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How to measure your proofs and press control and calibration bars with i1Pro, i1Pro 2 or i1Pro 3 (Eye-One Pro, Eye-One Pro 2 or Eye-One Pro 3)

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1) Format of the measurement files processed by Colorsource applications:

Colorsource applications use conventional **CGATS** measurement files format (Committee for Graphic Arts Technologies Standards). This standards text format can be produced using a wide range of 45/0° spectrophotometers (X-Rite **i1Pro**, **i1Pro 2**, **i1Pro 3**, Konica-Minolta **Myiro**, Techkon **SpectroDens** etc.), combined with a wide range of measurement software, most of which are free. X-Rite **i1Pro 1**, **2** and **3** models can be used with **Colorsource** applications in their lowest cost **i1Pro BASIC** versions.

Spectral measurements, the only complete information about colors, allow **Colorsource** applications to compute and display all the instructions you need to properly calibrate, drive and control your CMYK printing presses, and more generally your printing presses using 1 to 10 inks, with or without a CMYK process base.

If a press calibration control bar measurement file only contains colorimetric data (e.g., apparent color such as C.I.E. L*a*b* D50 2° of each patch), **Colorsource** applications can use this data, but the displayed results are sometimes less complete; for example, it is not possible to compute the density corrections to be made on a press, nor to check the formulation of a PANTONE ink, in the absence of spectral measurements data.

2) Proof and press control bars supplied with each Colorsource application:

Each **Colorsource** application offers by default in its distribution .ZIP file, a choice of well-adapted charts. Each proof or press control bar and press calibration bar includes **a printable** image (e.g., a .TIF or .PDF CMYK image), plus a reference text file in **CGATS** format describing this control bar (e.g., the CMYK values of each of the control bar's patches).

The following chart is an example of a CMYK control bar that can be used with **MagicPress** to determine in one scan the optimal CMY and K print densities to be used for matching the CMYK aim colors of any public or private standard:



Hereafter is the associated reference file for measuring it, using **MeasureTool** or **i1Profiler** application:

LGOROWLENGTH 1 CREATED "1/26/2014" # Time: 14:58									
KEYWOF	RD "Samplel	D"							
KEYWOF	RD "SAMPLE	_NAME"							
NUMBE	R_OF_FIELD	S 6							
BEGIN_	DATA_FORM	1AT							
Samplel	D SAMPLE_	NAME	CMYK_C	CMYK_M	CMYK_Y	CMYK_K			
END_DA	TA_FORMA	Т							
NUMBE	R_OF_SETS	8							
Measure	ement_mod	e "gap"							
BEGIN_[DATA								
1	A1	100	0	0	0				
2	B1	0	100	0	0				
3	C1	0	0	100	0				
4	D1	0	0	0	100				
5	E1	0	0	0	0				
6	F1	0	100	100	0				
7	G1	100	0	100	0				
8	H1	100	100	0	0				
END_DA	TA								



Regardless of the application used for measuring this CMYK chart, the resulting spectral measurement file will contain on one line for each patch: an index number (e.g., 1 for patch 1), then the name of the patch (e.g., A1), then its CMYK values (e.g., 100, 0, 0, 0), then its spectral values (e.g., 0. 0685, 0. 119, 0. 2103, etc.: for i1Pro, 36 reflectance values for the 36 visible wavelengths ranging from 380 to 730 nm in 10 nm steps):

LGOR CREAT INSTR	OWLENGTH ED "11/16 UMENTATIC	1 /2020" # Tir DN "Eye-On	me: 12:10 e Pro"									
MEAS	UREMENT_S	SOURCE	"WhiteBa	se=Absolut	e Filter=No	o"						
KEYW	ORD "Sampl	leID"										
KEYW	ORD "SAMP	LE_NAME"										
NUME	BER_OF_FIEL	LDS 42										
BEGIN	_DATA_FOF	RMAT										
Samp	eID SAMPL	.E_NAME	СМҮК_С	СМҮК_М	СМҮК_Ү	СМҮК_К	nm380	nm390	etc	nm710	nm720	nm730
END_[DATA_FORM	1AT										
NUME	BER_OF_SET	S 8										
BEGIN	_DATA											
1	A1	100	0	0	0	0.0685	0.119	0.2103		0.4778	0.5704	0.669
2	B1	0	100	0	0	0.0959	0.093	0.1027		0.1661	0.1828	0.1946
3	C1	0	0	100	0	0.0479	0.0384	0.0314		0.0316	0.0315	0.0338
4	D1	0	0	0	100	0.0114	0.0118	0.0137		0.0181	0.0191	0.0196
5	E1	0	0	0	0	0.3509	0.3998	0.4931		0.9202	0.9836	1.0024
6	F1	0	100	100	0	0.0271	0.0215	0.0183		0.0217	0.0222	0.024
7	G1	100	0	100	0	0.0191	0.0226	0.0291		0.0411	0.0447	0.052
8	H1	100	100	0	0	0.0271	0.0456	0.0723		0.1507	0.1781	0.2051
END_I	DATA											

If the measurement file does not contain the spectral measurement of each patch, but only a colorimetric measurement such as XYZ and/or Lab, **Colorsource** software dos use the available colorimetric measurements, and informs the user, if necessary, of the absence of spectral measurements in the file.

