current, mA
A	In accordance with the requirements for the technical means of a particular type					
1	0.1	0.7	0.3	2	0.3	2
2	1	7th	1	7th	1	7th
3	3	21	3	21	3	21
4	10	70	10	70	10	70
5	thirty	210	thirty	210	thirty	210
X	In accordance with the characteristics of the location of the technical means					
* The interference voltages induced by individual radio transmitters operating at extremely low frequencies may exceed the values given in the table.						

§ 2. Transient processes.

Levels of electromagnetic interference in the part of conductive aperiodic and vibrational impulse noise in low-voltage systems of electricity supply of alternating current are given in Tables Nos. 3.2 and 3.3 and are presented in three time and frequency ranges in order to provide a generalized description of the necessary characteristics of electromagnetic interference.

Table No. 3.2.

LEVELS of electromagnetic interference in the part of conductive aperiodic impulse noise in low-voltage power supply systems

Parameter and degree intensity of electromagnetic interference	Type of aperiodic impulse noise			
	nanosecond duration	microsecond duration		millisecond duration
type source	contact sparking ¹	lightning discharge at a distance of less than 1 km ¹	lightning discharge at a distance of more than 1 km ¹	fuse ²
The length of the front ³⁾	5 ns	1 μs	10 μs	0.1 ms
Duration ⁴⁾	50 ns	50 μs	1000 μs	1 ms
Frequency of occurrence	Tutu pulses	Multiple pulses	Multiple pulses	Rare pulses
Total duration of an event ⁵⁾	Milli seconds	Milliseconds	Seconds	Single event
Internal resistance of the source	50 Ohm	(1 - 10) Ohm	(20-300) Ohm	(0.2-2) Ohm
A	In accordance with the requirements for the technical means of a particular type			
1	0.5 kV	1 kV	0.5 kV	Interference no
2	1 kV	2 kV	1 kV	0.5 U _{max}
3	2 kV	4 kV	1.5 kV	1.0 U _{max}

4	4 kV	8 kV	2 kV	2.0 U _{max}
X	In accordance with the characteristics of the location of the technical means			
¹⁾ For power supply systems with a nominal voltage of 120 - 690 V. The data given do not depend on the voltage of the power supply system. A direct lightning strike into the building can create large currents in the power wires. ²⁾ The values given are valid for the transient processes occurring at the maximum value of the sinusoid of the main frequency of the power supply. ³⁾ The leading edge of the transient process. ⁴⁾ At half the peak value of the transient. ⁵⁾ Given the multiple appearance of impulse noise.				

Table No. 3.3.

**LEVELS of
electromagnetic interference in the part of oscillatory impulse noise in low-voltage power supply systems**

Parameter and degree of intensity electromagnetic interference	Type of oscillatory impulse noise		
	with high oscillation frequency (0.5 to 5) MHz	with a harmful frequency of oscillations (5 - 500) kHz	with low oscillation frequency (0.2 - 5) kHz
type source	local electrical system response to impulse noise ¹	the reaction of the building electrical network to impulse noise ¹	switching of network capacitors ²
The length of the front ³⁾	50 ns	0.5 μs	1.5 μs
Duration ⁴⁾	5 ns	20 μs	3 ms
Frequency of occurrence	Frequent interference	Random interference	Rare interference
Internal resistance	(50 - 300) Ohm	(10-50) ohms	(10-50) ohms
A	In accordance with the requirements for the technical means of a particular type		
1	0.5 kV	1 kV	0.5 U _{max}
2	1 kV	2 kV	1.0 U _{max}
3	2 kV	4 kV	2.0 U _{max}
4	4 kV	6 kV	3.0 U _{max}
X	In accordance with the characteristics of the location of the technical means		
¹⁾ For power supply systems with rated voltage (120 - 690) V. The data given does not depend on the voltage of the power supply system. ²⁾ The values given are valid for the transient processes occurring at the maximum value of the sinusoid of the main frequency of the power supply. ³⁾ The leading edge of the initial part of the transient process. ⁴⁾ At half the peak value of the envelope of the transient.			

Section IV. Emitted high-frequency electromagnetic interference

§1. Emitted oscillating electromagnetic fields.

The levels of electromagnetic interference in the part of the emitted oscillating electromagnetic fields are given in [Table 4.1](#) . (rms values are given).

Table No. 4.1.

**LEVELS of
electromagnetic interference in the part of the emitted oscillating electromagnetic fields (in V / m)**

Degree of intensity of electromagnetic interference	Bandwidth		
	from 9 kHz to 27 MHz any sources	from 27 MHz to 1000 MHz	from 1000 MHz to 40 GHz any sources
A	In accordance with the requirements for the technical means of a particular type		
1	0.3	0.3	0.3

2	1	1	1
3	3	3	3
4	10	10	10
5	thirty	thirty	thirty
X	In accordance with the characteristics of the location of the technical means		

§ 2. Radiated pulsed (transient) electromagnetic fields.

