PLATE application User's Guide

CMYK_Print_&_Proof   PLATE   MagicPress   MagicPrepress   SPOT_Color_Manager

COLORSOURCE

Installation and general using rules:

Please read **"Software installation and brief description Guide"**.

Description of PLATE application:

PLATE application is designed for controlling the lithographic offset plates and for calibrating CtP. **PLATE** application has proven being very accurate with a large number of printing plates models, including some modern plates with "on the press" development which show quite a higher than usual plate N-Factor and a very low optical contrast. Results are accurate as long as you carefully determine your plate model **N-Factor**.

The **Measure** tab allows **pasting or Importing** the spectral measurement file of a 0 to 100% by 10% steps chart measured on your offset plate, using for example X-Rite **Eye-One Pro 1, 2, 3** or **EFI ES-x equivalents**:

The **Gravure_10%** tab allows computing and inputting the N-Factor of your plates and displays all results:

Plate calibration and control mode

Plate N-Factor for assessment of the geometrical dot area ▶ 1.1750

File %	Measured apparent dot area A%	Estimated geometrical dot area G%	Target geometrical dot area G%	Plate correction %
0	0.0	0	0	0
10	11.3	10.5	10	9.5
20	21.7	20.3	20	19.7
30	32.7	30.8	30	29.3
40	42.8	40.5	40	39.5
50	**52.2**	**49.7**	**50**	**50.3**
60	63.0	60.6	60	59.4
70	72.3	70.1	70	69.9
80	81.8	80.1	80	79.9
90	91.3	90.3	90	89.7
100	100.0	100	100	100

COLORSOURCE — Calibration and control of the offset plates

Please take good note of the N-factors of your different plates models:

Plate model ▼	N-Factor ▼
Agfa Azura	1.1750
FUJI	1.1500

This tab allows as well inputting a non-linear geometrical dot area target for your plates, which should not be useful with most modern workflow software, that properly separate the CTP calibration process (making linear plates) and the plate correction curve process for getting the desired dot areas on the plate; Moreover, they often offer one more specific curve for creating specific plates transfer curves.

This tab also displays the 10% steps plate correction curve allowing matching your (most often linear) target geometrical dot areas curve.
You can open as well your measurement file here by using the Import button.

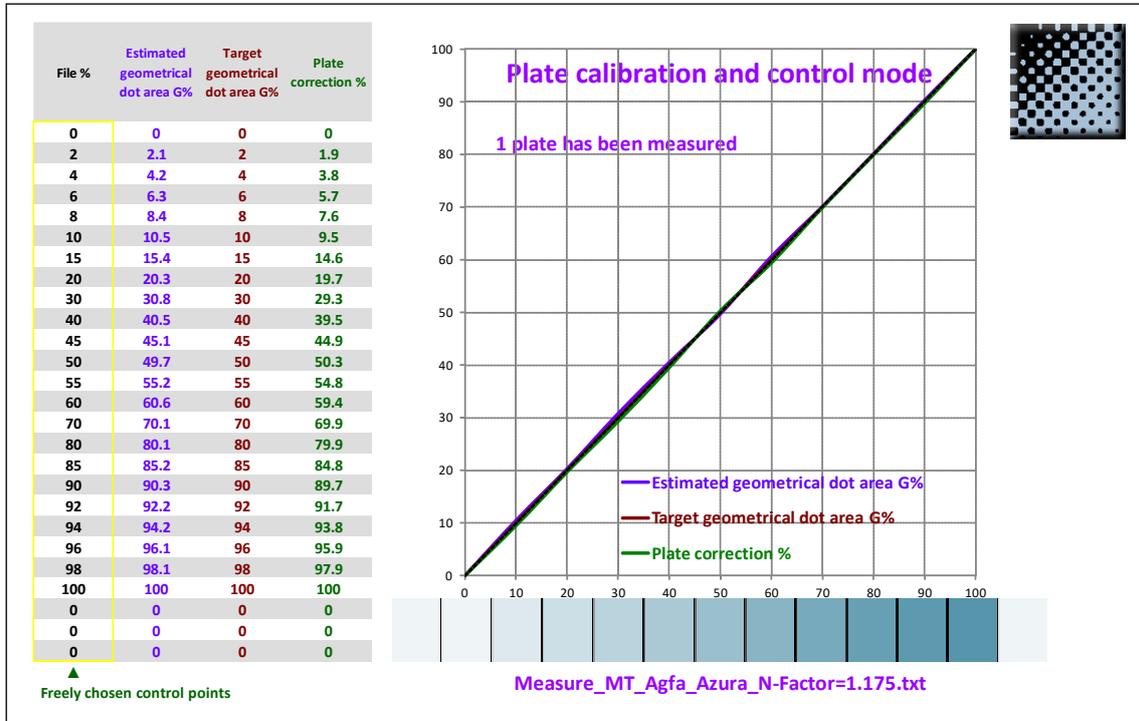**COLORSOURCE**

The appearance of Gravure_10% tab is changing, **whether you have measured a plate** (E.g., 11 patches from 0 to 100% by 10% steps) **in order to control or calibrate your CTP**, or whether you have measured only **3 different kind of patches for determining your plate model's N-Factor**.

