



Standard Practice for Using a Personal Computer Printer as a Test Instrument¹

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1. Scope

1.1 This practice covers a standardized procedure utilizing a printer of the type normally associated with a personal computer as an imaging device when the performance properties of paper and imaging system components are measured. Both impact and nonimpact systems may be tested.

1.2 Impact printer technologies include full character and dot matrix.

1.3 Nonimpact printer technologies include laser printers, direct thermal printers, thermal transfer printers, and ink jet.

1.4 Printers not included are those associated with large computer systems commonly known as high-speed printers. See Practice F1175 for testing involving those systems.

1.5 *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

F221 Terminology Relating to Carbon Paper and Inked Ribbon Products and Images Made Therefrom

F909 Terminology Relating to Printers

F1125 Terminology of Image Quality in Impact Printing Systems

F1175 Practice for Using the Computer Impact Print-Out Unit as a Test Instrument for Manifold Comparison

2.2 *ANSI Standards:*

PH 2.17 Density Measurements-Geometric Conditions for Reflection Density

PH 2.18 Density Measurements-Spectral Conditions

¹ This practice is under the jurisdiction of ASTM Committee F05 on Business Imaging Products and is the direct responsibility of Subcommittee F05.03 on Research.

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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. Terminology

3.1 *Definitions*—Refer to Terminology F909.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *direct thermal printer*—a thermal printer in which the heated dots in the printhead form the image on a coated paper containing the imaging materials, producing a color formation corresponding to the dot pattern on the printhead.

3.2.2 *printer speed*—the rate at which a printer operates, measured in characters per second (CPS), lines per minute (LPM), pages per minute (PPM), or inches per second (IPS).

3.2.3 *thermal printer*—a printer in which a pattern of dots in a thermal printhead are heated, causing image forming reactions on chemically treated ribbon or paper.

3.2.4 *thermal transfer printer*—a thermal printer in which the heated dots in the printhead softens the ink on a ribbon or paper, causing it to transfer to paper much like an impact printer. An alternate process involves the use of a resistive ribbon and a printhead with dots that are electrically activated, causing current to flow through a resistive ribbon with an image-forming coating. The heat generated with the current flow causes the coating to soften and transfer to the paper.

4. Summary of Practice

4.1 This practice consists of using a printer, of the type normally associated with personal computers, under specified conditions, to prepare images that are used to evaluate paper or other imaging system components.

4.2 Care should be exercised in making comparisons, in that only one variable at a time should be evaluated. An example would be comparing several papers in one laser printer.

4.3 This practice includes nonimpact printers having imaging technologies including laser, direct thermal, thermal transfer, or ink jet LED, LCS, and magnetography. It also includes impact printers involving technologies such as full character or dot matrix types.

4.4 This practice may also be used to compare the image quality of printers that are capable of being operated at more than one speed.

4.5 This practice does not include computer printers using imaging technology provided by raised images on belts, chains, or drums. Practice F1175 addresses those imaging systems.