



# Standard Test Method for Determination of Productivity Using Electrostatic Copy Machines with Various Configurations<sup>1</sup>

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## 1. Scope

1.1 This test method covers the determination of productivity using electrostatic copy machines with various combinations of accessories and in different operating modes.

1.2 The results from this test method will enable copy machine users to compare the productivity of similarly equipped copiers to each other or the productivity of a copy machine can be compared with itself in its various configurations.

1.3 *This standard does not purport to address all of the safety problems, 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:<sup>2</sup>

F335 Terminology Relating to Electrostatic Imaging

F995 Practice for Estimating Toner Usage in Copiers Utilizing Dry Two-Component Developer

## 3. Terminology

3.1 Definitions:

3.1.1 *copy rate*—the average number of copies per minute that an electrostatic copy machine produces when a given number of copies are made of a given input load.

3.1.2 *productivity factor*—the number of copies per minute that an electrostatic copy machine produces on the average when allowances are made for the effects of work load, accessories, feed time, warm-up, operating mode and other factors which affect the output of the copier.

3.1.3 For other definitions see Terminology F335.

## 4. Summary of Test Method

4.1 The test method consists of two procedures for determining the productivity of an electrostatic copy machine when using any combination of accessories or attachments.

4.1.1 Procedure A, Test Method For Measuring Machine Productivity, is a series of direct measurements of the time required to do specific numbers of copies under given circumstances with selected accessories. It is intended to be quick and machine dependent.

4.1.2 Procedure B, Test Method For Measuring Job Productivity, is a series of measurements of the various tasks and operations on a copy machine. It uses standard jobs, and arrives at overall productivity ratings which are both machine and operator dependent.

## 5. Significance and Use

5.1 This test method is used to determine the copy per minute rating (productivity) of electrostatic copiers under standard conditions. It measures the time required to copy a specific standard load on a copy machine. This productivity value is to be compared to the repeat copy rate for the same machine to see if there is a change in the efficiency of the machine when various accessories or combinations of accessories are added to or used on the machine, or when the work load changes. It can also be used to compare the efficiencies of different but similarly equipped copy machines. It is suitable for productivity evaluation by the user, and in research and development.

## 6. Interferences

6.1 The productivity of a copier can be affected by the attachment of an accessory whether it is operating or not. Thus, for a full comparison of the efficiency of a machine, it should be tested with a given accessory removed, with it attached but not operating, and with it attached and operating. If two or more copiers are being tested and compared, it is important to maintain as equitable a situation as possible, with attachments on all machines being used in the same state.

6.2 Productivity can be affected by the paper input source selection and similar nuances in operation. The default conditions are not always the most efficient operating mode. Nor are

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<sup>2</sup> 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.