# APFill Ink Coverage Meter User's Guide

Download APFill Ink Coverage Calculator 5.9 (32-bit and 64-bit version)

What is APFill?

Ink/toner consumption is usually described by printer vendors as the number of A4 pages with 5% filling (normal text), which can be printed using one cartridge. APFill Ink Coverage Meter helps you measure the ink/toner coverage density of the page before printing. Thus, APFill Ink Coverage Meter allows you to estimate the approximate cost of one imprint. This is especially important for large print houses, which print large circulations/editions. Using this software in a print house allows you, for example, to apply the pricing matrix according to ink coverage, which, in turn, allows you to attract clients by offering a lower price.

**Key features:**
- Measure the color coverage of every page or average document coverage of a **PostScript** or **PDF** file (*.ps, *.pdf) with **CMYK separation (up to 8 color spots)**. To use this feature, you will also need to install GPL Ghostscript 9.07 for Win32 or Win64.
- Measure the color coverage for raster formats (TIFF including multipage, JPG, BMP).
- Measure the color coverage of the highlighted screen area.

Visit our site: http://avpsoft.com to download the latest version of APFill.
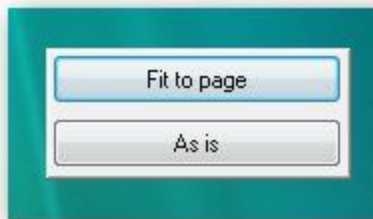
Measuring Ink Coverage

How to measure ink coverage of a selected area of screen (RGB coverage)
APFill allows you to measure color density (ink and toner coverage). In this case you can estimate the color density irrespective of the graphic editor used to create your documents (Photoshop, Corel Draw, Word ...). All you need is to fit preview the page on the desktop and use APFill to measure the color density of this area of the screen (for RGB coverage only). However, if you want to measure your document more accurately or in the CMYK format, APFill allows you to measure PostScript files.
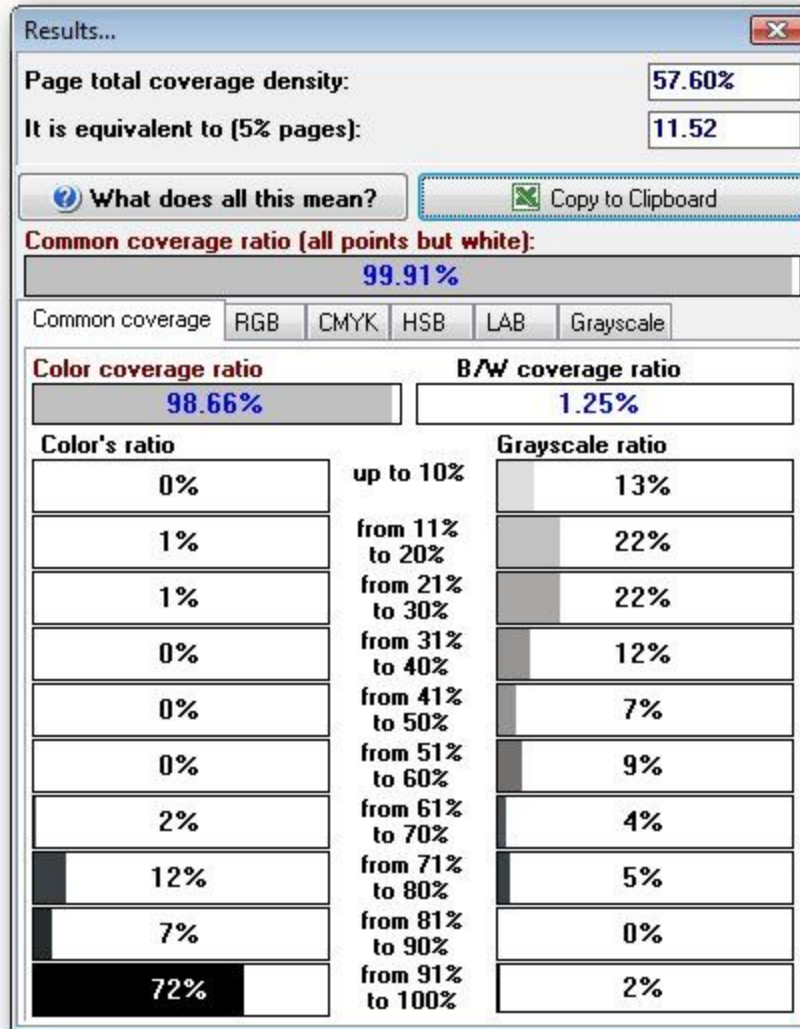
You should use the "Coverage ratio (screen)" menu item to measure the color density of the selected area of the screen:
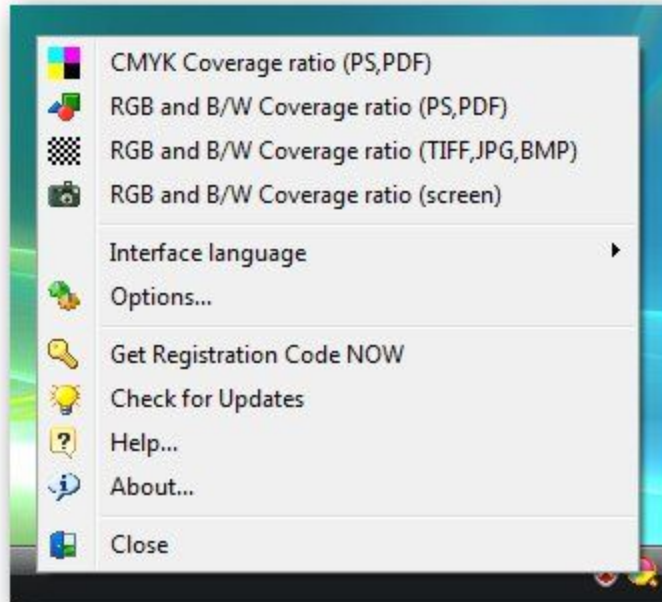
Select an area of the screen. Then you can use auto page selection (just press "Fit to Page") or leave the area without changes (just press "As is").



