Introduction

Ink/toner consumption is usually described by printer vendors as the number of A4 pages with 5% coverage (normal text), which can be printed using one cartridge. PAeCoverage helps you measure the ink/toner coverage density of the page in order to benchmark specific or typical document samples against the 5%.

PAeCoverage Ink Coverage Meter allows you to estimate the approximate cost of a sample page or document. This is especially important for:

Print Assessments: Increasing the accuracy of by calculating actual cost of sample documents.

Service Managers: Assessing costs of documents for toner inclusive contracts where costs are higher than expected or tender situations where pricing is keen.

Print Rooms/Shops: Using this software allows you, to apply the pricing matrix according to ink coverage.

Key features:

- Measure the ink coverage of the highlighted screen area (while previewing the page in a graphic editor before printing, for example.)
- Measure the ink coverage of every page of a CMYK PostScript file (*.ps) or PDF. To use this feature, you will also need to install Ghostscript.
- Measure the perimeter of a selected area of the screen

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Measuring Ink Coverage

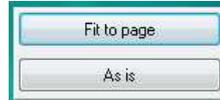#### 1.0 How to measure ink coverage of a selected area of screen (RGB coverage)

PAeCoverage allows you to measure colour density (ink and toner coverage). In this case you can estimate the colour 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 PAeCoverage to measure the colour 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, PAeCoverage allows you to measure PostScript files.
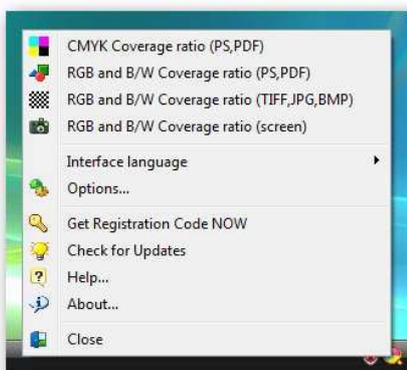
You should use the "Coverage ratio (screen)" menu item to measure the colour density of the selected area of the screen:

Next Select an area of the screen with the 'cross' cursor.

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Then use the auto page selection without changes (just press "As is").

(just press "Fit to Page") or leave the area
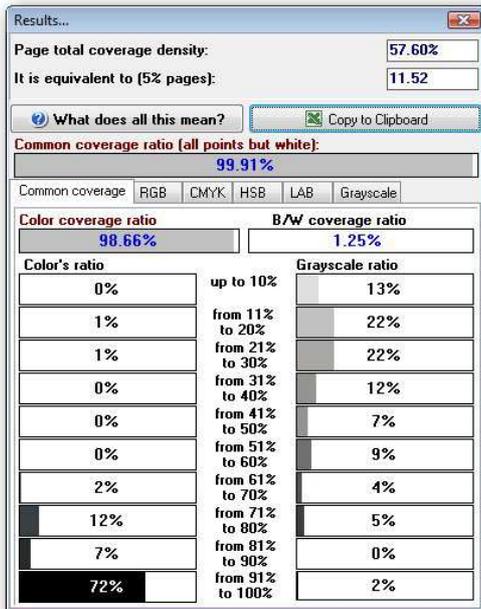
The results will be displayed in the "Results of measurement" dialog.
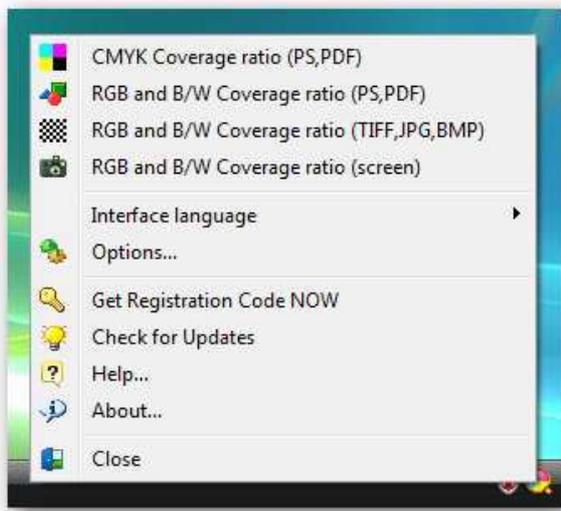
In this window PAeCoverage displays the results of measurement in different colour systems and in Grayscale.

