AIR STERILIZATION PATHOGEN IONIZER DEVICE TECHNICAL SPECIFICATION

1. SUBJECT

This Technical Specification covers the technical characteristics, control and inspection methods of …… units of Pathogen Ionizer to be used in ..... rooms.

2. MEDICAL AND TECHNICAL SPECIFICATIONS:

2.1. The Pathogen Ionizer device shall be of compact structure and shall have the capacity to perform air sterilization of uncontrolled enclosed contaminated environments on its own, without the need for any additional device. The device shall be suitable for use in emergency department yellow zones, triage areas, isolation rooms, intensive care units, tuberculosis units, laboratories, clinics, hospital units, and for air disinfection in uncontrolled areas for the removal of infectious microorganisms and pathogens.

2.2. While removing airborne pathogens, bacteria, viruses, ethylene agents, and oxide gases present in the environment, the Pathogen Ionizer device shall draw air into itself and ensure that the air supplied back to the environment is sterilized inside the device.

2.3. The atmospheric plasma and negative ion generator contained in the device shall apply electrostatic ion charging to micro-particles and infectious pathogens present in the environment and break them down.

2.4. The system shall include an atmospheric plasma ion generator effective against infectious microorganisms, consisting of cylindrical borosilicate glass tubes coated with TiO_2, AgI, and CuS, providing effective air disinfection. The device shall operate with a state-of-the-art HV Atmospheric Plasma system (5000 V plasma). With the aid of this plasma source, the device shall also be able to break down resistant long ethylene agents that cannot be filtered.

2.5. The air drawn from the environment shall additionally be passed through ultraviolet light. There shall be disinfectant light sources of 15 W UV-C at 254 nm wavelength and 18 W at 400–700 nm wavelength.

2.6. Within the first one hour after the system is started, it shall be able to perform 96% biodecontamination in the area determined as suitable. At least one effectiveness test report obtained from the microbiology department of a university for the delivered device shall be submitted to the tender commission. It shall be preferred that the device is the most advanced among its equivalents.

2.7. The device installation shall be suitable for mounting on rail-slide walls, ceilings, or inside vehicles/containers, and its width shall not exceed 60 cm. No technical team shall be required for installation. There shall be a mounting slot and mounting rail on the rear of the device for ease of installation, allowing fast and practical mounting.

2.8. The air passage rate inside the device shall be at least 1.41 m^3/min, and the device capacity shall disinfect the air of an area with a volume of at least 90 m^3. The device shall have an ergonomic structure, and when air flow occurs from the device, no air turbulence effect shall be created in the environment.

2.9. The device shall be manufactured from stainless 304 sandblasted steel, shall not emit electromagnetic waves, and shall have Faraday cage characteristics. There shall be no welding at the plasma-resistant stainless steel joint points of the device.

2.10. The device shall be powered from the city mains supply and shall operate at 220 V AC, 50 Hz via a grounded socket. The maximum power consumption of the device shall not exceed 150 watts. The device shall include an EMC / varistor filter. There shall be a red indicator light showing that the device is in operation, an on/off button, and a remote control for the device.

2.11. The device shall be capable of operating continuously for 24 hours. The device shall operate in compliance with mains voltage throughout Türkiye and shall have a mechanism capable of compensating at least ±10% variations in mains voltage.

2.12. The system shall occupy minimal space, be ergonomic, and be easy to maintain. The noise level of the system at maximum power shall be at most 58 dB at 1 meter.

2.13. The device shall be covered by a 2 (two) year warranty against manufacturing and fabrication defects, excluding consumables. A paid spare parts guarantee shall be provided for 10 years.