The following is an example of a measurement file containing only colorimetric data (hereafter XYZ and Lab):

LGOROWLENGTH 1 CREATED "10/15/2011" # Ti INSTRUMENTATION "Unkno MEASUREMENT_SOURCE "Illi KEYWORD "SampleID"	me: 10:35 wn" umination=Ur	nknown O	bserverAng	gle=Unknov	vn WhiteBa	ase=AbsFilter=Unknown"
KEYWORD "SAMPLE_NAME"						
NUMBER_OF_FIELDS 8						
BEGIN_DATA_FORMAT						
SampleID SAMPLE_NAME	XYZ_X	XYZ_Y	XYZ_Z	LAB_L	LAB_A	LAB_B
END_DATA_FORMAT						
NUMBER_OF_SETS 8						
BEGIN_DATA						
1 A1 16.96	25.68	53.81	57.73	-37.67	-46.32	
2 B1 34.66	18.66	15.09	50.28	69.81	0.74	
3 C1 71.89	77.51	7.96	90.56	-5.90	91.96	
4 D1 1.83	1.90	1.48	14.98	-0.25	1.07	
5 E1 88.36	91.98	73.80	96.81	-0.59	1.79	
6 F1 30.71	17.02	2.25	48.28	64.40	50.63	
7 G1 8.60	19.44	6.47	51.20	-66.23	30.24	
8 H1 5.11	3.38	13.08	21.51	26.17	-43.57	
END_DATA						



3) Measurement of a control bar over several copies, for working from average press measurement:

In the previous example, measuring a single chart is enough, since **MagicPress** calculates the four optimal CMYK density corrections from a single measurement of a CMYK chart, printed with any CMYK densities.

But for computing with **MagicPrepress** application, the correction curves allowing to comply with the aim printing standard, we recommend measuring the press control bar not on one, but on several printed copies, in order to take into account, the much more relevant press average measurement.

This is why some control bars are supplied with several reference text files, allowing to measure them on a single copy for **MagicPress**, and then on several printed copies for **MagicPrepress**.

For example, the following control bar is convenient for calibrating web offset presses. It can be used with **MagicPress** (a single scan for computing the optimal CMYK print densities), and then with **MagicPrepress** (Scan 15 printed copies for computing or updating the CMYK plate correction curves based on averaged measurements):



- The reference file named CMYK_chart_offset_1_line_32_patches_1X allows measuring this target by one scan, on a single copy, for MagicPress,
- The reference file named **CMYK_chart_offset_1_line_32_patches_15X** allows measuring this target 15 times, on 15 copies: (15 x 32 patches = 480 patches in total).

4) Other control bars and charts for use by Colorsource applications:

In practice, **Colorsource** applications can open and process any colorimetric and/or spectral measurement file, of any control bar or color chart of any size, with CMYK or N-Colors (One to ten colors), and with or without a process base.

Sample control bars and calibration bars for presses and proofs, and the associated reference files for measuring them, are provided in the distribution ZIP of each **Colorsource** application, ensuring excellent results.

In addition, experienced users can also create their own control bars of one to ten colors, as well as the associated reference files for measuring them on one or more printed copies.

In practice, the easiest way is to first create the control bar in Excel, as a reference file in CGATS format; then copy and paste it to a text file, and then convert this text file using free **Colorlab** applications into a printable control bar tailored for **i1Pro 1**, **2** or **3**.

Colorlab allows creating and saving a printable chart measurable in scan mode with**i1Pro 1**, **2** or **3**, from any text reference file in CGATS format describing a one to eight colors chart. This chart can be repeated from 1 to N times depending on the number of printed copies you want to measure, and then average using Colorsource applications.

5) Measurement of control bars with X-Rite Eye-One Pro 1, 2 or 3 devices:

The control bars can be measured using **Eye-One Pro 1**, **2** or **3** instruments, using free **measurement software MeasureTool** and/or **i1Profiler**.

The X-Rite i1Pro, i1Pro 2 and i1Pro 3 models can be used in their inexpensive BASIC versions:

- MeasureTool software can be used with Eye-One Pro and Eye-One Pro 2 spectrophotometers,
- **i1Profiler** software can be used with **Eye-One Pro 2** and **Eye-One Pro 3** spectrophotometers.

