



Standard Test Method for Evaluation of Carpet Embedded Dirt Removal Effectiveness of Household/Commercial Vacuum Cleaners¹

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1. Scope

1.1 This test method covers only a laboratory test for determining the relative carpet dirt removal effectiveness of household/commercial vacuum cleaners when tested under standard conditions.

1.2 This test method is applicable to household/commercial types of upright, canister, and combination cleaners.

1.3 The test method applies to embedded dirt removal from carpets, not the removal of surface litter and debris.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 75 Practice for Sampling Aggregates²

E 11 Specification for Wire-Cloth Sieves for Testing Purposes²

E 177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods²

E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method²

F 655 Specification for Test Carpets and Pads for Vacuum Cleaner Testing²

F 922 Test Method for Motor Life Evaluation of a Household Electric Motorized Nozzle²

F 1038 Test Method for Motor Life Evaluation of a Household Canister Vacuum Cleaner²

F 1334 Test Method for Determining Sound Power Level of Vacuum Cleaners²

F 1409 Test Method for Straight-line Movement of Vacuum Cleaners While Cleaning Carpet²

3. Terminology

3.1 Definitions:

3.1.1 *cleanability, n*—the relative ease with which soils or stains can be removed from material.

3.1.2 *model, n*—the designation of a group of vacuum cleaners having identical mechanical and electrical construction with only cosmetic or nonfunctional differences.

3.1.3 *population, n*—the total of all units of a particular model vacuum cleaner being tested.

3.1.4 *repeatability limit, r*—the value below which the absolute difference between two individual test results obtained under repeatability condition may be expected to occur with a probability of approximately 0.95 (95 %).

3.1.5 *repeatability standard deviation, S_r*—the standard deviation of test results obtained under repeatability conditions.

3.1.6 *reproducibility limit, R*—the value below which the absolute difference between two test results obtained under reproducibility conditions may be expected to occur with a probability of approximately 0.95 (95 %).

3.1.7 *reproducibility standard deviation, S_R*—the standard deviation of test results obtained under reproducibility conditions.

3.1.8 *sample, n*—a group of vacuum cleaners taken from a large collection of vacuum cleaners of one particular model which serves to provide information that may be used as a basis for making a decision concerning the larger collection.

3.1.9 *test run, n*—the definitive procedure that produces a singular measured result.

3.1.10 *unit, n*—a single vacuum cleaner of the model being tested.

4. Significance and Use

4.1 This test method provides an indication of the capability of the vacuum cleaner to remove embedded dirt from carpeting. This test method is based upon results of home cleaning tests so that, in most cases, a reasonable correlation exists between home and laboratory results. The amount of dirt picked up in the laboratory test may not be the same as in home cleaning; however, it will show that, in most cases, a vacuum cleaner that cleans well in the laboratory will clean well in a home. Laboratory results may differ due to variations in the homes, carpets, dirt, and other factors.

4.2 In order to provide a uniform basis for measuring the performance described in 1.1, standardized test carpets and a standardized test dirt are employed in this procedure.

5. Apparatus

5.1 *Weighing Scale for Weighing Carpets*, accurate to 0.035

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² *Annual Book of ASTM Standards*, Vols 04.02, 14.02, and 15.07.