Then you will see the "Results of measurement" dialog.

**Results...**

| | |
|---|---|
| Page total coverage density: | 57.60% |
| It is equivalent to (5% pages): | 11.52 |

[ ? What does all this mean? ] [ X Copy to Clipboard ]

**Common coverage ratio (all points but white):**

99.91%

| Common coverage | RGB | CMYK | HSB | LAB | Grayscale |
|---|---|---|---|---|---|

**Color coverage ratio**     **B/W coverage ratio**

98.66%     1.25%

| Color's ratio | | Grayscale ratio |
|---|---|---|
| 0% | up to 10% | 13% |
| 1% | from 11% to 20% | 22% |
| 1% | from 21% to 30% | 22% |
| 0% | from 31% to 40% | 12% |
| 0% | from 41% to 50% | 7% |
| 0% | from 51% to 60% | 9% |
| 2% | from 61% to 70% | 4% |
| 12% | from 71% to 80% | 5% |
| 7% | from 81% to 90% | 0% |
| 72% | from 91% to 100% | 2% |

In this window APFill displays the results of measurement in different color systems and in grayscale.

Color density measurement of PostScript or PDF files (CMYK coverage)

APFill can measure the coverage ratio of PS/PDF files. APFill requires GPL Ghostscript 9.10 to be installed to be able to process PS/PDF files. To start measuring, please click "Coverage ratio (PS/PDF)" and select a PS/PDF file for which you wish to measure the coverage ratio.
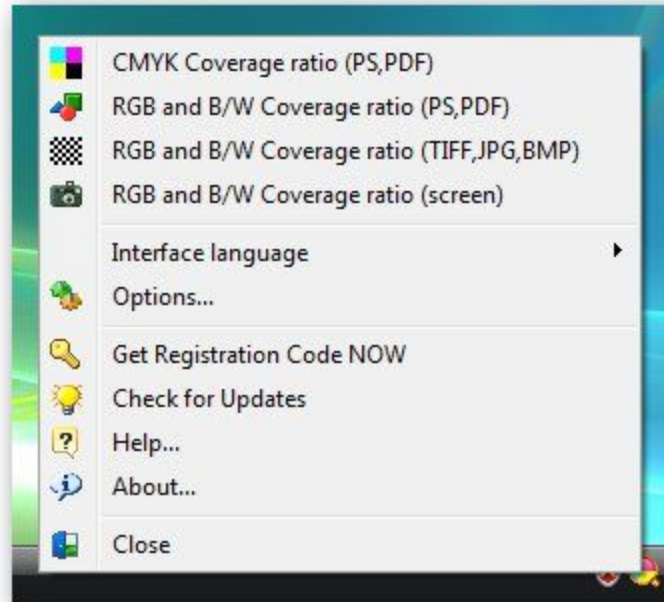
You will see the color separation choice window. If the file contains additional color spots, APFill can convert the file (the original file will not be changed) to CMYK without additional spots or leave it without changes. APFill supports up to 8 color spots (CMYK + 4 additional color spots). Converting to CMYK is necessary if your printer has CMYK cartridges only and you need to know the filling information specifically for CMYK.
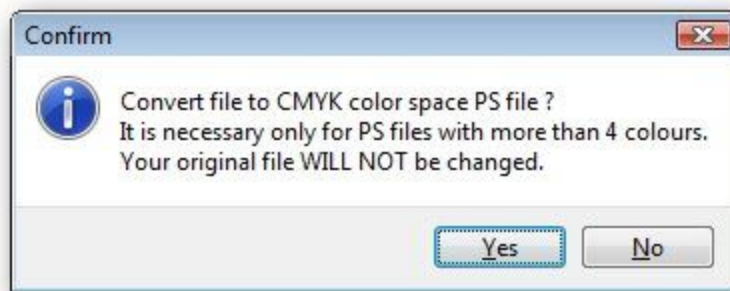