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6) Convenient measurement of proof control and press calibration bars using MeasureTool (with X-Rite i1Pro and i1Pro 2 models):

MeasureTool is one of the modules of **ProfileMaker** software, dedicated to the measurement of charts and control bars. A pity it is not compatible with **i1Pro 3** model, because **MeasureTool** is an excellent and flexible measurement software. The measurement functions offered by **MeasureTool**, can be used free of charge. More generally, many of the functions offered by **ProfileMaker** software modules are quite useful, even without a license.

Download link for **ProfileMaker** for 32-bit or 64-bit Windows: https://www.xrite.com/service-support/downloads/p/profilemaker v5 0 10

Do not interrupt ProfileMaker installation too early: Wait for the ProfileMaker installation completion message.

If you do not own the **ProfileMaker** license, **MeasureTool** will remind you every time you start, but it will not prevent you from using all measurement functions with your **i1Pro** or **i1Pro 2**:



6-1) Charts and reference files installed by default with ProfileMaker:

If you selected the **i1Pro** charts during the installation, the **Reference Files** subdirectory contains the CGATS reference files for measuring the charts proposed in the **Testcharts** subdirectory. For example, on the screenshot below, the reference file **ECI2002CMYK i1(A3).txt** is intended for measuring the CMYK **ECI2002** press characterization chart, with **i1Pro** or **i1Pro 2**:



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This ECI2002 CMYK chart is present as below in the form of two A3 pages present in the subdirectory **Testcharts/Printer/EyeOne**, as **ECI2002 CMYKi1(A3)_1_2.tif** and **ECI2002 CMYKi1(A3)_2_2.tif**:



The Testcharts subdirectory: Contains charts to be printed and then measured using the **i1Pro** or **i1Pro 2** (and other X-Rite measuring instruments), classified as **Multicolor**, **Linearization** and **Printer** charts.

These test charts are not of interest to **Colorsource** software. Keep them (and their associated reference files in the **Reference Files** subdirectory) only if you own the **ProfileMaker** license and also use this excellent software for classic color management operations (Such as making color peripherals I.C.C. profiles etc.).

6-2) Implementation of reference files for measuring control bars for Colorsource applications:

If you are using **MeasureTool** only for **Colorsource** software (measurement of calibration bars for offset plates and printing presses, control bars for proof and prints etc.), delete all reference files from the subdirectories of **Reference Files**, so as not to unnecessarily clutter the **MeasureTool** drop-down menu for designating the chart to be measured.

You can then place the **Colorsource** applications reference files (**PLATE**, **Magic_Proof_&_Print_Control**, **MagicPress**, and **MagicPrepress**) in the **Linearization**, **Others**, and/or **Printer** subdirectories:

TeamViewer	^	Nom	Modifié le	Туре	Taille
X-Rite		MagicPrepress_CMJN_5_x_mires_10%_sur_3_lignes_Ref.txt	1/12/2015 12:33 PM	Document texte	5 Ko
Colorlab		MagicPrepress_CMJN_15_x_mires_10%_sur_3_lignes_Ref.txt	8/11/2020 11:35 AM	Document texte	14 Ko
ColorShop		MagicPress_7CLR_1_x_mire_25_plages_sur_une_ligne_Ref.txt	8/11/2020 11:50 AM	Document texte	3 Ko
Eye-One Match 3.6.2		MagicPress_mire_CMJN_RVB_CMJN75%_Ref.txt	29/11/2015 4:48 PM	Document texte	1 Ko
ilProfiler		MagicPress_mire_CMJN_RVB_Ref.txt	29/11/2015 4:41 PM	Document texte	1 Ko
ilShare		PLATE_ref_11_plages.txt	28/11/2015 7:09 PM	Document texte	1 Ko
		PLATE_ref_Harlequin_23_plages.txt	28/11/2015 7:09 PM	Document texte	1 Ko
ProfileMaker Professional 5.0.10		Ref. gamme de contrôle Colorsource ISO12647-7 2007.txt	4/03/2022 3:57 PM	Document texte	2 Ko
Documentation		Ref. gamme de contrôle Fogra Media Wedge 2.txt	4/03/2022 3:57 PM	Document texte	2 Ko
Donnees de mesure		Ref. gamme de contrôle Fogra Media Wedge 3.txt	4/03/2022 3:57 PM	Document texte	2 Ko
Donnees de reference		Ref. gamme de contrôle IDEAlliance 2009.txt	4/03/2022 3:57 PM	Document texte	2 Ko
Autres		Ref. gamme de contrôle IDEAlliance 2013.txt	4/03/2022 3:57 PM	Document texte	2 Ko
📙 Imprimante		Ref. Offset_1_x_mire_CMJN_sur_une_ligne_32_plages.txt	8/11/2020 12:10 PM	Document texte	1 Kc
Linéarisation					
Donnees de reference - backup					
Donnees de Scanner					
Drivers					
Gabarits de Test					
- Modules					
ReadMe					
Resources					

