



Standard Practice for Determining Energy Consumption of Nonimpact Personal Computer Printers¹

This standard is issued under the fixed designation F 1706; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

ε¹ NOTE—Keywords were added editorially in January 2008.

1. Scope

1.1 This practice covers a procedure by which nonimpact personal computer printers, accessories, and similar office imaging devices can be tested for energy consumption.

1.2 *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:*²

F 335 Terminology Relating to Electrostatic Imaging

F 757 Test Method for Determining Energy Consumption of Copier and Copier-Duplicating Equipment³

F 909 Terminology Relating to Printers

2.2 *ANSI Standard:*

C 12.10 Electromechanical Watthour Meters⁴

3. Terminology

3.1 For definitions of terms used in this practice, see Terminologies **F 335** and **F 909** and Test Method **F 757**.

3.2 *cycle out*—the condition which exists when the machine has finished printing a page and has returned to a stand-by mode.

3.3 *energy-saver*—the condition that exists when the machine is not printing, has previously reached operating conditions, but is consuming less power than when the machine is in the stand-by mode.

3.4 *idle time*—the amount of time that the machine is not printing when testing printing energy.

3.5 *job*—printing pages without interruption or delay between pages.

3.6 *machine energy*—the energy consumed by a printer that is plugged in 24 h/day and turned on 10.5 h (see **Note 1**), but is not printing pages.

NOTE 1—Some users may want to adjust this time if they do not turn off their printers. Therefore, the test should be performed for the plug-in and warm-up modes, but won't be included in the calculations. If the user wants to include these modes in the calculations, the tester should recalculate the numbers used in Section 10.

3.7 *machine speed, first page*—the amount of time the machine takes to produce the first page of a job.

3.8 *machine speed, subsequent pages*—the amount of time the machine takes to produce multiple pages after the first page of a job.

3.9 *printing*—the machine condition that exists from the beginning to the end of the cycle that produces a page or pages.

3.10 *printing energy*—the energy consumed during a designated printing mode exclusive of stand-by and plug-in energy.

3.11 *printing time*—the amount of time that the nominal jobs are run when testing printing energy.

3.12 *standard pages per day*—the number of standard pages produced on a single machine during a standard printing day.

3.13 *stand-by*—the condition that exists when the machine is not printing, has reached operating conditions, but has not yet entered into an energy-saver mode.

3.14 *warm-up*—the condition that exists when the machine is turned on from a plug-in mode and prior to printing pages.

¹ This practice is under the jurisdiction of ASTM Committee F05 on Business Imaging Products and is the direct responsibility of Subcommittee F05.04 on Electrostatic Imaging Products.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Withdrawn.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.