The file will be opened in the file preview window.
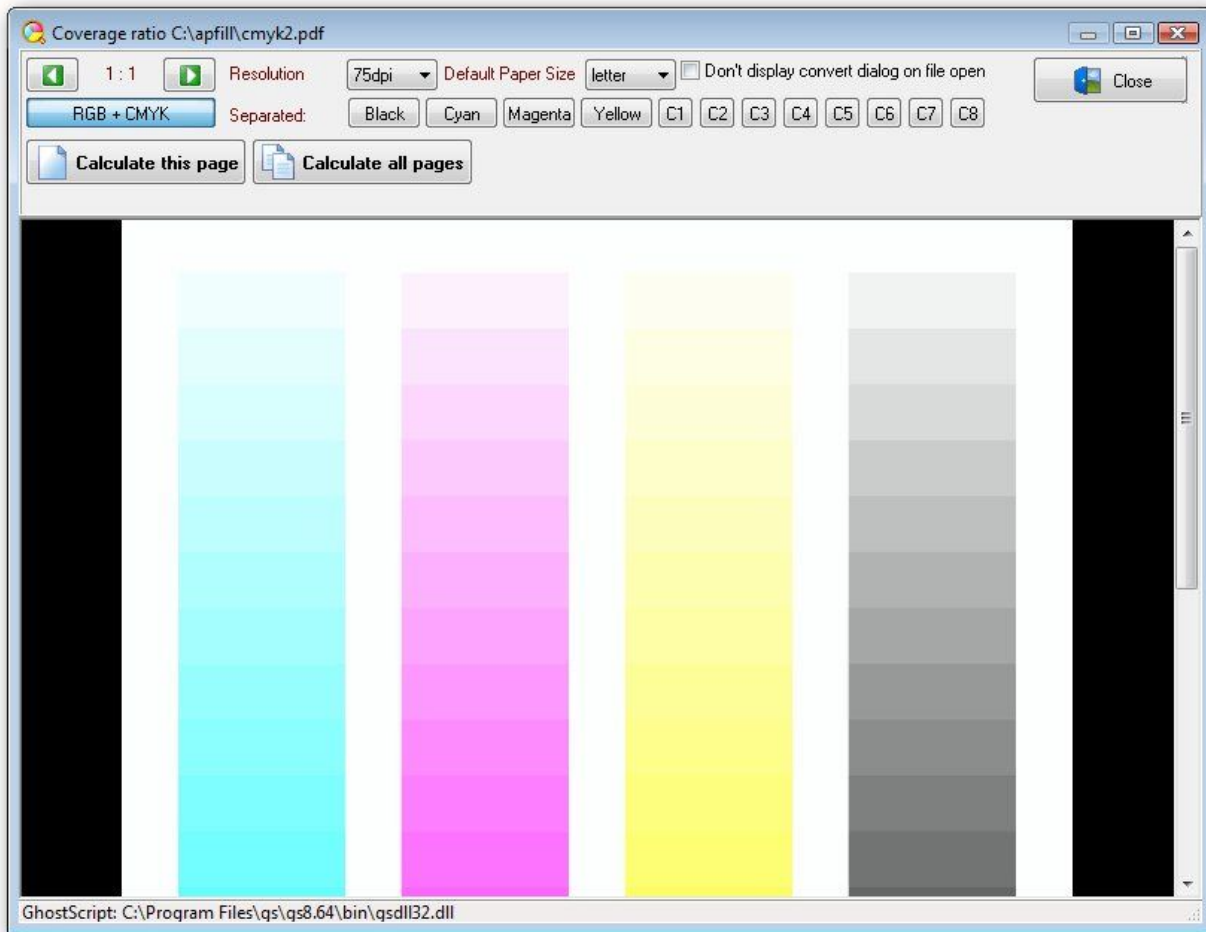
The following configuration parameters are available:

- "Resolution" (Choose a resolution in which the PS/PDF file should be displayed and measured. The higher the resolution, the more accurate the measurement result is).
- "Choose page" (Choose a page, for which you would like to measure the coverage ratio (for multi-pages PS/PDF files))
- You can select specific CMYK colors to measure or measure the whole page in RGB.
- "Calculate" (measure the coverage rate of the current page and display the results)
- "Calculate all pages" (measure the coverage rate of the whole document and display the results)
- "Default page size" - this parameter defines the page size if a PS/PDF file does not contain specific page size values. If the file contains page size information, APFill will use it for displaying and measuring the document.
- "Close" (close the PS/PDF file view window)