(E.g., you have measured only three patches: **0%**, **100%**, **plus one patch with approx**. **50% known geometrical dot area**, because this is how your plate model **N-Factor** can be computed).

The Gravure_x% tab displays your results with the control points required by your prepress workflow software:

File %	Estimated geometrical dot area G%	Target geometrical dot area G%	Plate correction %
0	0	0	0
2	2.1	2	1.9
4	4.2	4	3.8
6	6.3	6	5.7
8	8.4	8	7.6
10	10.5	10	9.5
15	15.4	15	14.6
20	20.3	20	19.7
30	30.8	30	29.3
40	40.5	40	39.5
45	45.1	45	44.9
50	49.7	50	50.3
55	55.2	55	54.8
60	60.6	60	59.4
70	70.1	70	69.9
80	80.1	80	79.9
85	85.2	85	84.8
90	90.3	90	89.7
92	92.2	92	91.7
94	94.2	94	93.8
96	96.1	96	95.9
98	98.1	98	97.9
100	100	100	100
0	0	0	0
0	0	0	0
0	0	0	0

▲
Freely chosen control points

Plate calibration and control mode

1 plate has been measured

— Estimated geometrical dot area G%
— Target geometrical dot area G%
— Plate correction %

Measure_MT_Agfa_Azura_N-Factor=1.175.txt

The Chart tab is a backup of a few sample CGATS text reference files that allow you measuring one or more 11 patches 10% steps chart on your plates or a 23 patches **Harlequin** control bar, by using for example **MeasureTool** (or **i1Profiler**) with **Eye-One Pro 1, 2, 3** or **EFI ES-x equivalents** spectrophotometers.

If needed, you can copy and paste each sample reference file to a text file for rebuilding the reference text file to be used with **MeasureTool** or **i1Profiler** for **PLATE** application, or more easily you can export it directly as a CGATS reference file by pressing the **Export ref.txt** button:

LGOROWLENGTH	1				
CREATED	11/1/2014	i1Profiler_or_MeasureTool_11_patches			
KEYWORD	"SampleID"				
KEYWORD	"SAMPLE_NAME"				
NUMBER_OF_FIELDS	6				
BEGIN_DATA_FORMAT					
SampleID	SAMPLE_N	CMYK_C	CMYK_M	CMYK_Y	CMYK_K
END_DATA_FORMAT					
NUMBER_OF_SETS	11				
Measurement_mode	"gap"				
BEGIN_DATA					
1	A1	0	0	0	0
2	B1	0	0	0	10
3	C1	0	0	0	20
4	D1	0	0	0	30
5	E1	0	0	0	40
6	F1	0	0	0	50
7	G1	0	0	0	60
8	H1	0	0	0	70
9	I1	0	0	0	80
10	J1	0	0	0	90
11	K1	0	0	0	100
END_DATA					

Export ref.txt

This is a text reference file allowing you measuring one plate by 10% steps with MeasureTool or i1Profiler.

You can save at any moment your access paths for opening and recording your files by saving your application (Ctrl S).

PLAQUE_0%_10%_...100%.txt

2CLR / 11 Patches

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Using your PLATE application:

Producing a test plate for determining your plate N-Factor and for calibrating your CTP:

Make one plate with a 0 to 100% by 10% steps chart, plus one plate-large continuous vignette ranging from approx. 40 to 70 % that will be used for determining the **N-Factor** of your offset plate model: Please note that at this step, you should use **ROUND screen dots** for easing plate geometrical true 50% visual location on the screened vignette.

+

Of course, no correction curve should be used on your workflow when producing this test plate.

I.e., use no CTP calibration curve nor Cyan layer correction curve on the prepress workflow, if addressing a Cyan layer via the prepress workflow to your CTP!

Printing above vignette on a plate is only necessary when you need determining or checking the **N-Factor** of the plate model you are using, and not for routine plate control or CTP calibration, once you know the **N-Factor**(s) of the offset plate model(s) you are using, and your **PLATE** application is duly calibrated with the appropriate **N-Factor**.

Your plates' Supplier should be able to provide you the **N-Factor** of the plate model he is selling, but experience proves it may be worth double-checking this information when it is available.

Determining your plate N-Factor:

Because you are not interested by the **apparent dot areas** but only by **the true geometrical dot areas** on your plates, **PLATE** application allows you determining the **N-Factor** of your plate model.

For determining the plate **N-Factor**, you need to find on the 40 to 70 % vignette **the location where the geometrical dot area is actually 50%**, and then measure its **apparent** dot area.

By comparing the **true 50% geometrical dot area**, with the **apparent dot area** as seen by the spectrophotometer, **PLATE** application will compute and display your plate model **N-Factor**.

Finding somewhere on the 40 to 70% vignette where the geometrical dot area is 50% could look as a "chicken and the egg problem" but this is made very cheap, accurate and easy today by using a simple 20x to 200x USB 40 US$ microscope plugged on your PC. (Cheaper than a **$2000** plate reader ;-)).