Impulse (transient) electromagnetic fields include perturbations, the duration of which does not exceed 200 ms, and during this time the polarity changes no more than 10 times. Damped oscillating fields with a fast rise time, having more than 10 polarity reversals, can be divided into a pulsed and vibrational part.

The levels of electromagnetic interference in the part of the emitted pulsed (transient) electromagnetic fields are given in [Table 4.2](#).

Table No. 4.2.

LEVELS of electromagnetic interference in the part of emitted pulsed (transient) electromagnetic fields (slew rate, V / m · ns)

Parameter and degree of intensity of electromagnetic interference	Source of electromagnetic interference			
	lightning discharges to earth ¹	switches with gas insulation in electrical substations ²	switches on open electrical substations	Overvoltage from lightning discharges and switching activities in overhead power lines
The length of the front	100 - 500 ns	10 ns ³	100 ns ³	1 μs ³
A	In accordance with the requirements for the technical means of a particular type			
1	thirty	100	thirty	3
2	100	300	100	10
3	300	1000	300	thirty
4	1000	3000	1000	100
5	3000	10000	3000	300
X	In accordance with the characteristics of the location of the technical means			

¹⁾ At a distance of more than 50 m.

²⁾ The peak value depends on the distance to the source and the rate of increase of the lightning current. The effect of screening due to metal structures of buildings and terrain profile leads to a significant reduction in the level of interference.

³⁾ The peak value of the interference field strength essentially depends on the distance to the source.

Section V. Industrial radio interference and radio emission

§ 1. Level of field intensity of industrial radio interference created by a technical device.

The quasi-peak value of the interference field (E) in decibels relative to 1 μV / m, at a distance R (m), should not exceed the values given in [Table 5.1](#).

Table No. 5.1.

Quasi-peak values

Group number	Measurement distance R, m	In the range, MHz				In the range, MHz	
		0.009 - 0.15	0.15 - 30	30 - 100	100 - 1000	30 - 230	230 - 1000
1	1	60 - 37	37 - 20	36 - 25	25 - 45	-	-
2	3	-	-	-	-	40	47
3	10	-	-	-	-	40	47

Notes:

1. In the frequency band from 0.009 MHz to 0.15 MHz, inclusive, $E = 60.0 - 20.4 \log (f / 0.01)$.

2. In the frequency band from 0.15 MHz to 30.0 MHz inclusive, $E = 37.0 - 7.39 \log (f / 0.15)$.

3. In the frequency range from 30.0 MHz to 100.0 MHz inclusive, $E = 36.0 - 21.0 \lg (f / 30.0)$.

4. In the frequency band from 100.0 MHz to 1000.0 MHz, inclusive, $E = 25.0 + 20.0 \lg (f / 100.0)$, where: f - frequency, MHz.

§ 2. The level of the asymmetric voltage of radio interference created by a technical device.

1. At the power terminals (for connection to the mains):

a) the quasi-peak value of the unbalanced RF interference voltage (U) in decibels relative to $1 \mu\text{V}$, shall not exceed the values given in [Table No. 5.2](#) .

Table No. 5.2.

QUASI-POINT VALUE of an asymmetric voltage

Group number	In the range, MHz					In the range, MHz		
	0.009 - 0.15	0.15-0.5	0.5 - 6.0	6.0 - 30.0	30.0 - 100.0	0.15-0.5	0.5 - 5.0	5.0 - 30.0
1	80 - 47	50 - 40	40 - 26	26th	34	-	-	-
2	-	-	-	-	-	66 - 56	56	60
3	-	-	-	-	-	79	73	

Notes:

1. For the equipment of group 1:

in the frequency band from 0.009 MHz to 0.15 MHz inclusive $U = 80.0 - 28.9 \lg (f / 0.01)$;

in the frequency band from 0.15 MHz to 0.5 MHz inclusive $U = 50.0 - 19.14 \lg (f / 0.15)$;

in the frequency band from 0.5 MHz to 6.0 MHz inclusive $U = 40.0 - 12.97 \lg (f / 0.5)$;

2. For equipment of 2 groups:

in the frequency band from 0.15 MHz to 0.5 MHz inclusive $U = 66.0 - 19.1 \lg (f / 0.15)$,

where: f - frequency, MHz.

b) the average value of the asymmetric interference voltage in decibels relative to $1 \mu\text{V}$, shall not exceed the values given in [Table No. 5.3](#) .

Table No. 5.3.