2.0 Colour density measurement of PostScript or PDF files (CMYK coverage)

PAeCoverage can measure the coverage ratio of PS/PDF files. PAeCoverage requires GPL Ghostscript 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.

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You will see the colour separation choice window. If the file contains additional colour spots, PAeCoverage can convert the file (the original file will not be changed) to CMYK without additional spots or leave it without changes.

PAeCoverage supports up to 8 colour spots (CMYK + 4 additional colour 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.

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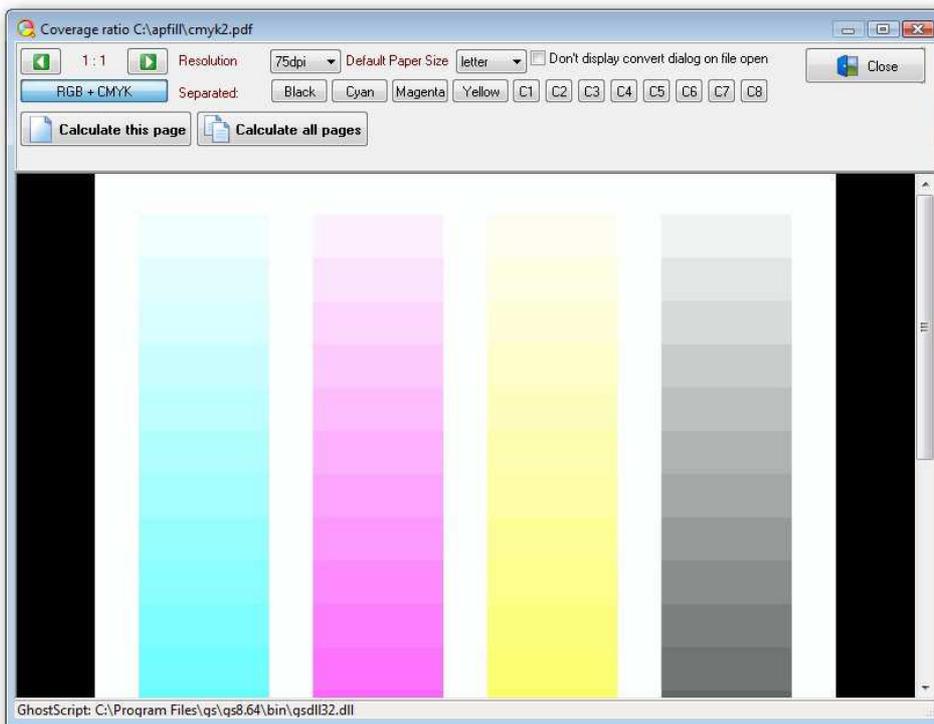
The following configuration parameters are available:

- "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 colours 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, PAeCoverage will use it for displaying and measuring the document.
- "Close" (close the PS/PDF file view window)

Results of colour density measurements

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

2.1. Result values for selected and measured colour spots

2.2. Result values for measuring the whole PS/PDF document

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

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2.1 Result values for selected and measured colour spots

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

PAeCoverage measures only this colour spot of the current page and shows the results in the following window:
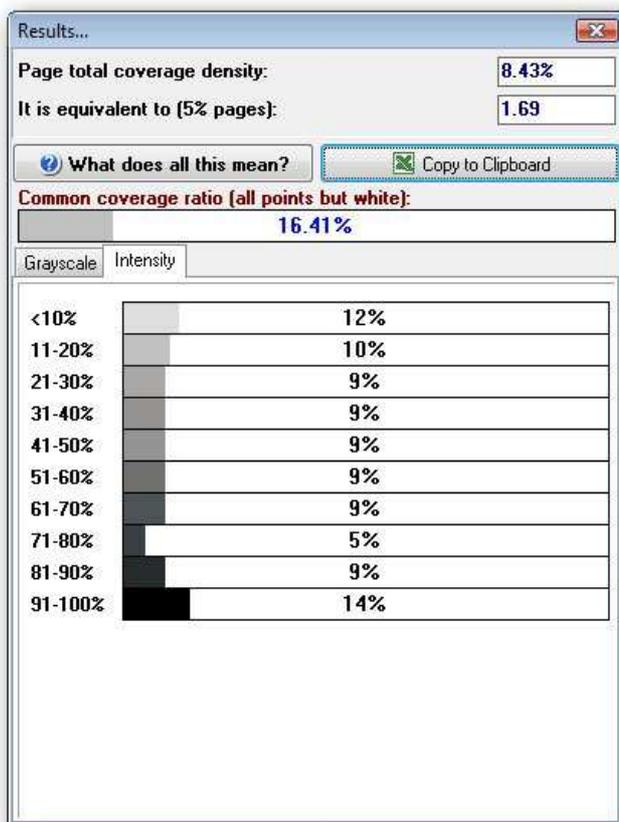
In this case:
PAGE TOTAL COVERAGE DENSITY shows page filling according to this colour spot with regard to intensity.