You can use a flatbed scanner in reflection mode as well.

| Geometrical dot area < 50 % | Geometrical dot area ~ 50 % (round screen dots) | Geometrical dot area > 50 % |

Use a pen to mark on the 40 to 70% vignette the location where your true geometrical dot area is 50 %.

Then use **MeasureTool** or **i1Profiler in patch measurement mode** with CGATS reference file "**PLATE_ref_i1Profiler_or_MT_1_Plate_0%_10%_**...**100%**.**txt**.

Scan measurement mode may also be used with plate models showing high-enough visual contrast.

You then need measuring **THREE patches in any order**: **0% patch** (Plate base), **100%**, **plus above determined true 50% geometrical dot area zone**.

As soon as you have measured these three patches in any order, you can close **MeasureTool** measurement window.

Do not care about the patch device values:

For example, fill first 0%, 10%, and 20% patches locations, and then close.

Please note you can also measure each of the three patches more than one time: For example, you can measure 3 times the 0% patch, 4 times the 50% patch and 2 times the 100% patch (Maximum total 11 measures, in any order). In this case **PLATE** application will average your measures for computing the **N-Factor**.

Save this spectral measurement file ("Ctrl S" or "File/Save as...") with a name such as "**For plate N Factor**.**txt**". Open this text measurement file then select and copy all (Ctrl A, then Ctrl C), and then paste (Ctrl V) to **PLATE** Measure tab.

The Gravure_10% tab shows that, for example, your **true 50% geometrical plate** zone on the vignette has been measured with a larger **52**.**9 % apparent dot area**:

Plate N-factor calibration mode

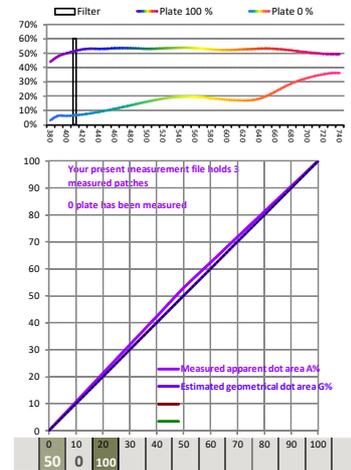Input the actual geometrical dot area of the measured screeeed zone ▶ **50** %

Measured apparent dot area on above known 50%: **52.9** %

N-factor computed from both above values: **1.1450**

Copy your plate N-Factor hereunder ▼ **Copy**

Plate N-Factor for assessment of the geometrical dot area ▶ **1.1750**

Please measure 0 %, 100 %, and an approx. 50 % zone of known geometrical area	Measured apparent dot area A%	Estimated geometrical dot area G%
0	0.0	0
10	10.6	9.9
20	21.2	19.8
30	31.8	29.7
40	42.3	39.6
Known geometrical area 50% ▶	52.9	49.5
60	62.3	59.6
70	71.8	69.7
80	81.2	79.8
90	90.6	89.9
100	100.0	100

COLORSOURCE
Calibration and control of the offset plates

Please take good note of the N-factors of your different plates models:

Plate model ▼	N-Factor ▼
Agfa Azura	1.1750
FUJI	1.1500

Your present measurement file holds 3 measured patches

0 plate has been measured

Measured apparent dot area A%
Estimated geometrical dot area G%

Import

Plate_Measure_MT_for_N-Factor.txt

In order **PLATE** application computes the **N-Factor** of your plate, declare the true geometrical dot area is 50% by inputting this 50% value if needed. On above example, the plate **N-Factor** is found equal to **1.145** because **true 50 % geometrical dot area** is measured as having a **52.9 % apparent dot area**.

Press the **Copy** button for validating this **1.145** N-factor to the lower cell, which calibrates your **PLATE** application. The computed N-Factor copies as well to the plate models N-Factors memory zone and you can immediately enter the plate model name:

After you have entered the plate model name, save your **PLATE** application ("Ctrl s").

Measuring a plate:

Once your plate's model N-Factor is determined, you no longer need to use round shaped screen dots: You can freely choose you screen dot's shape. You just need to have a 10% step patches chart written on your plate:
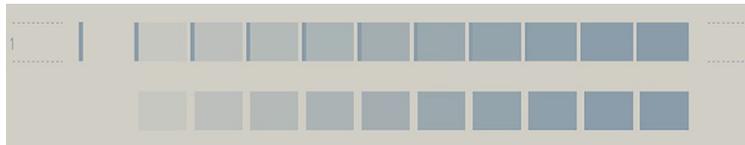
Every produced plate should have such a chart written in its non-printing margin and should be controlled.

