

NFPA 99 Compliant UPS Systems

General

It can be difficult to stay abreast of existing medical facility codes and requirements. Hopefully this document will help address some of the confusion regarding *Medical Grade UPS* systems. Patient safety is a primary concern when selecting a UPS system for medical centers and hospitals. NFPA 99 Codes

provide guidelines that help ensure patient safety. Unwanted levels of leakage current can be detrimental to a patient's well being. NFPA 99 defines "safe" levels of leakage current, and how to test portable equipment and appliances to ensure that they meet those levels. NFPA 99 has also

established a "Patient Care Vicinity" footprint, which defines examination and treatment areas. All cord connected appliances that are located in the "Patient Care Vicinity" must meet leakage current requirements, including UPS systems.

Portable (Cord Connected) Equipment

NFPA 99 Chapter 8 defines testing parameters and establishes current limits for portable (cord connected) equipment. Typically, the Biomed Technicians or Plant Operations personnel perform these tests and maintain logs of the periodic testing that ensures the equipment is meeting safety standards. The Authority Having Jurisdiction (AHJ) will ensure compliance of NFPA 99.

Patient Care Related Electrical Appliances and Equipment

Chassis leakage current on cord connected appliances shall not exceed 300 μ A.
Chassis leakage current between 300 μ A and 500 μ A shall be permitted on existing or special equipment (mobile x-ray machines) under certain conditions.

Non-patient Electrical Appliances and Equipment

Chassis leakage current for facility-owned appliances (housekeeping or maintenance appliances) shall not exceed 500 μ A when used in patient care vicinity.

NFPA 99, 2005 edition defines Leakage Current (NFPA 99 : 3.3.89) as "Any current, including capacitively coupled current, not intended to be applied to a patient, that is conveyed from exposed conductive parts of an appliance to ground or to other accessible parts of an appliance". (ELE)

NFPA 99 2005 edition defines Patient Care Vicinity (NFPA 99 : 3.3.140) as "A space, within a location intended for the examination and treatment of patients, extending 6 ft (1.8m) beyond the normal location of the bed, chair, table, treadmill, or other device that supports the patient during examination and treatment and extending vertically to 7 ft 6 in. (2.3m) above the floor". (ELE)

Summary

It is possible to purchase a UL-60601-1 listed and labeled UPS system. A UPS bearing this label has been tested and certified as meeting the NFPA 99 leakage current limits for

portable equipment. A UPS bearing the UL-1778 has not been tested and approved for use as portable equipment in the medical facility. Reduce potential liability issues and

costly maintenance & testing by installing NFPA 99 compliant and UL 60601-1 listed portable UPS systems today.