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

"INTENSITY": This table shows the proportion of pixels with 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 coloured with some colour, 66% of this 49% are the pixels with the intensity of 21%-30%.

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2.2 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 PAeCoverage calculates coverage for all spots on every page considering pixel intensity (i.e. the PAGE TOTAL COVERAGE DENSITY value for each colour 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.

Document Measuring Results...

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			

Copy to Clipboard   Save to file   Continue

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2.3 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 PAeCoverage 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 window below:
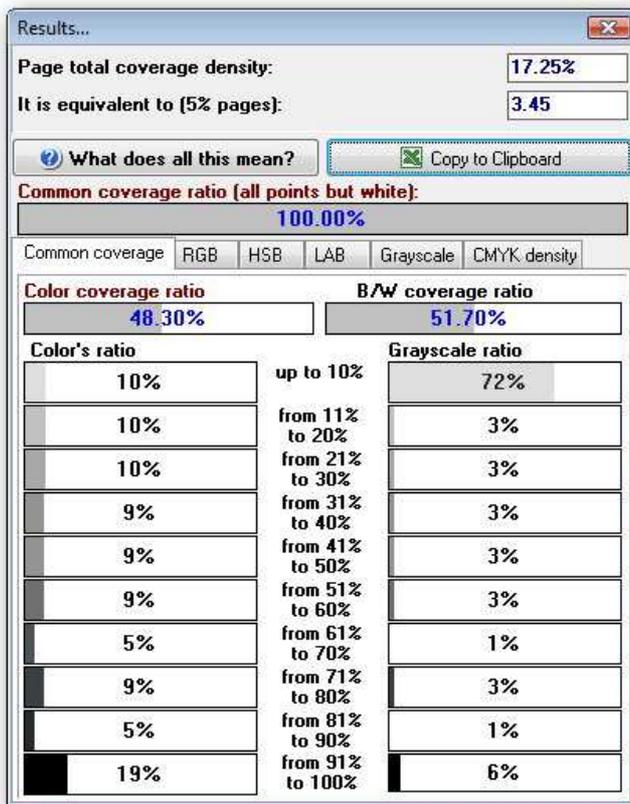
Attention: when you are using this mode, all parameters apply to RGB coverage only (except for the CMYK panel); if you need CMYK coverage only, you should only pay attention to the CMYK tab or use the coverage measurement by colour mode.

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.

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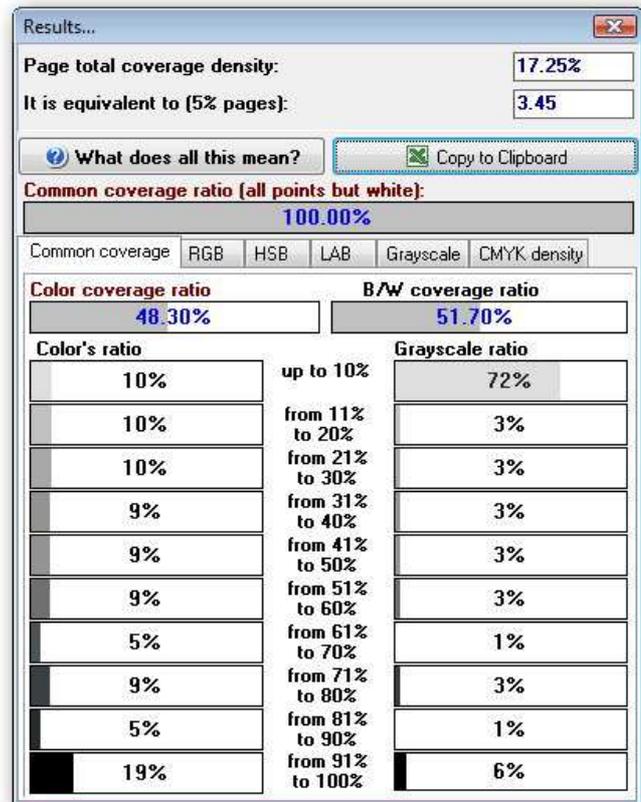
Besides these standard coverage values, PAeCoverage also calculates more specific and informative coverage characteristics. This, in turn, allows you to reduce ink/toner consumption.