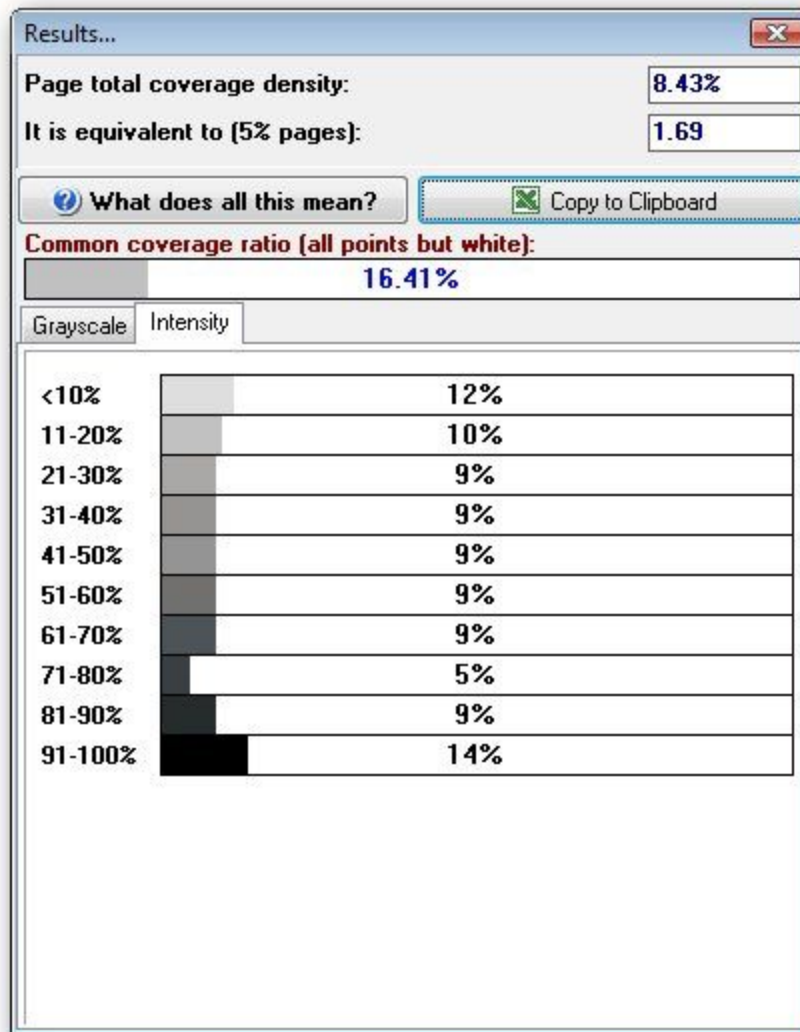Results of color density measurements

While measuring coverage, APFill can produce three types of results.

Result values for selected and measured color spots

If the "Calculate" button is pressed in the PS/PDF file measurement mode and a specific color spot is selected,



APFill measures only this color spot of the current page and shows the results in the following window:



| | |
|---|---|
| Page total coverage density: | 8.43% |
| It is equivalent to (5% pages): | 1.69 |

Common coverage ratio (all points but white): **16.41%**

Grayscale / Intensity

| | |
|---|---|
| <10% | 12% |
| 11-20% | 10% |
| 21-30% | 9% |
| 31-40% | 9% |
| 41-50% | 9% |
| 51-60% | 9% |
| 61-70% | 9% |
| 71-80% | 5% |
| 81-90% | 9% |
| 91-100% | 14% |

In this case:

PAGE TOTAL COVERAGE DENSITY shows page filling according to this color spot with regard to intensity.

IT IS EQUIVALENT TO (5% PAGES): Shows to how many standard pages with 5% coverage this color spot coverage equals to.

IT IS EQUIVALENT TO (5% PAGES) = PAGE TOTAL COVERAGE DENSITY/5

"COMMON COVERAGE RATIO": This is the percent of all pixels other than white in the selected area. Example: if the rate is 80%, this means that 80% of the page will be covered with ink and 20% will remain blank. Attention: this parameter takes no account of pixel intensity, i.e. in this case only the coverage area is considered. That is why COMMON COVERAGE RATIO is always greater than PAGE TOTAL COVERAGE DENSITY and will equal to it only if the whole area is filled with 100% color intensity.

"INTENSITY": This table shows the proportion of pixels with various intensity in the filled area.

For example: if the COMMON COVERAGE RATIO is 49%, and intensity from 21% to 30% is 66%, this means that 49% of all pixels in the area are colored with some color, 66% of this 49% are the pixels with the intensity of 21%-30%.

Result values for measuring the whole PS/PDF document

It is possible to measure the whole document at once in the PS/PSD file measurement mode by pressing the "Calculate all pages" button.



In this case APFill calculates coverage for all spots on every page considering pixel intensity (i.e. the PAGE TOTAL COVERAGE DENSITY value for each color spot is measured) and the average coverage for the document ("AVERAGE" row). Therefore, in order to calculate the overall document coverage, you need to multiply AVERAGE results by the number of pages in the document. When "Copy to clipboard" is pressed, the results are copied to the clipboard and can be easily inserted to an Excel sheet for further analysis and calculations.

| Page | C | M | Y | K | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | Resolution | Width | Height |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.00 | 0.00 | 0.00 | 2.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 2 | 0.00 | 0.00 | 0.00 | 4.45 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 3 | 0.00 | 0.00 | 0.00 | 6.37 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 4 | 0.00 | 0.00 | 0.00 | 5.77 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 5 | 3.08 | 2.56 | 1.93 | 2.88 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 6 | 3.87 | 3.91 | 3.64 | 0.57 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 7 | 3.03 | 2.82 | 2.24 | 2.59 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 8 | 5.31 | 5.29 | 4.91 | 2.53 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 9 | 3.96 | 4.09 | 3.62 | 1.56 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 10 | 0.00 | 0.00 | 0.00 | 3.21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 11 | 3.56 | 3.61 | 3.23 | 2.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 12 | 4.79 | 4.90 | 4.46 | 2.34 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 13 | 0.00 | 0.00 | 0.00 | 6.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 14 | 0.00 | 0.00 | 0.00 | 2.58 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 15 | 5.07 | 5.29 | 4.85 | 1.11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 16 | 3.09 | 3.14 | 2.83 | 1.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 17 | 3.28 | 3.33 | 3.05 | 1.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 18 | 4.61 | 4.74 | 4.48 | 1.31 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 19 | 2.97 | 3.06 | 2.76 | 1.82 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| 20 | 0.00 | 0.00 | 0.00 | 2.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 75 | 621 | 877 |
| Average | 2.33 | 2.34 | 2.10 | 2.74 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | | |

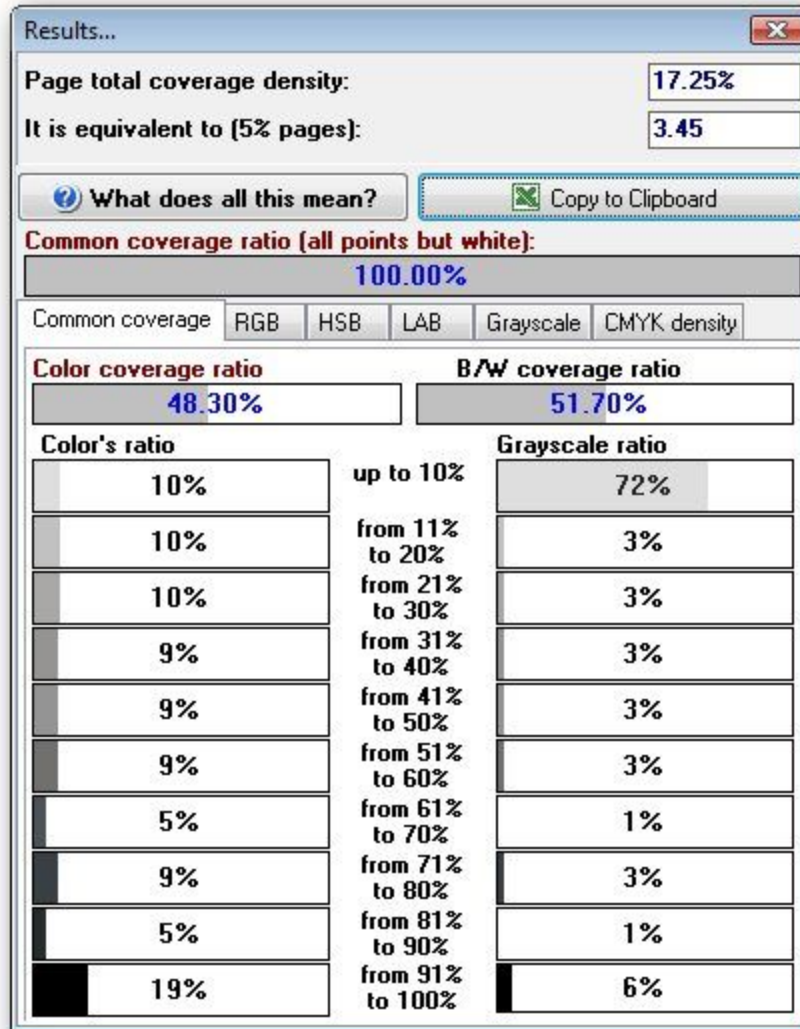Result values for measuring full PS/PDF pages (RGB mode) or parts of the screen.

Results in the PS/PDF file measurement mode, if the viewing mode is selected and the "Calculate" button is pressed; or when only part of the screen is measured.



In this mode APFill measures RGB filling for the current page (CMYK filling on the CMYK tab is shown only in the PS/PDF file measurement mode) and produces the following results:

**Results...**

Page total coverage density: `17.25%`

It is equivalent to (5% pages): `3.45`

[ ? What does all this mean? ] [ ✖ Copy to Clipboard ]

**Common coverage ratio (all points but white):**

`100.00%`

Tabs: Common coverage | RGB | HSB | LAB | Grayscale | CMYK density

**Color coverage ratio** `48.30%`   **B/W coverage ratio** `51.70%`

| Color's ratio | | Grayscale ratio |
|---|---|---|
| 10% | up to 10% | 72% |
| 10% | from 11% to 20% | 3% |
| 10% | from 21% to 30% | 3% |
| 9% | from 31% to 40% | 3% |
| 9% | from 41% to 50% | 3% |
| 9% | from 51% to 60% | 3% |
| 5% | from 61% to 70% | 1% |
| 9% | from 71% to 80% | 3% |
| 5% | from 81% to 90% | 1% |
| 19% | from 91% to 100% | 6% |

**Attention:** when you are using this mode, all parameters are apply to RGB coverage only (except for the CMYK panel); if your need CMYK coverage only, you should only pay attention to the CMYK tab or use the covergae measurement by color mode. You can also use the "CALCULATE ALL PAGES" mode for measuring CMYK coverage. You will need the results in the RGB format if you are using a black-and-white or RGB printer. The "Copy to Clipboard" button copies the results (in a table form) to the clipboard, thus making it easy to import them to Excel. We recommend you to create an Excel document with formulas, which allow you to estimate the cost of an imprint according to the coverage density result, paper size, paper sheet thickness, circulation, and so on. Thus, you can get the final cost of the imprint right after copying the results to Excel.