Use **MeasureTool** or **i1profiler**, in chart measuring mode, using for example the CGATS reference file "**PLATE_ref_MeasureTool_11_patches.txt**":

This reference file allows you measuring the eleven 10% steps going from 0 to 100%. When your 11 measures are done, make "Close" and then "File/Save..." or "Ctrl s":
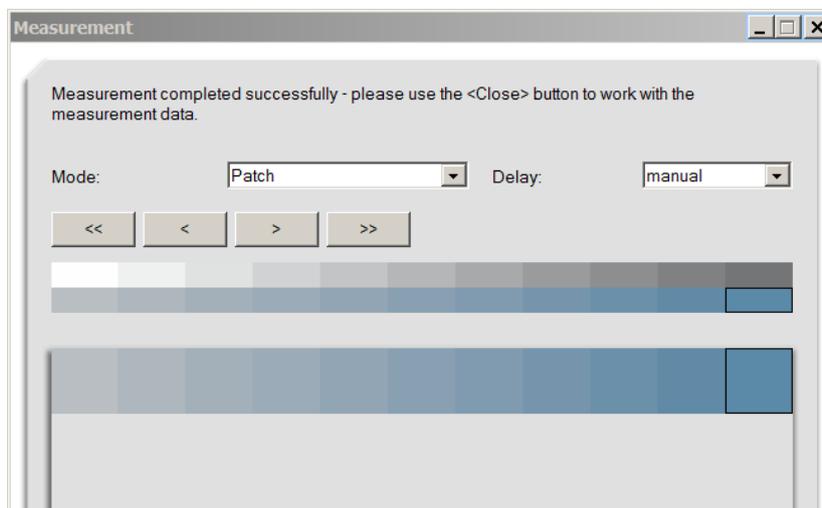
Import your text measurement file in the **PLATE** Measure tab or Gravure_10% tab:

The Gravure_10% tab having the right **N-Factor** properly set (1.145 on bellow example) now displays very accurately your plate apparent dot areas, AND **much more interestingly its geometrical dot areas:**
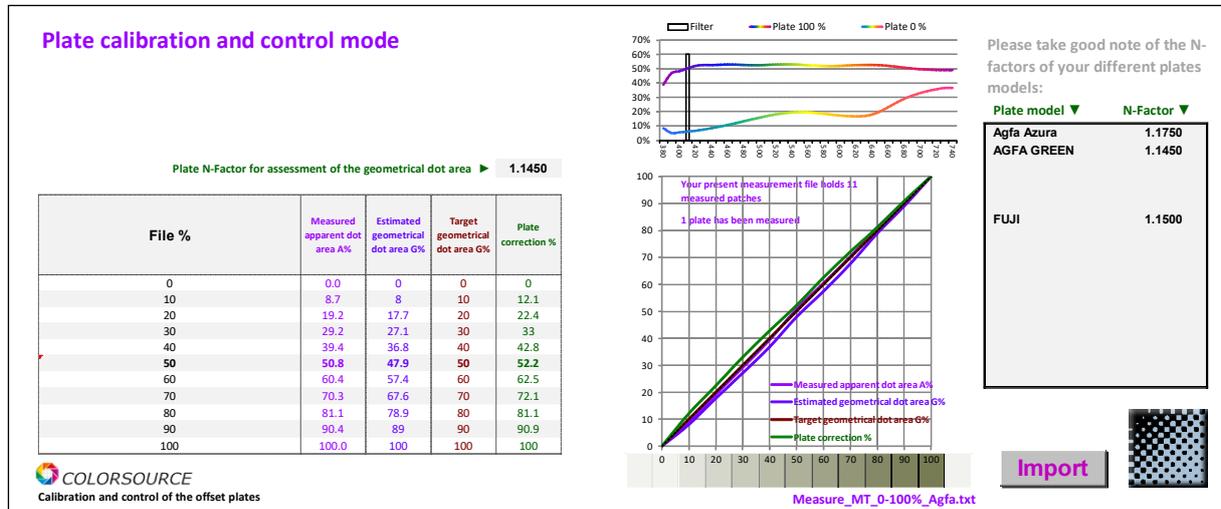
The values of interest are in the "**Estimated geometrical dot area**" column. **The apparent dot areas are NEVER used for plates**, where only the true geometrical sizes of the screen dots are of interest for controlling the print process behavior.

This when contrarily, only the apparent dot areas are used when measuring prints, because what we perceive on a print are apparent densities, apparent dot areas and apparent colors at a macroscopic scale. Our eyes perceive densities (and colors) on prints just as spectrophotometers or densitometers do. However, for good plates we need good **geometrical** dot areas to be written on your plates.

