Designation: F1942 – 98 (Reapproved 2010)

Standard Practice for Creating Test Targets for Determining the Ink Yield of the Imaging Supplies Used in Ink Jet Printers[1]

This standard is issued under the fixed designation F1942; 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.

1. Scope

1.1 This practice describes a method for creating test targets containing varying percentages of area coverage for use in determining the yield of the supplies used by liquid and solid ink jet printers.

1.2 The values stated in inch-pound units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *This standard may involve hazardous materials, operations and equipment. 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 limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]
F909 Terminology Relating to Printers

3. Terminology

3.1 *Definitions:*

3.1.1 *percent area coverage*—the amount of area on a given-size page which is covered with an image produced from business imaging products (expressed in percent coverage).

3.2 See Terminology F909 for definitions of terms relating to computer printers.

4. Summary of Practice

4.1 The test targets which are created using this practice are used to determine the page or ink yield (in in.^{2}/g of ink) of ink jet printer supplies.

4.2 The test targets may be generated by a printer, verified for percentage of area coverage, and used to determine the page yield of ink jet printer supplies.

4.3 With this information, the user can determine supply-yield information for purposes of competitive comparisons or the determination of cost-per-page.

4.4 The test targets which are created using this practice can be used to calibrate the equipment used to verify percent area coverage.

5. Significance and Use

5.1 Test targets where the percentage of area coverage has been predetermined are not readily available from commercial sources. Moreover, it is beyond the ability of most users to verify if indeed, the commercially-available test targets contain the advertised area coverage. This procedure allows the user to easily create test targets, using commercially available PC software, which can be easily verified for percentage of area coverage and can provide reproducible interlaboratory results.

6. Interferences

6.1 Consider the resolution of the ink jet printer for which the test target is being created. In other words, size the elements so that they can be divided evenly by the resolution of the printer. This will ensure that the printer will only output entire pixels, and will not be forced to use resolution enhancement techniques, such as modulation of the pixel size.

6.2 When creating the elements in the test target, consider the aperture size of the densitometer which will be used to measure the output density. The elements created should comfortably fit within the densitometer aperture area.

7. Apparatus

7.1 Personal computer and ink jet printer.

[1] This practice is under the jurisdiction of ASTM Committee F05 on Business Imaging Products and is the direct responsibility of Subcommittee F05.07 on Ink Jet 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.

7.2 Personal-computer word processing or page layout (desktop publishing) software, which allows the user to specify the size, create, copy and place graphic elements on a page.

8. Creating the Test Target

8.1 Determine the intended test target percent area coverage. For example, the current industry-accepted area coverage is 5 % area coverage for black- and -white images and 15 % for full-color images.

8.2 Determine the number and dimensions of elements required for the application. Although only one element is required, it may be desirable to arrange several smaller elements around the page to produce areas suitable for densitometer measurement within the test target (refer to Fig. 1).

8.3 Create a new document with a word processor or desktop publishing software program.

8.4 Access the drawing tools and create an element with the proper dimensions.

8.4.1 Some programs provide a dialog box which allows the user to enter the dimension from the keyboard.

8.5 Using the software, specify the color of the element (cyan, yellow, magenta or black).

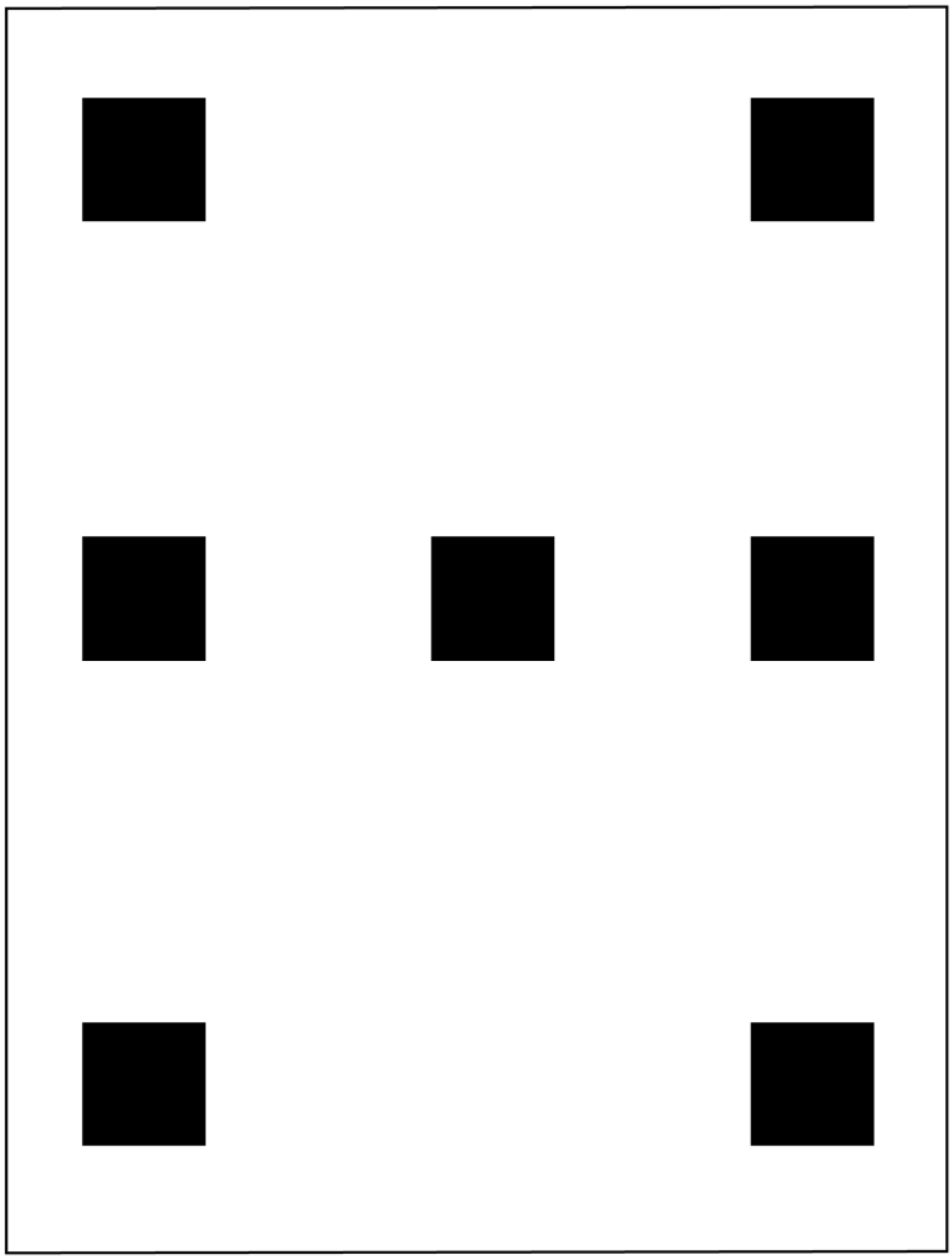

FIG. 1 Sample Test Target

8.6 If necessary, use the software to copy the element the required number of times and arrange the elements on the page.

8.6.1 Do not place elements within the unprintable area of the intended printer. This area is usually from 0.3 in. to 0.55 in. around the perimeter of the page depending on the printer; consult the printer manual for details.

9. Keywords

9.1 imaging supplies; ink jet; ink jet printer; ink yield; test target