In this mode:

PAGE TOTAL COVERAGE DENSITY indicates page coverage considering intensity (RGB). This value corresponds to the 5% ink coverage value usually specified in printer manuals. The result can be presented as following: the whole page is converted to the black-and-white format and ink is evenly distributed on the page; get the page evenly filled with gray color of the specified intensity (from 0% to 100%).

IT IS EQUIVALENT TO (5% PAGES): displays the number of standard 5% pages to which your layout sheet is equivalent. That is, when "Page total coverage density" equals 10%, this means the printer will use the amount of ink/toner sufficient to print two pages with the standard 5% coverage density.

IT IS EQUIVALENT TO (5% PAGES) = PAGE TOTAL COVERAGE DENSITY/5

"COMMON COVERAGE RATIO": This is the percent of all pixels other than white in the selected area. Example: if the rate is 80%, this means that 80% of the page will be covered with ink and 20% will remain blank. Attention: this parameter does not take account of the pixel intensity, i.e. in this case only the coverage area is considered. That is why the COMMON COVERAGE RATIO is always greater than PAGE TOTAL COVERAGE DENSITY and will equal to it only if the whole area is filled with 100% color intensity.

Besides these standard coverage values, APFill also calculates more specific and informative coverage characteristics. This, in turn, allows you to reduce ink/toner consumption.

Coverage density results are presented in various color systems.

The following tabs are available:

COMMON COVERAGE.

The table shows the proportion of pixels with different intensity in the filled area. There are the following fields on this tab:

"Color coverage ratio" (all colored pixels ratio of the selected area).

"Color's coverage ratio" (each field shows the rate for pixels colored with the color of the specified intensity).

For example: if the common coverage rate is 49%, and intensity from 21% to 30% is 66%, this means that 49% of all pixels in the area are colored with some color, 66% of this 49% are the pixels with the intensity of 21%- 30%.

"B/W coverage ratio" (shows the ratio of all pixels colored with gray in the selected area).

"Grayscale ratio" (each field shows the ratio of the pixels colored with gray color of the specified intensity).

For example: if the common coverage rate is 49%, and the 21%-30% intensity is 66%, this means that 49% of all pixels in area is colored with gray color, 66% of this 49% are the pixels with the color intensity of 21%- 30%.

Color coverage ratio + B/W coverage ratio = common coverage ratio.