Please note that, by using an appropriate CGATS reference file, you can also measure a 10% step charts between one and ten times, on one to ten offset plates (various screen angles), or on different locations on a same plate, and then paste your data to **PLATE** application that will average your measurement data and get even more accurate calibration results.
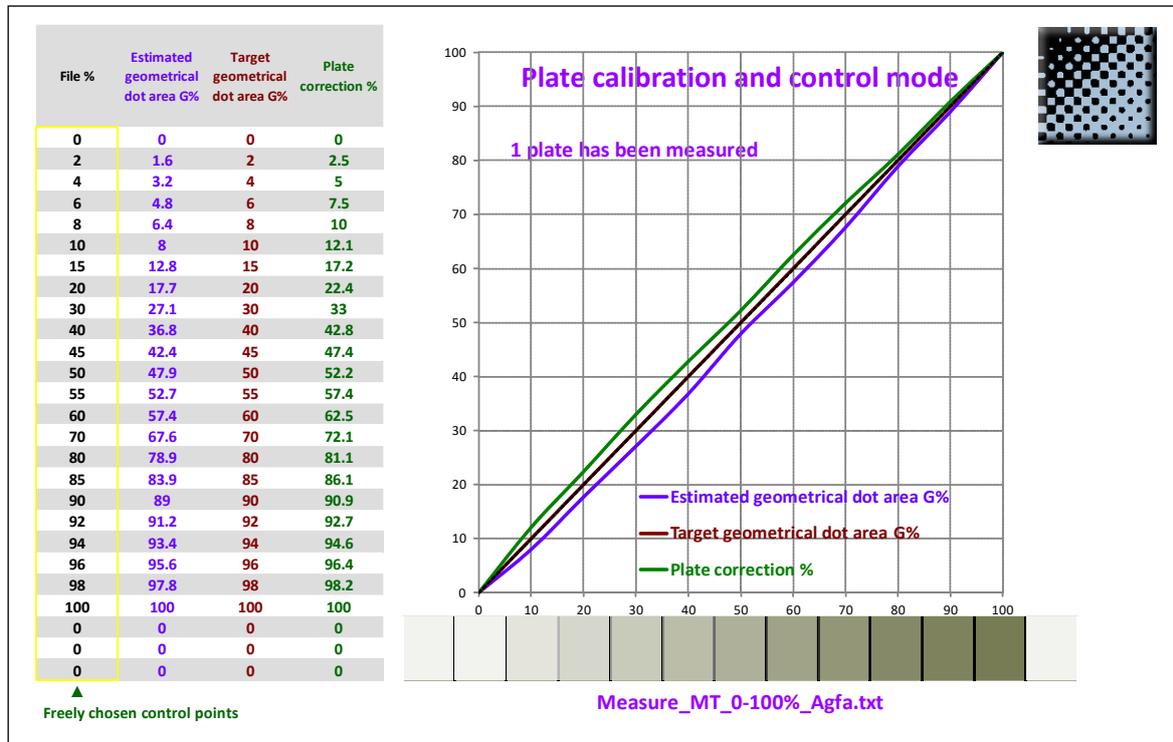
PLATE application ⌗Charts⌗ tab offers such a sample CGATS reference files allowing measuring up to **five** x 10% steps charts. You could also measure 5% steps charts, provided you build and use the appropriate CGATS text reference file.

Calibrating a plate (CTP calibration):

Calibrating your CTP first requires printing a plate **WITH NO PLATE CORRECTION CURVE NOR CTP CALIBRATION CURVE**, and then measuring this 10% steps chart as above.

Your workflow software generally asks you to input the measured geometrical dot area of each patch in order to make the appropriate plate compensations. Mind UV plates are not linear, so that if you do not properly calibrate your CTP the file 50% value can print as a 60% geometrical dot area or more on the plate!

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The **Gravure_x%** tab allows you displaying the control points your workflow software needs for calibrating your CTP. Generally, you do not need the plate correction curve values displayed by this tab, because your CTP calibration program is only asking you for the "Measured" and "Target" values and computes the correction by itself.

File %	Estimated geometrical dot area G%	Target geometrical dot area G%	Plate correction %
0	0	0	0
2	1.6	2	2.5
4	3.2	4	5
6	4.8	6	7.5
8	6.4	8	10
10	8	10	12.1
15	12.8	15	17.2
20	17.7	20	22.4
30	27.1	30	33
40	36.8	40	42.8
45	42.4	45	47.4
50	47.9	50	52.2
55	52.7	55	57.4
60	57.4	60	62.5
70	67.6	70	72.1
80	78.9	80	81.1
85	83.9	85	86.1
90	89	90	90.9
92	91.2	92	92.7
94	93.4	94	94.6
96	95.6	96	96.4
98	97.8	98	98.2
100	100	100	100
0	0	0	0
0	0	0	0
0	0	0	0

▲
Freely chosen control points

Plate calibration and control mode

1 plate has been measured

Estimated geometrical dot area G%
Target geometrical dot area G%
Plate correction %

Measure_MT_0-100%_Agfa.txt

Mind that when calibrating a CTP, you should check the laser power and chemical development (if any) are set properly: You should use a dedicated line work control bar that easily allows checking visually that the microdots are properly written, shaped and contrasted on your plate.

Should a printing plate always be measured as "Straight"?

Certainly not! Because producing "straight" plates (i.e., x% in the file gives x% geometrical dot area on the plate) **almost never allows the Press Conductor matching the appropriate target TVI curves when printing with required solid inks densities!**

Producing "straight" plates is necessary for calibrating your CtP but you need setting up appropriate plate correction curves for each ink for mastering the final TVI curves of your prints, depending on each paper and screening.

Colorsource **MagicPrepress** with its **N-Colors option** allows you computing the optimal plate curves you need for any CMYK or N-colors printing application, and they display what you should actually measure on each plate when the appropriate plate correction curves are used for producing the plates or other printing forms on your prepress workflow.

