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ANSI/ASHRAE Standard 185.2-2020
Method of Testing Ultraviolet Lamps for Use in HVAC&R Units or Air Ducts to Inactivate Microorganisms on Irradiated Surfaces

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NOTE

Approved addenda, errata, or interpretations for this standard can be downloaded free of charge from the ASHRAE website at www.ashrae.org/technology.

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(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

Test standards form the foundation for air-cleaner selection in the ventilation industry. U.S. Environmental Protection Agency (USEPA) literature stated that the most important need in the area of ultraviolet germicidal irradiation (UVGI) was industry standards to rate installed devices. Standards for testing and reporting on products under controlled conditions are essential to users and specifiers so that they can compare products, predict levels of performance under specified operating conditions with reasonable certainty, and determine appropriate UVGI efficiencies for specific situations.

Historically, standards for testing air cleaners were developed in response to the needs of the day. Protection of machinery and coils came first, then reduction of soiling. Concerns about indoor air quality (IAQ) and respirable particles, protection of products during manufacture, and protection of HVAC equipment prompted development of test standards based on particle size. Interest in controlling airborne infectious contaminants or viable species that produce chemical contaminants as metabolic byproducts created the need for a test standard for UVGI equipment.

Standards Project Committee (SPC) 185 was first organized in 2005 to develop a method of test to determine inactivation rates of airborne microorganisms in air-handling units and air ducts. In 2007 efforts were divided between the production of two standards: ANSI/ASHRAE Standard 185.1, Method of Testing UVC Lights for Use in Air Handling Units or Air Ducts to Inactivate Airborne Microorganism, *and ANSI/ASHRAE Standard 185.2,* Method of Testing Ultraviolet Lamps for Use in HVAC&R Units or Air Ducts to Inactivate Microorganisms on Irradiated Surfaces.

This is a test method standard; its results are to be used to directly compare UVGI equipment on a standardized basis irrespective of their application. Results are also used to give the design engineer an easy-to-use basis for specifying UV devices or estimating the relative performance of UVGI for a given application. It is entirely possible that an industry organization may use this test method as the basis for an application standard in which they might require testing at conditions different than those required in this standard.

This 2020 revision of Standard 185.2 includes a change to the airflow for the measurements to 3400 m^3/h (2000 cfm).

1. PURPOSE

This standard establishes a test method for measuring the intensity of ultraviolet lamps on irradiated surfaces under typical HVAC&R operating conditions.

2. SCOPE

2.1 This standard describes a method of laboratory testing to measure the ultraviolet C (UV-C) irradiance of ultraviolet lamps used in HVAC&R systems.

2.2 This standard also

a. defines methods of calculating and reporting results obtained from the test data and
b. establishes a reporting system to be applied to ultraviolet lamps covered by this standard.

3. DEFINITIONS

Terms are defined below for the purposes of this standard. When definitions are not provided, common usage shall apply.

burn-in time: a period of time that UV lamps are powered on prior to putting the lamps into service.

irradiance: the power of electromagnetic radiation incident on a surface per unit surface area, typically reported in microwatts per square centimetre ($\mu W/cm^2$).