RGB
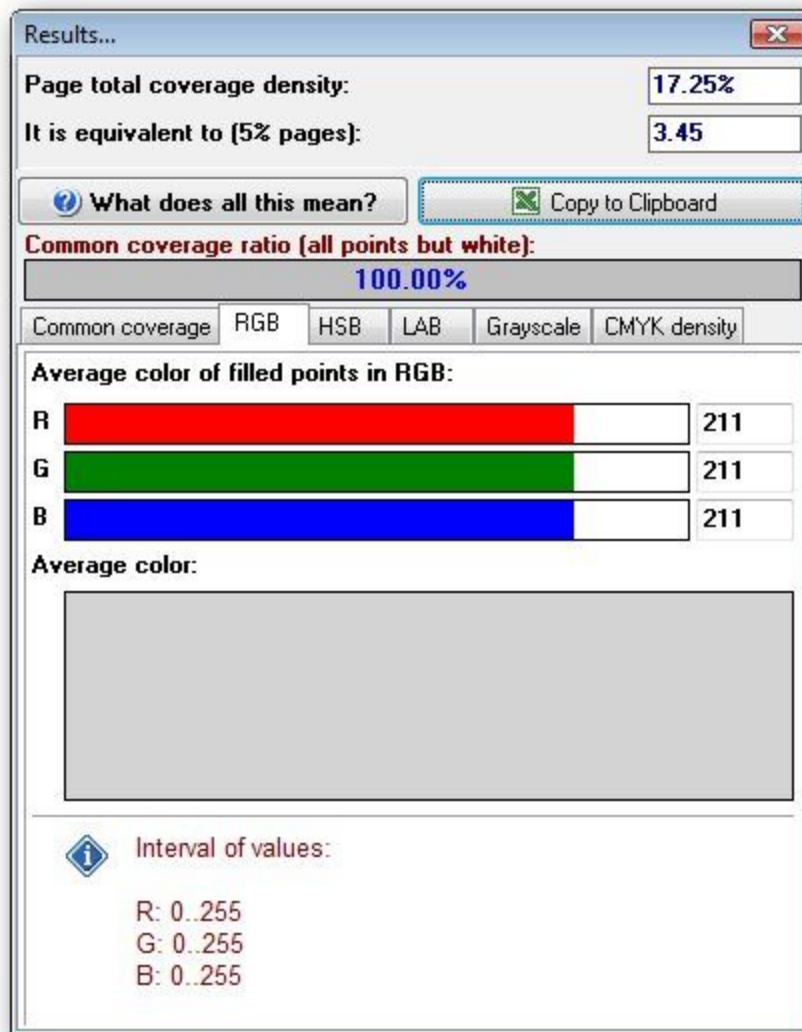


On this tab, you can see the measurement results for colored pixels in RGB. An average value for each of the R, G, B components is provided. On this tab, you can also see an average RGB
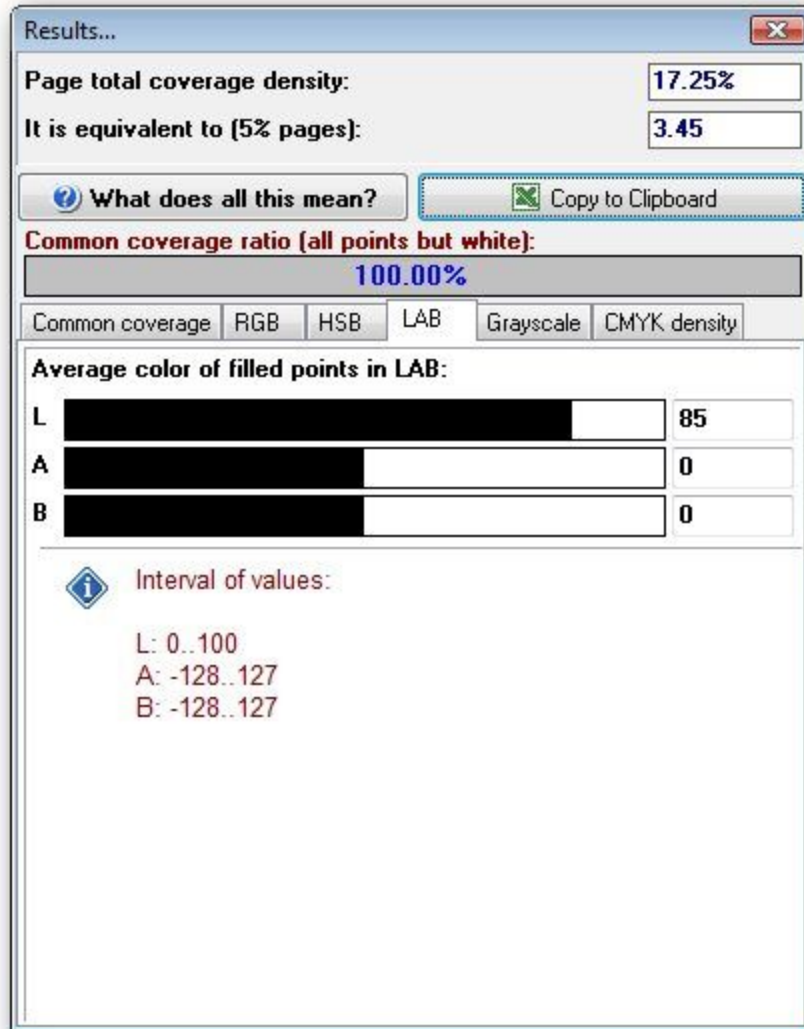
color of the selected area. The average color is calculated on the basis of colored pixels only, i.e. white pixels are not calculated.

HSB
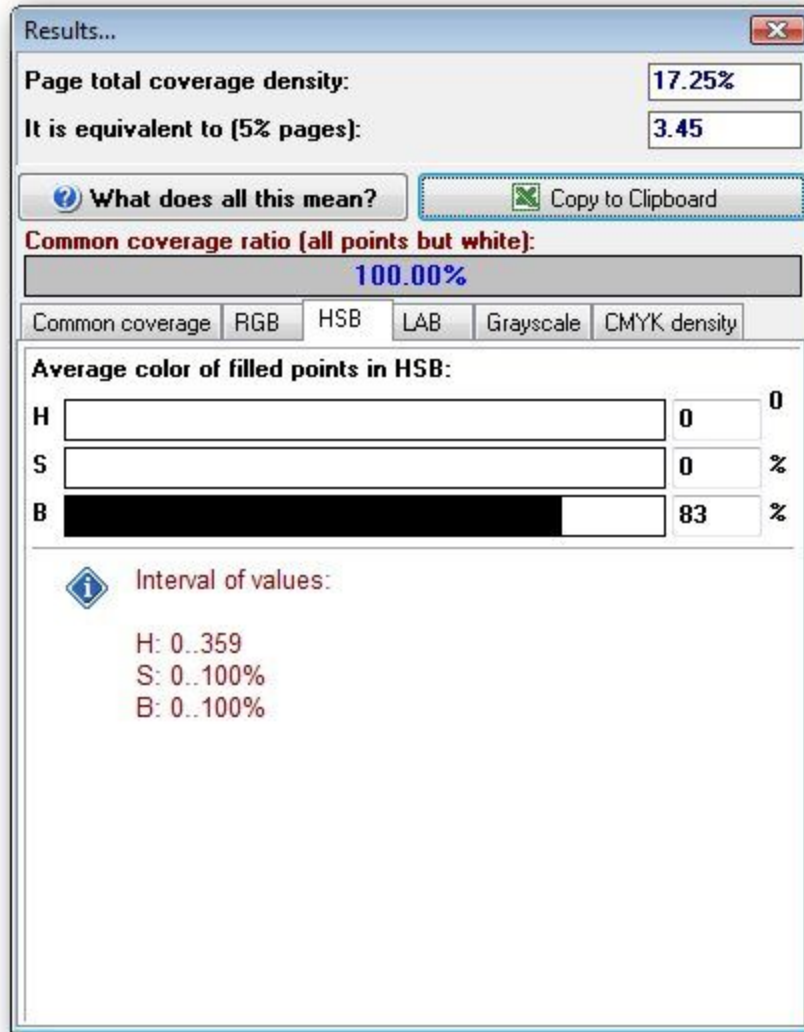


On this tab, you can see measurement results for colored pixels in HSB. An average value for each H, S, B component is provided. Thus, the average HSB color is presented on this tab. The average color is calculated on the basis of colored pixels only, i.e. white pixels are not calculated.