Coverage density results are presented in various colour systems.

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2.3.1 The following tabs are available:

<u>COMMON COVERAGE TAB</u>.

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

"Colour coverage ratio" (all coloured pixels ratio of the selected area).

"Colour's coverage ratio" (each field shows the rate for pixels coloured with the colour of the specified intensity).
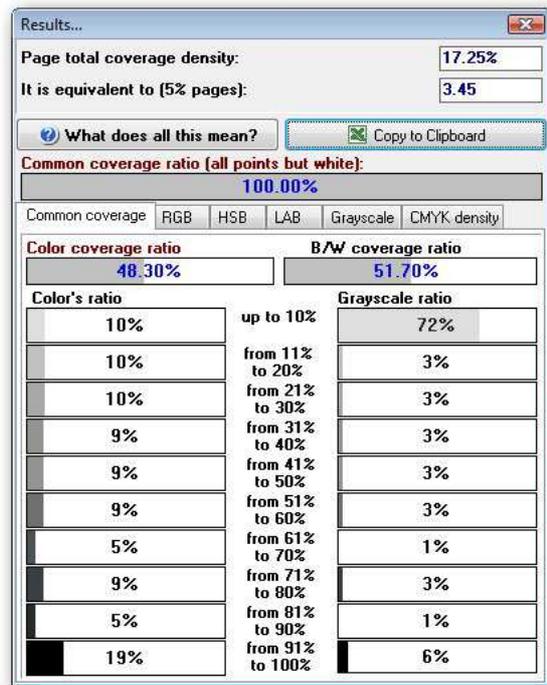
For example: if the common coverage rate is 49%, and intensity from 21% to 30% is 66%, this means that 49% of all pixels in the area are coloured with some colour, 66% of this 49% are the pixels with the intensity of 21%- 30%.

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

"Grayscale ratio" (each field shows the ratio of the pixels coloured with gray colour 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 coloured with gray colour, 66% of this 49% are the pixels with the colour intensity of 21%- 30%.

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

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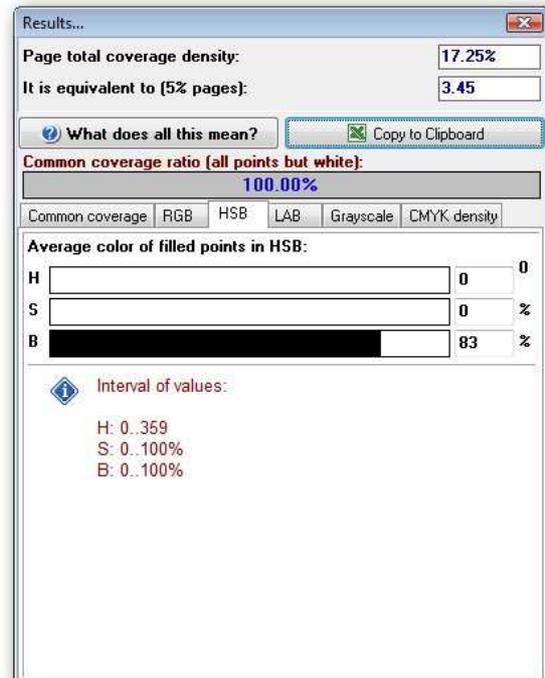Please visit our website to find the location nearest you.