See for example the columns "New gravure curves" bellow:

Target TVI curves ▶ STANDARD   **Standard target TVI curves ISOcoated_v2_eci.icc**

No correction curve has been used for this print run.   15 copies have been measured   ----- Copy ----->

File %	Gravure curve of measured ink	Measured: Cyan	Target: Curve A: +13% at 40%	Gravure curve of measured ink	Measured: Magenta	Target: Curve A: +13% at 40%	Gravure curve of measured ink	Measured: Yellow	Target: Curve A: +13% at 40%	Gravure curve of measured ink	Measured: Black	Target: Curve B: +16% at 40%	New gravure curves Cyan	Magenta	Yellow	Black	Gravure curves run N-1 Cyan	Magenta	Yellow	Black
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.0	10.0	22.9	14.0	10.0	18.3	14.0	10.0	21.1	14.0	10.0	23.1	15.6	6.1	7.6	6.6	6.8	4.6	5.7	5.0	5.1
20.0	20.0	40.2	27.6	20.0	33.8	27.6	20.0	36.5	27.6	20.0	38.6	30.2	12.7	16.0	14.2	14.6	9.1	11.6	9.8	9.9
30.0	30.0	53.5	40.7	30.0	46.9	40.7	30.0	53.2	40.7	30.0	52.0	43.7	20.4	25.2	22.5	24.8	15.2	18.8	17.0	17.5
40.0	**40.0**	**65.4**	**53.0**	**40.0**	**57.9**	**53.0**	**40.0**	**65.0**	**53.0**	**40.0**	**63.9**	**56.0**	**29.6**	**35.5**	**29.9**	**33.4**	**22.1**	**27.0**	**23.9**	**26.3**
50.0	50.0	73.7	64.3	50.0	67.3	64.3	50.0	76.1	64.3	50.0	71.1	67.0	39.1	46.8	39.4	44.3	30.5	36.6	30.8	34.3
60.0	60.0	81.8	74.5	60.0	77.4	74.5	60.0	83.8	74.5	60.0	81.0	76.6	50.9	57.1	48.6	55.6	39.8	47.7	40.1	45.4
70.0	70.0	87.6	83.4	70.0	85.0	83.4	70.0	89.6	83.4	70.0	86.8	84.9	62.7	67.9	59.4	66.8	52.3	58.2	49.5	56.6
80.0	80.0	92.9	90.7	80.0	92.2	90.7	80.0	94.6	90.7	80.0	92.1	91.5	75.9	77.9	72.2	79.1	65.9	70.3	62.4	69.6
90.0	90.0	97.7	96.3	90.0	97.7	96.3	90.0	97.9	96.3	90.0	97.3	96.6	87.2	87.4	85.2	88.6	81.9	82.9	78.4	84.2
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Cut and paste here your four new gravure curves in order you can use them in 'Declare_correction' tab when you measure a production run. This will allow you checking and correcting these correction curves in case of drift.

Legend for charts:
- Gravure curve of measured ink
- Measured: Cyan / Measured: Magenta / Measured: Yellow / Measured: Black
- Target: Curve A: +13% at 40% (Cyan, Magenta, Yellow) / Target: Curve B: +16% at 40% (Black)
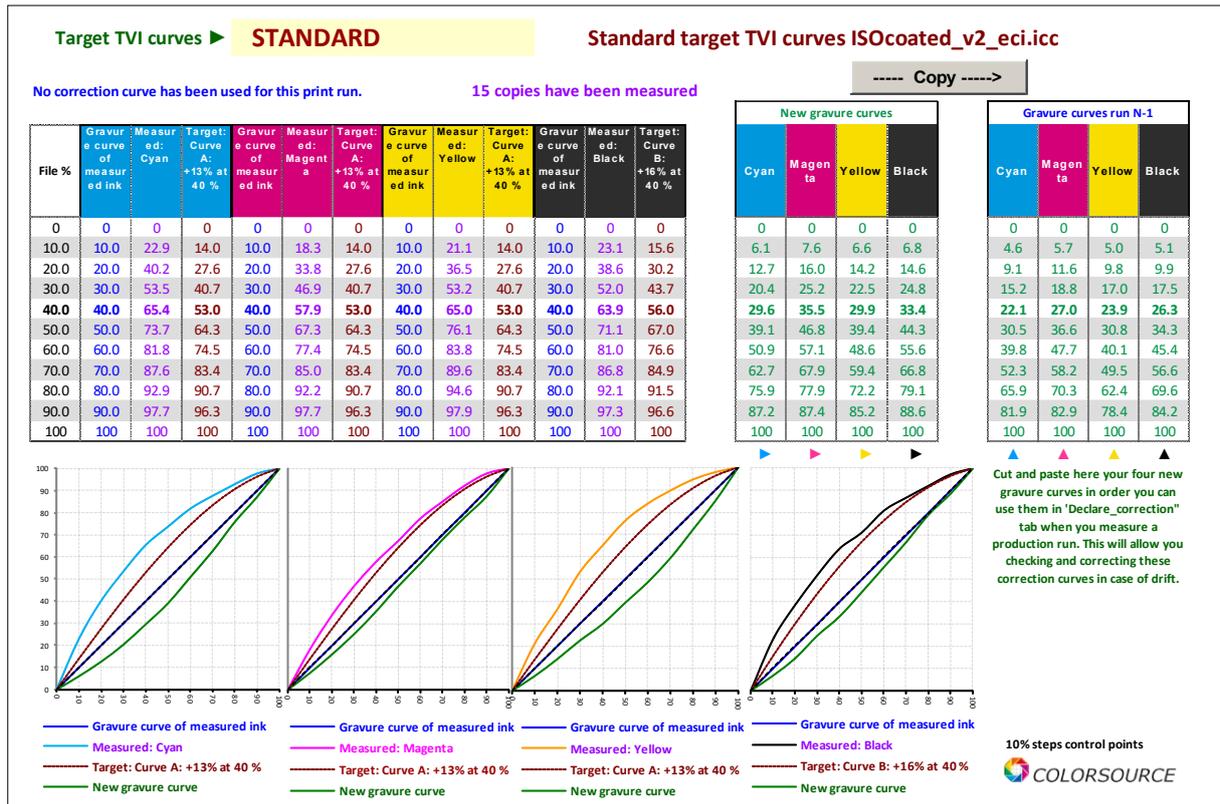- New gravure curve

