



# **Testing Method for Determining State Page Yield for Brother Genuine Monochrome Toner Cartridge on the ISO/IEC19752 Standard**

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## 1. Preface

Stated page yields\* for genuine Brother Monochrome toner cartridges are based on the **ISO/IEC19752** standard as new toner cartridge products are released, unless otherwise indicated by Brother. This ISO Standard is also used by many other printer manufacturers to state the page yields applicable to their products. The ISO standard, therefore, assists consumers in comparing page yields amongst different manufacturers when purchasing a printer or multifunction products.

Third-party Monochrome toner cartridges sold as "Compatible" or "For Use With" Brother printers may not utilize the ISO Standard for determining the page yields. If so, their stated yields will likely not be comparable to those for genuine Brother Monochrome toner cartridges.

For more information on genuine Brother Monochrome toner 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 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 "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/IEC19752** 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/](http://www.iso.org/)

### **3. The ISO/IEC19752 Page Yield Standard**

The **ISO/IEC19752** 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:**

- Number of printers and number of cartridges for testing :

At least three (3) printers (or multi-function products) and at least nine (9) cartridges are tested.

- Test environment :

Temperature: 23°C ± 2°C (73°F ± 4°F) / Humidity: 50% ± 10%

- Print mode :

Continuous printing of the standard test pattern stipulated below

- Toner cartridge change criterion :

For Brother products, the toner was to be changed when the "Replace Toner" prompt was displayed.

While the customer cannot print, there is still some toner left in the cartridge in order to protect the integrity of the printer. This will help ensure continued satisfactory print quality for the customer.

**ii. Standard test pattern:**

The **ISO/IEC19752** standard use the test pattern in Figure 1.



Figure 1 Test Pattern Used in **ISO/IEC19752**

**iii. Method for determining stated page yield from test results:**

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