LAB

On this tab, you can see the measurement results for colored pixels in LAB. An average value for each L, A, B component is provided. Thus, an average LAB color is presented on this tab. An average color is calculated on the basis of colored pixels only, i.e. white pixels are not calculated.

Grayscale
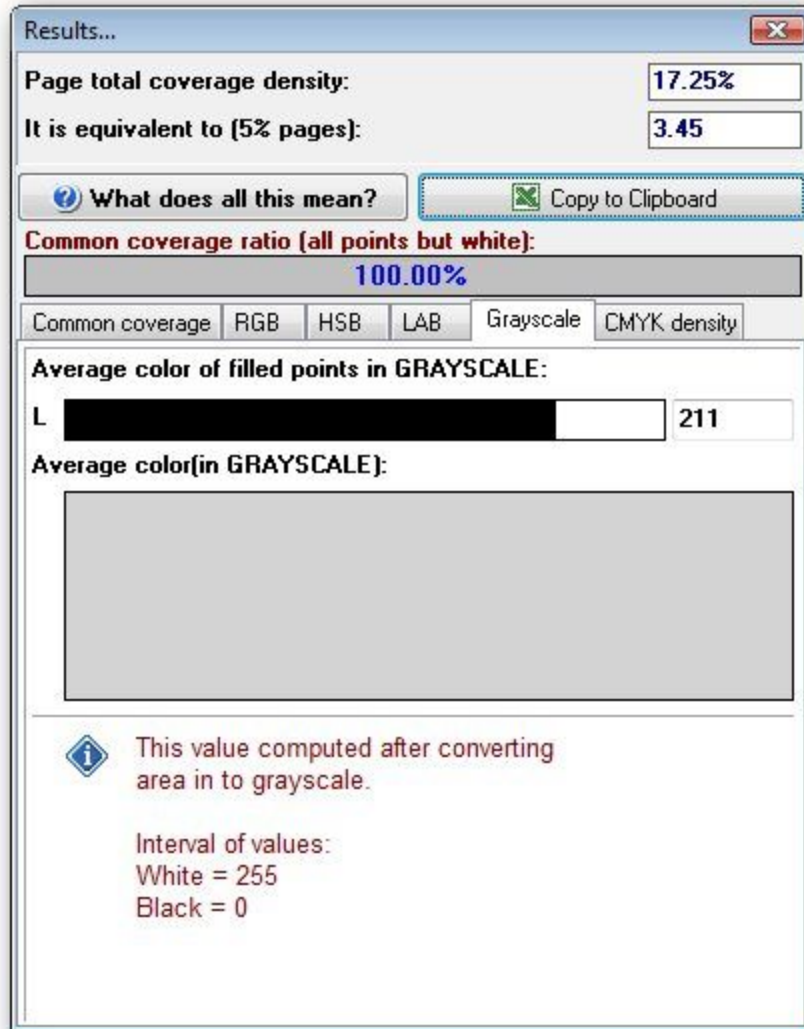
On this tab, you can see the measurement results for colored pixels in grayscale system. Every colored pixel is converted to gray and is counted. An average grayscale is calculated on the basis of colored pixels only, i.e. white pixels are not calculated. On this tab, you can also see an average gray color of the selected area. This tab can be useful for those who have black-and-white printers.

Starting the program in the automatic mode

Starting from version 4.2, APFill can be started in the automatic mode. In this case you start the program and supply a PS/PDF file. APFill will provide coverage results for the whole document in a standard CSV file.

Example:

apfill.exe coverage -r300 -dA4 -c4 -show -noprogress c:\input.pdf c:\output.txt

Example parameters:

-r300 - resolution 300 dpi

-dA4 - default page size A4

-c4 - Convert file to CMYK color space PS file. This parameter is only for PS files with more than 4 colors

-show - show the coverage result window

-noprogress - doesn't show working progress

-Histogram to get results with intensity histogram for each spot

Also you can call apfill.exe without COVERAGE parameter and without output file name:

for example:

apfill.exe -r300 c:\input.pdf

or

apfill.exe c:\input.pdf

In this case apfill creates c:\input.pdf.COVERAGE.txt file with results.

APFill version 5.3 supports a new parameter "RGB" to calculate coverage in RGB mode in auto mode.

For example:

APFill.exe RGB -r300 "c:\Comcostat.pdf"

in this case you get RGB/GRAY coverage results

APFill.exe -r300 "c:\Comcostat.pdf"

in this case you get CMYK coverage results

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Additional articles about using APFill Ink Coverage Calculator:

https://avpsoft.com/blog/category/apfill/

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