10% steps control points

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PLATE application is much more accurate than most of densitometers used for offset plates measurements, because **PLATE** is inspecting your offset plate at the visible wavelength where the optical contrast between 0% plate base and 100% dots material is maximal, while densitometers always use the same analogue filter for all plates, which cannot be optimal for all plate models.

In addition, using a spectrophotometer with Colorsource software suite is much cheaper than the most basic CMYK densitometers or plate readers, and brings you optimal solutions for all press setting applications. Therefore, in the end Colorsource **PLATE** application coupled with a USB microscope offers a very low cost and very effective alternative to using expensive plate readers, provided you carefully determine your plate model(s) **N-Factor**(s).

Plate readers may be slightly more accurate, because the plate N-Factor may have some jitter depending on the plate texture on the zone where you measure the offset plate. We have sometimes **0.5%** difference with a plate reader ;-).

Please see: http://www.iso12647solution.com/Colorsource_Press-setting_FAQS.htm

A good solution can consist into averaging a few measurements made on various locations on the plate, or on various plates using various screen angles, but **PLATE** software accuracy is quite good even when measuring only one single 10% steps chart!
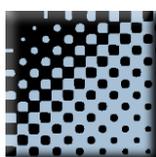
Colorsource

support@color-source.net

CMYK_Print_&_Proof   PLATE   MagicPress   MagicPrepress   SPOT_Color_Manager

COLORSOURCE

Troubleshooting and FAQS:

The application does not launch:

Colorsource applications are using Microsoft Excel for computing engine. Use **Microsoft Excel 2007**, **Excel 2010** or **Excel 2013, 2016, 365 or later**.

Please note that Excel (or Microsoft Office) should be installed with appropriate Microsoft Office components including Visual Basic, **otherwise the application will not launch**.

Sometimes optional components of Microsoft Excel (depending on your Excel version and installation kit) MUST be installed. If needed go to Windows Control Panel, in the program's installation menu:
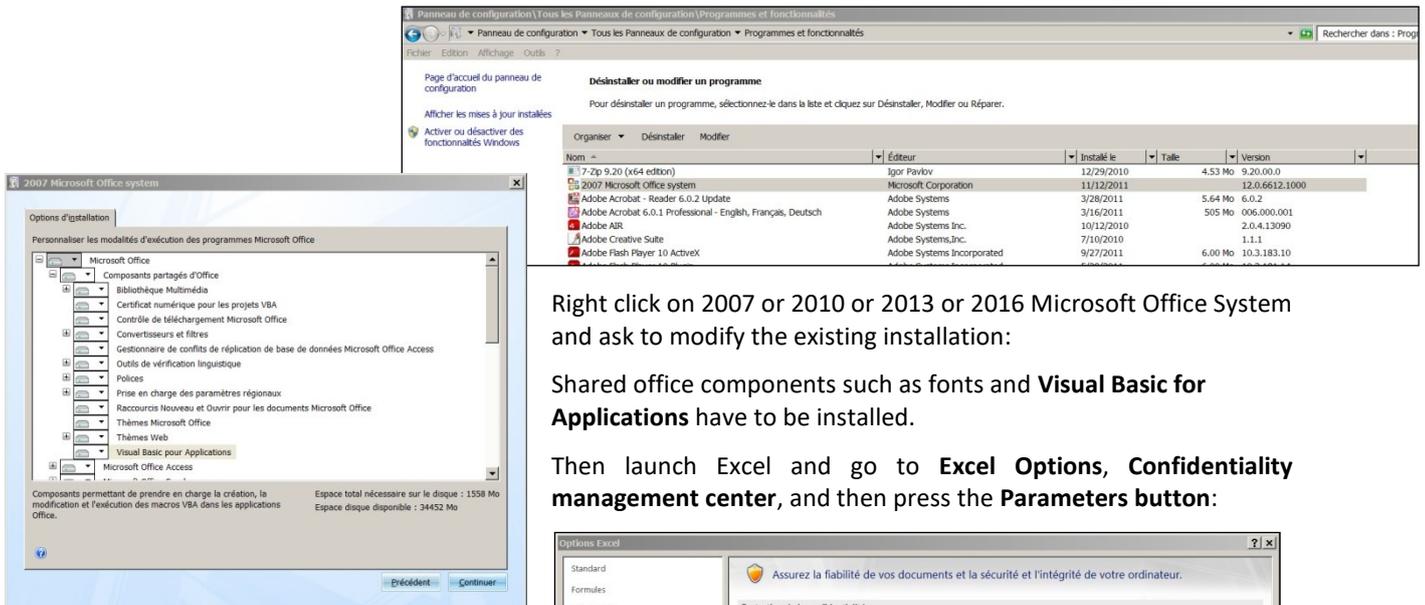
Right click on 2007 or 2010 or 2013 or 2016 Microsoft Office System and ask to modify the existing installation:

Shared office components such as fonts and **Visual Basic for Applications** have to be installed.

