Testing Method for Determining Stated Page Yield for Brother Genuine Ink Cartridges Based on the ISO/IEC 24711 Standard

Contents

1. Preface
2. The ISO/IEC Standard Background
3. The ISO/IEC24711 Page Yield Standard

1. Preface

Stated page yields* for genuine Brother ink cartridges are based on the ISO/IEC 24711 testing method and the ISO/IEC 24712 test pattern (the “ISO Standard”). This ISO Standard is also used by many other printer manufacturers to state the page yield applicable to their products. The ISO Standard, therefore, assists consumers in comparing page yields amongst different manufacturers when purchasing a printer or multifunction product.

Third-party ink cartridges sold as “compatible” or “For Use With” Brother printers may not utilize the ISO Standard for determining their advertised page yields. If so, their stated yields will likely not be comparable to those for genuine Brother ink cartridges.

For more information on genuine Brother ink cartridges, please visit our web site:

http://www.brother.com/original/index.html

* “page yield” is a reference value calculated by Brother based on the ISO Standard. The page yields that you achieve may differ due to the environment during printing (e.g., ambient temperature, humidity), the printer settings used (e.g., print mode, software version on PC used) and certain user-centric printing habits (e.g., power-cycling, size of print job, percentage coverage). Therefore, stated page yields represent approximate values for Brother products and actual results may vary.

2. The ISO/IEC Standard, Background

ISO is the abbreviation for the “international Organization for Standardization”, a private-sector, non-profit organization that establishes international standards in industrial categories other than electrical categories**.** More than 150 nations are members of the ISO. The ISO headquarters are located in Geneva, Switzerland. IEC is the abbreviation for the “International Electrotechnical Commission”, which establishes international standards in electrical categories.

For categories related to both ISO and IEC, the ISO/IEC JTC1 (Joint Technology Committee) was formed to create international standards. The standards for calculating page yields were established by the ISO/IEC JTC1 (the “Committee”), so they begin with the prefix “ISO/IEC” followed by unique assigned numbers. In drafting ISO/IEC standards,

representatives of the standards organizations from each nation (as part of the Committee) discussed and collaborated in the development of the proposed standard which was then enacted by vote of the Committee. Thus, the ISO/IEC 24711 standard was established by a committee comprising of representatives of government, academia, and industry collectively.

For details on ISO/IEC, please visit the following web site:

http://www.iso.org/

3. The ISO/IEC 24711 Page Yield Standard

The **ISO/IEC24711** standard regulates the following three categories for page yield testing:

i. Test Method and Conditions
ii. Standard Test Pattern
iii. Method for Calculating Stated Page Yield from Test Results

i. Test Method and Conditions

a. Number of printers and number of cartridges used for testing:

At least three printers (or multi-function devices) and at least nine of each cyan, magenta, yellow, and black cartridges are tested.

b. Test Environment

Temperature: 23 C +/- 2 C (73 F +/- 4 F)

c. Print Mode

Continuous printing of the standard test pattern (Figure 1)

d. Ink cartridge change criterion:

For Brother products, the ink cartridge is changed when the “Cannot Print” prompt was displayed.

For some products, the ink cartridge is changed when the “Replace Ink” prompt

was displayed.

While the customer cannot print, there is still some ink left in the cartridge in order to protect the integrity of the print head and ink delivery system. This will help ensure continued satisfactory print quality for the customer.

ii. Standard test pattern:

The **ISO/IEC24712** test pattern consists of the test suite of documents displayed in Figure 1. This test pattern is used in conducting page yield testing pursuant to the **ISO/IEC 24711** standard.

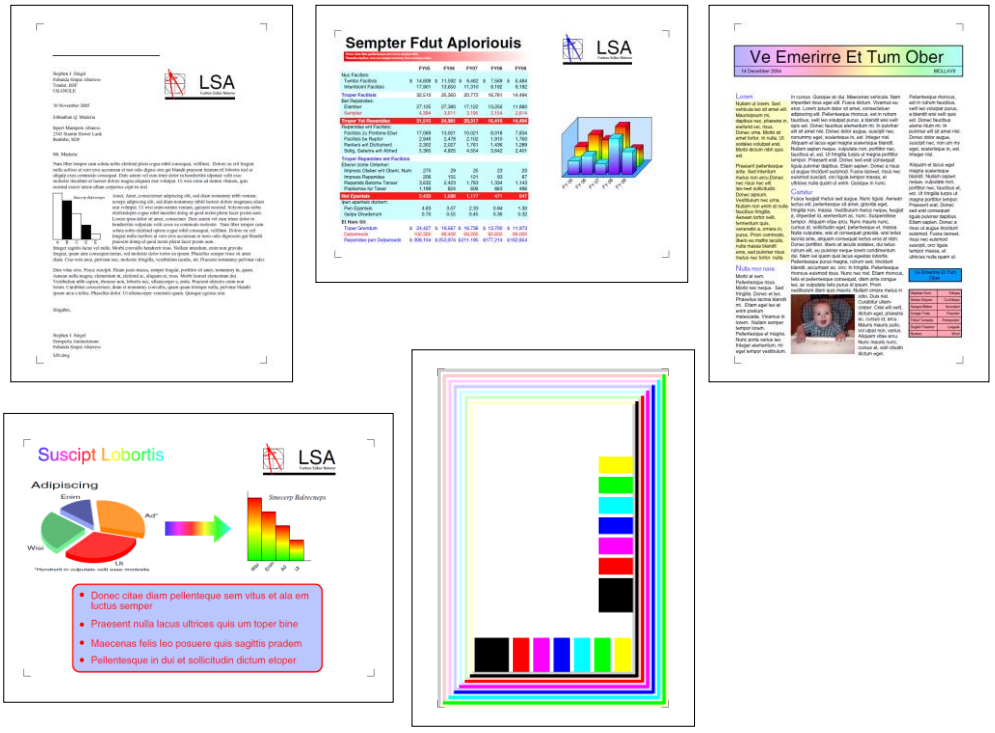

Figure 1 Test Pattern Used in **ISO/IEC24711**

iii. Method for Calculating Stated Page Yield from Test Results

Employing statistical analysis and from the results of testing according to the **ISO/IEC 24711** standard, Brother calculates the minimum page yield with a confidence level lower limit estimated value of 90 %, and a value no greater that that is used as the stated page yield.