

## 1 Purpose

The purpose of this standard is to classify airborne contaminants and biological influences that may affect electronic hardware, such as process measurement and control instruments, information technology (IT), telecommunications, networking and data center equipment, and electronic office equipment.

The classification system provides users and manufacturers of electronic hardware with a means of specifying the type and concentration of airborne contaminants to which a specified piece of electronic hardware may be exposed.

This document is one of a series of standards on environmental conditions.

## 2 Scope

This standard covers airborne contaminants and biological influences that affect industrial process measurement and control equipment, electronic office equipment, and data center and network equipment. Specific examples of electronic office equipment include: laptop computers, desktop computers, workstations, servers, data storage hardware, terminals, displays, laser and inkjet printers, copiers, and fax machines. Examples of data center equipment include: servers, switches, routers, displays, keyboards, data storage hardware, power distribution equipment, and climate control equipment such as heating, ventilating, and air-conditioning (HVAC).<sup>†</sup> Some examples of networking equipment include telecommunications hardware, switches, and routers.

This standard establishes airborne contaminant classes for fixed (non-mobile) installations during normal operation (non-emergency conditions) or during transportation and storage.

The classes of conditions stated in this standard are suitable for electronic equipment in office, data center, networking, and process control environments. Activities addressed by this standard in these environments include design, manufacturing, sales, installation, test, use, and maintenance. These classes may also be used as a guide when establishing requirements for environmental control of buildings or other protective housings for industrial process measurement and control systems.

These classifications pertain only to the environment external to the equipment that may affect the equipment externally or internally.

The effects of environmental conditions on the safety, comfort, and performance of operating and maintenance personnel are not considered in this standard.

This standard covers airborne contaminants and biological influences that affect electronic equipment. Specifications for other environmental conditions, including nuclear radiation and hazardous atmospheres, are beyond the scope of this standard.

**CAUTION — AIRBORNE OR BIOLOGICAL CONTAMINANTS NOT LISTED IN THIS DOCUMENT COULD CAUSE EQUIPMENT DAMAGE. CAUTION SHOULD BE USED WHEN A COMBINATION OF FACTORS APPROACH OR SURPASS CLASS "X." OBTAINING THE GUIDANCE OF A CHEMICAL SPECIALIST IS SUGGESTED WHEN THIS CONDITION OCCURS.**

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<sup>†</sup> HVAC equipment used in IT/data communications applications are commonly referred to as computer room air conditioning (CRAC) units and/or computer room air handling (CRAH) units.