Then launch Excel and go to **Excel Options**, **Confidentiality management center**, and then press the **Parameters button**:
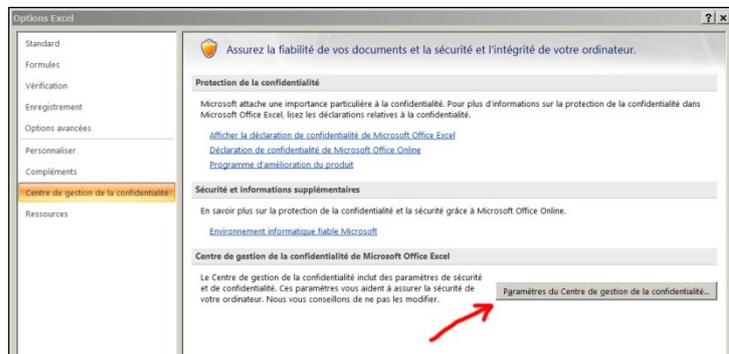
You HAVE TO approve the access to object model of VBA project:
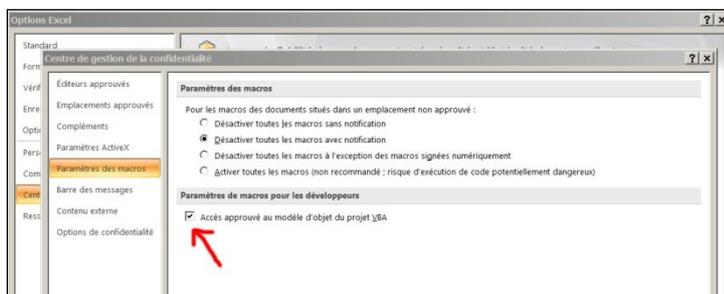
Check your Excel version is installed with all most recent Microsoft updates.
For checking Excel is up to date, go to **Excel/Options/Resources** (Excel 2007), or go to **Excel/File/Help** or to **Excel/File/Account** and then press the « **Search for updates** » button.

Finally, if the application does not launch, disable your antivirus: There are no problems with most of the serious antivirus applications (including Windows native protection systems, free antivirus like Avira, AVG etc.) but some rare antivirus applications may prevent the application launching.

Make a test by disabling your antivirus and if necessary, change of antivirus program if your present application is the problem.

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I cannot paste or import my measurement data in the Measure tab:

The program says it is "The cell is write protected".

Please note before pasting your spectral measurement text file to Measure tab, **you need first select cell "Paste here!"** with your mouse, or select a cell in the relevant **"Tint names" column** when using **SPOT_Color_Manager**, in order to paste your data at the right location.

If you don't select the right cell, you may get a "write protected message": This does not mean the useful cells are write protected: This means that your text measurement file tries to write not only the allowed cells but also one or more write protected cell(s) around. **This can happen for example if you add many blanks (and invisible!) lines at the end of the text measurement file after the last data line "END_DATA"**, or if blank data are present at the end of each line.

The application shows error messages such as "#####" or strange curves in the result display tabs once I have pasted my data:

Check your measurement data decimal separator is a dot. If needed see the details in the **software installation and brief description guide** on **page 11**.

Check you have pasted your measurement data at the right location(s) in your Colorsource application.

Results tabs display too small or too large on my monitor:

Press "Ctrl" key and use the mouse wheel for zooming in or out, and then save your application ("Ctrl s").

You can mask Excel ribbon (Point the ribbon with your mouse and use the mouse right button menu).

You can as well use **Excel FULL SCREEN display** (menu display … Full screen) because you do not need Excel menus for making full use of Colorsource software. The Escape key allows switching back to normal Excel display mode.

Colorsource software search for the language at each start:

Each Colorsource application detects your keyboard language and configures the appropriate language **at first launch**. You have to save your application ("Ctrl s" or File/Save) for avoiding the application searching the language at each following launch.

MagicPress, MagicPrepress and CMYK_Print_&_Proof offer me all traditional ISO 12647-2, ISO 12647-3, ISO 12647-4 and ISO 12647-6 target Lab colors, but I want to match "Euroscale.icc" target colors!

Please see in "**MagicPress and MagicPrepress_users_guide.pdf**" how to compute your own color targets from target ICC profiles and record them as colorimetric CGATS measurement files.
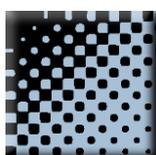
Any other question or suggestions?
support@color-source.net

CMYK_Print_&_Proof	PLATE	MagicPress	MagicPrepress	SPOT_Color_Manager