RGB TAB

On this tab, you can see the measurement results for coloured 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 colour of the selected area. The average colour is calculated on the basis of coloured pixels only, i.e. white pixels are not calculated.
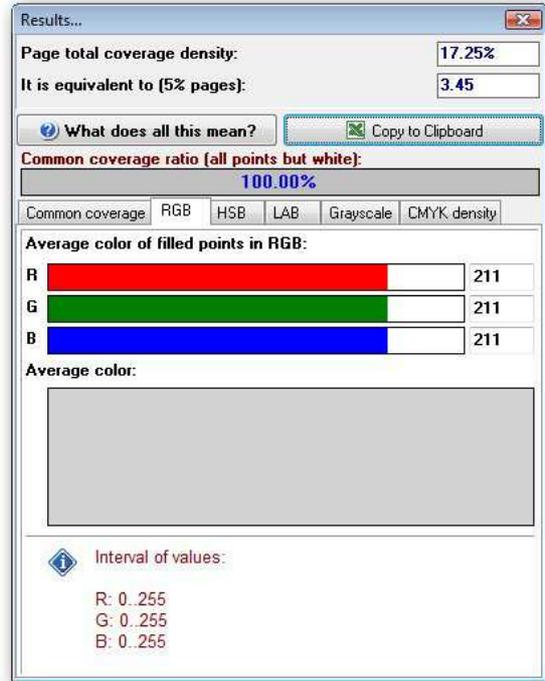
HSB TAB

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

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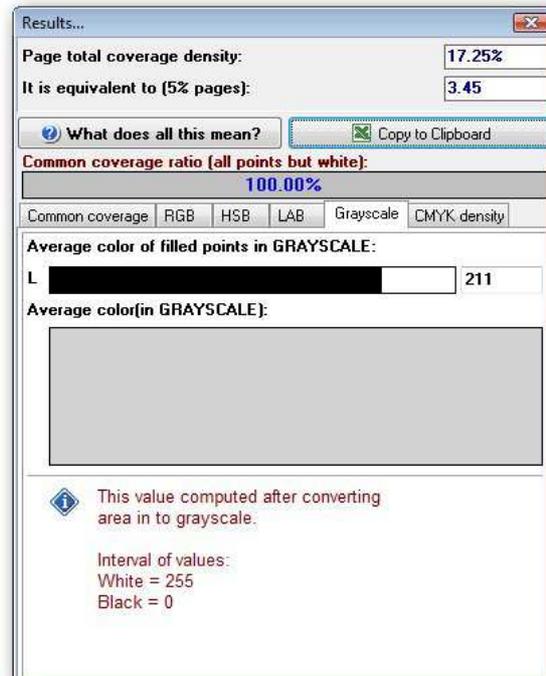Please visit our website to find the location nearest you.

LAB TAB

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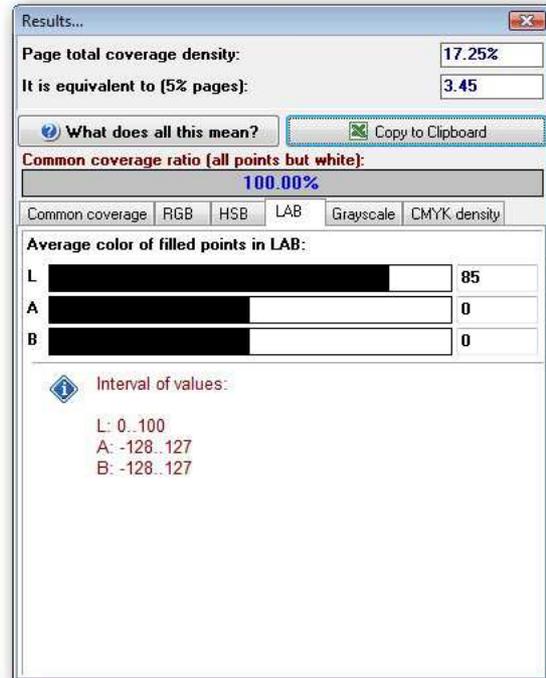
GRAYSCALE TAB

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

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2.4 Starting the program in the automatic mode

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

Example:

PAeCoverage.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 colour space PS file. This parameter is only for PS files with more than 4 colours
-show - show the coverage result window
-noprogress - doesn't show working progress
-Histogram to get results with intensity histogram for each spot

You can also call PAeCoverage.exe without COVERAGE parameter and without output file name.

Example:

PAeCoverage.exe -r300 c:\input.pdf
or
PAeCoverage.exe c:\input.pdf

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

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

Example:

PAeCoverage.exe RGB -r300 "c:\Comcostat.pdf"
In this case you get RGB/GRAY coverage results

PAeCoverage.exe -r300 "c:\Comcostat.pdf"
in this case you get CMYK coverage results

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