This will allow you to access all useful reference files directly in the **MeasureTool** drop-down menu, which is faster than accessing them by navigating through the subdirectories via the choice **Open**... from the **Test Chart Measurement** menu below:





6-3) Making spectral measurements with MeasureTool:

For **i1Pro** and **i1Pro 2**, **MeasureTool** must be configured as follows (**Configuring** toolbar): Reflection measurements (**Reflection box checked**), and spectral measurements (**Spectral box checked**):



Δ

If the Spectral check box is not checked, your measurement files will only contain the C.I.E. XYZ and Lab D50 values of the measured control bars. If necessary Colorsource applications will warn you about this mistake that will prevent them from computing and displaying all the expected results.



For measuring a test chart, choose **Measuring Chart** from the toolbar, choose the chart from the drop-down menu, press **Launch**, and then calibrate the spectrophotometer as prompted. Performed using the **CMYK_chart_offset_1_line_32_patches_1X.txt** reference file, the CMYK chart measurement file will allow **MagicPress** calculating the optimal CMYK print densities:

Once the target is scanned using **i1Pro** or **i1Pro 2**, press the **Close** button. **Do not use the "Export Lab" button**... (you want spectral measurements), but use **File/Save As**..:

Measure Tool	
Fichier Editer Outils Language Fenere Aide	
Ouvrir Ctrl+O	
Enregistrer sous Ctrl+S	
Former Ctil+W	
Importer un profil ICC type de mire à mesurer :	
Quitter Ctrl+Q	
MadicPress Offset 1 x mire CMJN sur une ligne 32 plages V	
Monteur	
Mesure Sans titre	
Mire	
spkt / 32 Plages	
Calcul	
Comparaison	
Moyenne	
Générer	
Mires imprimante	
Leformations or undémonstrains	

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The recorded spectral measurement file could also be used with **MagicPrepress** application for computing or updating the CMYK correction curves on the workflow.

But for using **MagicPrepress** it is much better measuring the average chart printed on several copies, by using the reference file **CMYK_chart_offset_1_line_32_patches_15X.txt**:



Below, for example, six press control bars were scanned on six copies:

The measurement process can be stopped at any time, by pressing the **Close** button.



Below is the measurement file obtained after scanning 6 of the 15 targets allowed by the reference file **CMYK_chart_offset_1_line_32_patches_15X.txt**, and then pressing the **Close** button.

Make **File/Save As**... (or "**Ctrl s**"). The spectral values of the unmeasured control bars (displayed in black) will be zeros in the recorded measurement file, and of course **Colorsource** applications will not take them into account for computing the average spectral values of the 6 measured control bars:



All measurement files can be opened by Colorsource applications using their "Import" button(s).

The "**Refresh**" button offered by **MagicPress** application allows you to automatically re-import the last imported measurement file with same name, for quickly updating the optimal densities results when the measurement file is updated.

6-4) Example of measuring a 7CLR control bar with MeasureTool:

MeasureTool is used the same way for measuring all test charts, whether they are CMYK or N-Colors. For example, measuring the 7CLR chart below for **MagicPress**, using the **7CLR_chart_25_patches_1_line_1X.txt** reference file:





Measuring 12 targets on 12 printed copies for MagicPrepress using the 7CLR_chart_25_patches_1_line_12X.txt reference file:



Note that **MeasureTool** always shows a good display of the "colors to be measured" regardless of the arbitrary order of the 7 colors in the reference file (e.g., above **CLR_1** to **CLR_7** = **C**, **Orange**, **Green**, **M**, **K**, **Purple** and **Y**). This purely arbitrary order of the 7 colors in the text reference file in CGATS format has no relation to the physical order chosen for laying down the seven inks on the press.

i1Profiler will also allow correct measurement of these 7 colors' charts by using this same N-Color CGATS reference file, but its display of the "colors to be measured" will only be approximately correct if the CGATS reference file contains the CMYK inks specified respectively as CLR_1, CLR_2, CLR_3 and CLR_4.



7) Measurement of proof control and press calibration bars using i1Profiler (with X-Rite i1Pro 2 and i1Pro 3 models):

i1Profiler allows you performing charts' spectral measurement using the **i1Pro 2** and **i1Pro 3** spectrophotometers: <u>https://www.xrite.com/fr-fr/service-support/downloads/i/i1Profiler-i1publish_v3 5 0</u>

In practice **i1Profiler** is mainly used with **i1Pro 3**, because it does not bring any advantage compared with **MeasureTool**.

The reference text files supplied with **Colorsource** distribution ZIPs allow **i1Profiler** measuring all matching control bars on one or more printed copies, as done with **MeasureTool**.

