



Brother Genuine Color Ink Cartridge Testing Method for Determining Stated Page Yield Based on ISO/IEC24711 Standard

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1. Preface

There are many customers who compare page yields when purchasing a printer or multi-function product.

This document was written to explain to customers the testing method used on Brother Genuine color ink cartridges for determining stated page yield based on the **ISO/IEC24711** standard.

Stated page yields for Brother Genuine color ink cartridges will adopt the **ISO/IEC24711** standard as new inkjet cartridge products are released, unless otherwise indicated by Brother.

The testing method for determining stated page yield based on the **ISO/IEC24711** standard is a method already used by many printer manufacturers to calculate their page yields. It can be considered a reliable method for comparing the number of pages produced by Brother inkjet cartridges tested pursuant to the stated.

Before the **ISO/IEC24711** standard was adapted, each company used its own method(s) to calculate the page yield for a given cartridge, making it difficult to compare the relative page yields objectively.

Some providers of ink cartridges sold as "Compatible" or "For Use With" Brother Machines do not apply the **ISO/IEC24711** standard for determining the page yields that they advertise. Please be careful because, in such a case, you should not assume that such cartridges will produce page yields equivalent to those for Brother Genuine ink cartridges.

For more information on Brother Genuine ink cartridges, please visit our web site:
<http://www.brother.com/original/index.html>

* The page yield is a reference value calculated by Brother based on the standards described in this document. The page yields that you achieve may differ due to the environment during printing and the printer settings used at the time of printing (print mode, software version on PC used, ambient temperature and humidity, etc.). Therefore, we request that you utilize the page yield stated by Brother as reference information for an approximate value when selecting a Brother printer or Multi-Function Center product.

2. The ISO/IEC Standard, generally

ISO is the abbreviation for "International Organization for Standardization", a private-sector non-profit organization for setting international standards in industrial categories other than electrical categories.

More than 150 nations are members of the ISO. The ISO headquarters is located in Geneva, Switzerland.

IEC is the abbreviation for the "International Electrotechnical Commission", which sets standards in electrical categories.

For categories related to both ISO and IEC, the ISO/IEC JTC1 (Joint Technology

Committee) has been formed to create standards. The standards for calculating page yields were set by the ISO/IEC JTC1 organization, so they begin with the prefix "ISO/IEC" followed by a unique assigned number. In drafting an ISO/IEC standard, representatives of the standards organizations from each nation discuss the proposed standard and enact it through a number of votes.

Thus, the **ISO/IEC24711** standard was not established only by manufacturers.

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

<http://www.iso.org/>

3. The ISO/IEC24711 Page Yield Standard

The **ISO/IEC24711** is a standard used for printing general documents.

The standards regulate the following three items.

- i. Test method and conditions**
- ii. Standard test pattern used in tests**
- iii. Method for calculating stated page yield from test results**

i. Test method and conditions:

- Number of printers and number of cartridges for test :
At least three (3) printers (or multi-function products) and at least nine (9) each of cyan, magenta, yellow and black cartridges are tested.
- Test environment :
Temperature: $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ($73^{\circ}\text{F} \pm 4^{\circ}\text{F}$)
- Print mode :
Continuous printing of the standard test pattern stipulated below
- Ink cartridge change criterion :
For Brother products, the ink is to be changed when the "Cannot Print" prompt is displayed.

When the product displays "Cannot Print", there is some ink left in the cartridge, but this is only to provide the customer with satisfactory print quality until having to replace the cartridge and to maintain the integrity of the print head and ink delivery system.

ii. Standard test pattern used in tests :

ISO/IEC24711, the standard for printing general documents, stipulates the use of the test pattern comprising the set of five pictures in Figure 1.

However, there is currently no standard for printing photographs with a color ink cartridge.

Therefore, at Brother, the **ISO/IEC24711** test method is used. The only change is that the set of five photographs in Figure 2 is used as a unique Brother test pattern.

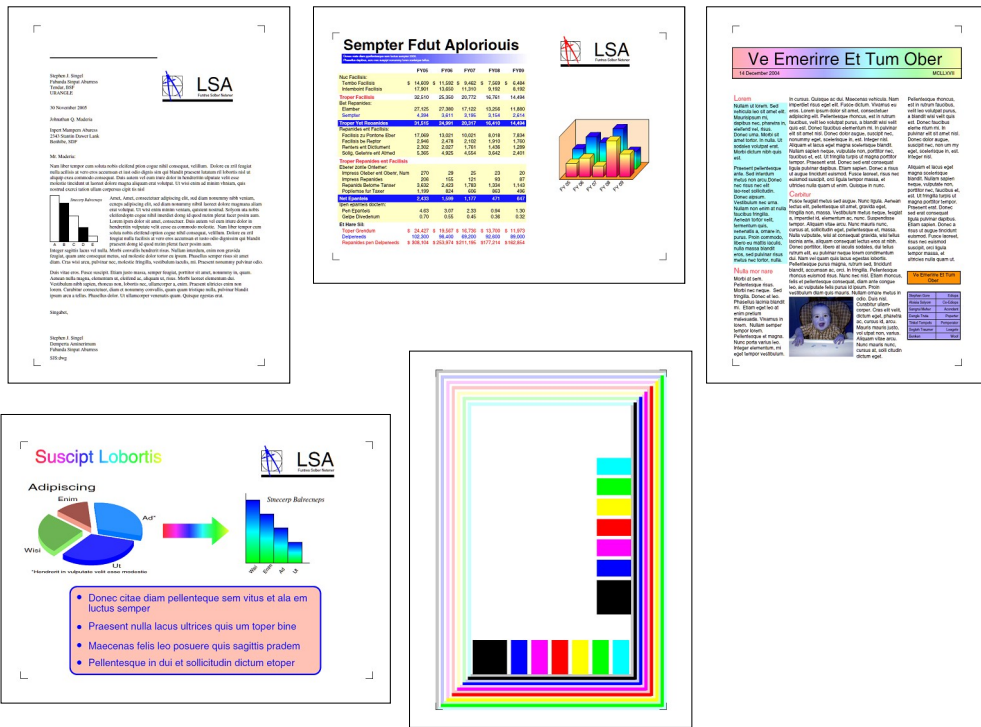


Figure 1 Test Pattern Used in ISO/IEC24711 (Set of 5 Pictures)



Figure 2 Test Pattern Used for Printing Photographs (Set of 5)

iii. Testing Method for determining state page yield from test results :

Employing statistical analysis and from the results of testing according to the method and conditions explained above, we calculated the minimum page yield with a confidence level lower limit estimated value of 90%, and a value no greater than that is stated as the page yield.