AVERAGE VALUE of an unbalanced voltage

Group number	In the range, MHz					In the range, MHz		
	0.009 - 0.15	0.15-0.5	0.5 - 6.0	6.0 - 30.0	30.0 - 100.0	0.15-0.5	0.5 - 5.0	5.0 - 30.0
1	-	-	-	-	26th	-	-	-
2	-	-	-	-	-	56-46	46	50
3	-	-	-	-	-	66	60	

Note: for equipment of the 2nd group in the frequency band from 0.15 to 0.5 MHz inclusive $U = 56.0 - 19.1 \lg (f / 0.15)$, where: f is the frequency, MHz.

2. At the terminals of the communication line (for connection to two- and four-wire symmetric communication lines), the total value of the asymmetric interference voltage in decibels relative to $1 \mu\text{V} / \text{m}$ should not exceed the values given in [Table 5.4](#) .

Table No. 5.4.

GENERAL VALUE of an asymmetric voltage

Group number	Quasi-peak value		Average value	
	in the range, MHz		in the range, MHz	
	0.15-0.5	0.5 - 30.0	0.15-0.5	0.5 - 30.0
1	84 - 74	74	74 - 64	64
2	84 - 74	74	74 - 64	64
3	97 - 87	87	84 - 74	74

Notes:

1. For equipment 1 and 2 groups in the frequency band from 0.15 MHz to 0.5 MHz inclusive:

the quasi-peak value is $U = 84.0 - 19.1 \lg (f / 0.15)$;

the average value is $U = 74.0 - 19.1 \lg (f / 0.15)$.

2. For equipment 3 groups in the frequency band from 0.15 MHz to 0.5 MHz inclusive:
the quasi-peak value is $U = 97.0 - 19.1 \lg (f / 0.15)$;
the average value is $U = 84.0 - 19.1 \lg (f / 0.15)$, where f is the frequency, MHz.

§ 3. Deviation of the frequency of the radio transmitting device.

The permissible frequency deviations of radio transmitters of all categories and purposes should not exceed the values given in regulatory documents in the field of technical regulation.

Unless otherwise indicated, the power for various station categories is the peak envelope power for single-band transmitters and the average power for all other transmitters.

§ 4. The level of the electromagnetic field produced by the heterodyne of the radio receiving device.

The radiation level of the receiver heterodyne generated by the technical means should not exceed 2 nW.

§ 5. The level of spurious and out-of-band radio emission of a radio transmitter.

The level of any spurious radio oscillation transmitted by the transmitter to the antenna-feeder device at the frequency of spurious radio emission should not exceed the relative and absolute values specified in normative documents in the field of technical regulation.

Section VI. Electrostatic discharges

§ 1. Electrostatic discharge currents.

The values of the rate of rise of the electrostatic discharge current in A / ns and the value of the charging voltage in kV immediately before the discharge, which are parameters determining the intensity of this type of electromagnetic interference, are given in Table No. 6.1 .

Table № 6.1.

LEVELS of electromagnetic interference in the part of currents and voltages with electrostatic discharges

Parameter and degree of intensity of electromagnetic interference	Kind of discharge			
	slow		fast	
The rise time of the discharge current	5 ns		0.3 ns	
Duration of discharge	15 ns		2 ns	
Frequency of occurrence	1)		1)	
Internal resistance of the source	(100 - 500) Ohm 2)		(100 - 500) Ohm 2)	
Source capacity	(100-500) pF 3)		(100-500) pF 3)	
Class designation	rate of rise of discharge current, A / ns	charging voltage, kV	rate of rise of discharge current, A / ns	charging voltage, kV
A	In accordance with the requirements for the technical means of a particular type			
1	-	-	-	<1
2	25	-	25	2
3	40	-	40	4
4	80	8	80	8
5	100	15	-	-
6th	-	thirty	-	-
X	In accordance with the characteristics of the location of the technical means			
1) Depends on the number of people in the room.				
2) Depends on the source (electric tool, human hands, furniture).				
3) Depends on the individual insulation values or the size of the furniture.				

§ 2. Electromagnetic fields produced by electrostatic discharges.

The values of the rate of increase in the strength of pulsed electrical (in V / m · ns) and magnetic (in A / m · ns) fields relative to the disturbance receiver when measured at a distance of 0.2 m from the place of electrostatic discharge are given in Table No. 6.2 .

Table No. 6.2.

**LEVELS of
electromagnetic interference in the part of electromagnetic fields caused by electrostatic discharges (rate of
change of electric field strength, $V / m \cdot ns$, and magnetic field, $A / m \cdot ns$)**

Degree of intensity of electromagnetic interference	Rate of change of electric field strength, $V / m \cdot ns$	Rate of change of magnetic field strength, $A / m \cdot ns$
A	In accordance with the requirements for the technical means of a particular type	
1	250	2
2	500	4
3	1000	8
4	2000	16
X	In accordance with the characteristics of the location of the technical means	

*(Collected Legislation of the Republic of Uzbekistan, 2016, No. 47, Article 540, National Legislative Database, 11/15/2017,
No. 09/17/915/0259)*

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