7-1) Charts and reference files installed by default with i1Profiler:

i1Profiler bizarrely stores all of its auxiliary files in a hidden Windows' subdirectory. To easily access this hidden subdirectory by navigating in Windows File Explorer, simply configure it as follows: Check the **Hidden items** check box on the **Display** tab of the explorer:





You can then navigate to the C:\ProgramData\X-Rite\i1Profiler directory:

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Note that even if you have not configured Windows File Explorer to show the hidden files, you can access this directory by typing <u>C:\ProgramData\X-Rite\i1Profiler</u> in the explorer navigation bar as follows: (or in the address bar of a web browser)

🖦 l 🛃 📙 🗄 🖙 🖛 l	Gérer C:\				
Fichier Accueil Partage Affichage Ou	itils de lecteur				
Épingler à Copier Coller Accès rapide	ès Déplacer Copier vers * vers * Supprimer Renomme	r Nouveau dossier Nouveau	Propriétés	Sélectionner tout	
Presse-papiers	Organiser	Nouveau	Ouvrir	Sélectionner	
← → ← → ↑ ▲ C:\ProgramData\X-Rite\i1Profile	er				
> 🗟 Documents	^ Nor	n	Modifié le	Туре	Taille
> 📰 Images		\$SysReset	14/10/2019 11:01 A	M Dossier de fichiers	
> 🎝 Musique		\$WINDOWS.~BT	5/10/2021 10:45 AN	1 Dossier de fichiers	
> 🧊 Objets 3D		Brother	3/08/2015 8:45 PM	Dossier de fichiers	
> 🖶 Téléchargements		CLEFS CS DEV	19/09/2021 10:41 A	M Dossier de fichiers	
> III Vidéos		Colorsource	23/09/2022 3:03 PN	1 Dossier de fichiers	
V ii- Sure Surteen (C)		ESD	25/09/2022 9:32 AN	1 Dossier de fichiers	
- Sure_system (c.)		inetpub	16/08/2020 8:45 PN	1 Dossier de fichiers	
> SSysReset		Intel	13/03/2015 6:57 PN	1 Dossier de fichiers	
> SWINDOWS.~BT		Logs	13/02/2016 2:19 PN	1 Dossier de fichiers	
> Brother		MUTSW	8/08/2022 4:23 PM	Dossier de fichiers	
CLEFS CS DEV		occi	12/09/2018 3:37 PM	1 Dossier de fichiers	
		Perflogs	7/12/2019 10-14 AM	1 Dossier de fichiers	

7-2) Setting up reference files for measuring charts for Colorsource applications:

i1Profiler allows you measuring any chart or control bar such as **RGB**, **CMYK** or **N-Colors** with **CMYK** base. **N-Color charts** (Five to eight colors) are designated in **i1Profiler's** menus as **CMYK+1**, **CMYK+2**, **CMYK+3**, and **CMYK+4**.

For each type chart, all the data (including the reference files, and the measurement files made for **Colorsource** applications) are stored in the following **ColorSpace** directories:

🔄 🚽 🚦 🗧 🐥 CAProportibute/A-Ride//Percise						
Tichier Accuel Partage Attichage						
Faingling A Acceler repolate Content Co	Departer Cepter Suppomer Faramerer Sera vers Criganizer	Noccel élément * Accès capide * r Nocces	Prognititis	Sélectionner tout		
$\leftarrow \rightarrow - \uparrow $	ogramData > X.Rte > i1Probler					⇒ δ P Recharch
👻 🏊 Sure_System (Ci)	<u>^ 1</u>		Modifié le	lypo	Tadle	
> 🚺 SSysReset	- AmbientM	easurements	1/12/2022 11:36 AM	Dossier de fichiers		
> SWINDOWSBT	CalorSpace	CMVK	1/12/2022 11:41 AM	Dossier de lichiers		
> 🔂 Backher	ColorSpace	CMVK+1	1/12/2022 11:48 AM	Dowier de fichiers		
CLEPS CS DPV	ColorSpace	CMVK+2	1/12/2022 11:48 AM	Dossier de fichiers		
> Coloniquice	ColorSpace	CMVK+3	1/12/2022 11-41 AM	Dossier de fichiers		
E 150	GelorSpace	CMYK+4	1/12/2022 11:41 AM	Dossier de fichiers		
	ColorSpace	RGB	1/12/2022 11:41 AM	Dossier de fichiers		
, mapae	DeviceLink	ProfilegWatklaws	1/12/2022 11-41 AM	Derwier de fichiers		
> 1. 109	DisplayMe	sourcement.	1/12/2022 11:35 AM	Dossier de fichiers		
Logs	in Control Control	P-0 Juans	1/12/2022 11:35 AM	Dossier de fichiers		
> MUTSW	DisplayPro	NeSettings	1/12/2022 11:35 AM	Dossier de fichiers		
6 oca	DisplayWo	diffizies.	1/12/2022 11:36 AM	Dossier de fichiers		
PerfLogs	LightingPa	ramatan.	1/12/2022 11:35 AM	Densier de fichiers		
> C Percentrollaria	Profiles		1/12/2022 11:35 AM	Dossier de Fichiers		
2 December 201	Projector/A	orkf lows	1/12/2022 11:41 AM	Dossier de fichiers		
- Index and the	ScannerRel	erenceFiles	1/12/2022 11:36 AM	Dossier de fichiers		
> biodeauxues (soci	SpotCelors		1/12/2022 11:35 AM	Dossier de lichiers		
> L TEMP	DDC-Block	adDisplays.lot	20/12/2023 5:00 PM	Document texts	1.62	

For example, the **ColorSpaceCMYK** subdirectory contains all the data needed for measuring CMYK control bars and charts, including **PatchSets** (Reference files) and **MeasureReferenceMeasurements** (Measurement files):

🔜 🛛 🛃 🔚 🗧 🗸 🗢 🗏 C:\ProgramData\X-Rite\i1Profiler\ColorSpaceCMYK\PatchSets 👘					
Fichier Accueil Partage Affichage					
	Image: Senommer Nouvel élément * Accès rapide * Image: Senommer Nouvea Accès rapide * Poppiélé Modifier Poppiélé Historique Ouvrir Image: Selection Ouvrir Selection				
← → < ↑ Ce PC > Sure_System (C:) > ProgramData > X-Rite > i1Pr	ofiler > ColorSpaceCMYK > PatchSets			~ 3	9 Rechercher dan
X-Rite	Nom	Modifié le	Туре	Taille	
AmbientMeasurements	P 102 bet	20/12/2021 17:00	Desument texts	15 K a	
Devices	TC3.5 CMYK.pxf	20/12/2021 17:00	Fichier PXF	175 Ko	
i1Profiler	TI8.7-4 CMYK visual.pxf	20/12/2021 17:00	Fichier PXF	640 Ko	
AmbientMeasurements	TT8.7-4 CMYK visual transposed.pxf	20/12/2021 17:00	Fichier PXF	640 Ko	
ColorSpaceCMYK	IT8.7-4 CMYK random.pxf	20/12/2021 17:00	Fichier PXF	640 Ko	
MeasureChartMeasurements	IT8.7-4 CMYK random transposed.pxf	20/12/2021 17:00	Fichier PXF	640 Ko	
weasure: hartWorktowe	IT8.7-3 CMYK visual.pxf	20/12/2021 17:00	Fichier PXF	368 Ko	
Measurements	ilProfiler 2033 Patches.pxf	20/12/2021 17:00	Fichier PXF	865 Ko	
MeasurenerenceWorkflows		20/12/2021 17:00	Eichier DYE	51 KO	
	ECI 2002 CMVK visual transposed.txt	20/12/2021 17:00	Document texte	51 Ko	
PatchSets	261 2002 CMVK visual transmissionpx1	20/12/2021 17:00	Fichier PXF	588 Ko	
PrinterProfileLinearization workflows	ECI 2002 CMYK random.txt Taille : 50,0 Ko	20/12/2021 17:00	Document texte	51 Ko	
PrinterProfileOBCWorkflows	ECI 2002 CMYK random.pxf Modifié le : 20/12/2021 17:00	20/12/2021 17:00	Fichier PXF	588 Ko	
PrinterProfileOntimizationWorkflows	ECI 2002 CMYK random transposed.txt	20/12/2021 17:00	Document texte	51 Ko	
PrinterProfileWorkflows	ECI 2002 CMYK random transposed.pxf	20/12/2021 17:00	Fichier PXF	588 Ko	
PrinterOAWorkflows					
ProfileSettings					
ReferenceMeasurements					
TestCharts					
Wedgel avouts					
ColorSpaceCMYK+1					
ColorSpaceCMYK+2					



• The **PatchSets** subdirectory of **ColorSpaceCMYK**: Should contain the reference files of all the CMYK charts you want to measure. These reference files can be in CGATS universal text format (same as the reference files used by **MeasureTool**). This **PatchSets** directory is chosen by default when you select **CMYK Printer** device in the drop-down menu, and then press the **Measure Reference Chart** button:



• The MeasureReferenceMeasurements subdirectory of ColorSpaceCMYK: Will contain the charts' measurement files made using the reference files chosen in the PatchSets directory.

Similarly, each ColorSpaceCMYK + i subdirectory (with i ranging from 1 to 4) contains:

 A PatchSets subdirectory: That contain the reference files of all CMYK + i Colors charts. i1Profiler will open by default this PatchSets directory when you select the CMYK+i Printer device in its drop-down menu, and then press the Measure Reference Chart button:



• A MeasureReferenceMeasurements subdirectory: That contain all measurement files of all measured CMYK + i Color(s) charts.

If a subdirectory (for example **ColorSpaceCMYK+4**) does not contain a **PatchSets** subdirectory, and you want to measure a **CMYK + 4** chart with **i1Profiler**, simply create this **PatchSets** subdirectory manually and place in it all your CGATS reference file(s) describing the **CMYK + 4 Color** chart(s) to be measured.

You can add the reference files of all **Colorsource** applications' charts (**PLATE, Magic_Proof_&_Print_Control**, **MagicPress**, and **MagicPrepress** ...), according to their number of colors, in the **PatchSets** subdirectories of **ColorSpaceCMYK**, **ColorSpaceCMYK+1**, ..., **ColorSpaceCMYK+4**.



If you use **i1Profiler** only for **Colorsource** applications (Measurement of offset plates, press calibration charts, print and proof control bars etc.), clean up all unnecessary reference files in each **PatchSets** subdirectory of **ColorSpaceCMYK**, **ColorSpaceCMYK+1**, ..., **ColorSpaceCMYK+4**.

For example, below are sample CGATS reference files of CMYK press control bars, provided with **Colorsource** applications, installed in the **ColorSpaceCMYK/PatchSets** directory:

■ ≥ ■ 8 -> = C\ProgramDataX-Rite\TProfile\Color\$paceCMYKPatchSets											
Fichier Accueil Partage Affichage											
Épingler à Accès rapide	Déplacer Copier vers * vers *	Nouvel élément •	Propriétés	Sélectionner tout							
Presse-papiers	Presse-papiers Organiser Nouveau Ouvrir Sélectionner										
← → * *											
V 📙 ColorSpaceCMYK	^ Nom		÷		Modifié le	Туре	Taille				
MeasureChartMeasurements	MessureChartMessurements										
MeasureChartWorkflows	MeasureChartWorkflows Br. damme de controle ID-Alliance 2009,txt								1		
Measurements	Assurements Befgarme de contrôle Fogra Media Wedge 3.txt 04/03/2022 155 Document text 2 Ko										
MeasureReferenceMeasurements	ements 🗎 Ref. gamme de contrôle Fogra Media Wedge 2.txt 04/03/2022 15:57 Document texte 2 Ko										
MeasureReferenceWorkflows	🗎 R	ef. gamme de contrôle Colorsource	e ISO12647-7 2007.txt		04/03/2022 15:57	Document texte	2 Ko		r i		
OBCParameters	P	LATE_ref_Harlequin_23_plages.txt			28/11/2015 19:09	Document texte	1 Ko		r i		
DatchSate	P	LATE_ref_11_plages.txt			28/11/2015 19:09	Document texte	1 Ko				
Datab Cata Dealors	N	lagicPress_Offset_1_x_mire_CMJN_	sur_une_ligne_32_plages_Ref	.txt	08/11/2020 12:10	Document texte	1 Ko		r i		
Patchbets - backup	i N	lagicPress_mire_CMJN_RVB_Ref.txt			29/11/2015 16:41	Document texte	1 Ko				
PrinterProfileLinearizationWorkflows	E N	lagicPress_mire_CMJN_RVB_CMJN	75%_Ref.txt		29/11/2015 16:48	Document texte	1 Ko				
PrinterProfileOBCWorkflows	E N	lagicPress_7CLR_1_x_mire_25_plage	es_sur_une_ligne_Ref.txt		08/11/2020 11:50	Document texte	3 Ko				
PrinterProfileOptimizationWorkflows	E N	lagicPrepress_Offset_15_x_mires_C	MJN_sur_une_ligne_32_plage	s_Ref.txt	08/11/2020 12:11	Document texte	9 Ko				
PrinterProfileWorkflows	E N	lagicPrepress_CMJN_15_x_mires_10	0%_sur_3_lignes_Ref.txt		08/11/2020 11:35	Document texte	14 Ko				
PrinterQAWorkflows	1 N	lagicPrepress_CMJN_5_x_mires_10	%_sur_3_lignes_Ref.txt		01/12/2015 12:33	Document texte	5 Ko		1		
ProfileSettings									l l		
ReferenceMeasurements									1		
									l l		
WedgeLayouts									1		
> GolorSpaceCMVK+1									l l		
> ColorSpaceCMYK+2											

7-3) Performing spectral measurements with i1Profiler:

Benerative BCBX V		
Qualité		
Caractérisation par transmission avec l'i 1Pro 3 PLUS DEMO		
Caractérisation par transmission avec fi siO 3 PLUS DEMO		
∠ Scanner ¥	Pode Usisareuz :	O De base 🔘 Avance
Caractérisation de base	¥ Licence:	I 1Profiler - PUBLISH & DEVICE LINK 🥑
Y Outils		
ColorChecker Proof		
Analyse des données		Transferer la Icence
Éditeur de jeux de patchs		Mettre à niveau la licence
		Bol your
	▶ Paramètres de l'application :	Pérjahéngue d'affichage par défaut : 11970 2

You must declare at the bottom right the model of your spectrophotometer (i1Pro 2 or i1Pro 3 / i1Pro 3 PLUS).

The least expensive **i1Pro BASIC** version are sufficient to use all **Colorsource** software, if you do not need the color management functions offered by **i1Profiler** (Making color peripherals I.C.C. profiles etc.).

If you do not own the **i1Profiler** license, many functions will be marked as **DEMO**, but all the necessary functions for measuring your control bars and press calibration bars will be available.

Choose the type of chart to be measured at the top left, using the **Device Selection** drop-down menu (Above **CMYK Printer**), then press the **Measure Reference Chart** button. (Understand in good English "Measure a chart specified by a reference file").



When pressing the Load button, i1Profiler opens the following menu allowing you declaring specifying the reference file of the CMYK chart you want to measure, in the Windows subdirectory C:\ProgramData\ X-Rite\i1Profiler\ColorSpaceCMYK\PatchSets:



If you choose the **CMYK_chart_offset_1_line_32_patches_1X.txt** reference file, **i1Profiler** then proposes to measure the corresponding printed chart on a single copy:



Please note that a bug in the **i1Profiler version 3.5.0** requires here you declare your **i1Pro 2** or **i1Pro 3** spectrophotometer **again**, in the drop-down menu circled in **orange** above. (**i1Profiler** has accustomed us to a long list of bugs ... for more than 10 years now, while ProfileMaker works perfectly).



Measuring a single CMYK control bar as above is perfect for using **MagicPress**, or for controlling a color proof with **Magic_Proof_&_Print_Control**, but of course we recommend measuring press control bars on multiple copies for calculating or updating the plate's correction curves of a web offset press.

If we choose the **CMYK_chart_offset_1_line_32_patches_15X.txt** reference file, **i1Profiler** then proposes to measure the corresponding printed chart on 15 copies:



Don't forget to redeclare your **i1Pro 2 or i1Pro 3** instrument in the drop-down menu above circled in **orange** because of the current **i1Profiler** bug. (v3.5.0). And then, use the arrow at the bottom right of the window to open the menu below allowing you to calibrate your spectrophotometer.

Choose the **Single Scan** measurement mode, calibrate the spectrophotometer and you are ready to measure your target (Hereafter, 15 times the same pattern of 32 patches spread over a single row):





Note that with **Single Scan** measurement mode, you will record one M0 spectral measurement file with **i1Pro 2** (as with **MeasureTool**), and three **M0**, **M1** and **M2** spectral measurement files with **i1Pro 3**. No practical use with **Colorsource** software: just don't forget declaring in Colorsource applications' **Preferences** if you are using spectral measurements made in M0 or M1 condition.

To know everything about the above mentioned **M0**, **M1** and **M2** measurement conditions, read our paper at: <u>https://www.color-source.net/en/Docs_Formation/2021_POINT_ABOUT_ISO_12647_STANDARDS.pdf</u>

After scanning the 15 rows, use the **Save** button. **i1Profiler** then offers you several possible recording formats as follows:



By default, **i1Profiler** saves measurement files in the **MeasureReferenceMeasurements** subdirectory and does not remember the access path if you choose a different directory (Unlike **MeasureTool** and **Colorsource** applications, that do remember access paths).

Tip: To quickly use **MagicPress**, save your successive measurement files always under the **same name**: using the **Refresh** button on **MagicPress** will allow you to instantly refresh the results displayed by **MagicPress** after scanning each sheet. On an excellent press, measuring two sheets is enough: The first one to display the four CMYK density corrections to be made. The second one to verify that the specified densities, and therefore the specified aim colors, are reached.

Among the file recording formats offered, use the ProfileMaker5 CGATS Spectral format (*.txt), compatible with all Colorsource applications, even the oldest ones.

With MagicPress, MagicPrepress and Magic_Proof_&_Print_Control, you can also use other formats such as i1Profiler CGATS Custom (*.txt), or i1Profiler CGATS Spectral (*.txt).

Do not use **i1Profiler CGATS CIELab formats (*.txt)** or **ProfileMaker5 CGATS CIELab (*.txt)**: **Colorsource** applications can use them, but **MagicPress** and **MagicPrepress** will display incomplete results because they will not know the spectral values of the measured press calibration bars.

We remind you that processing colorimetric measurements with **MagicPrepress** is only interesting for the expertise of colorimetric values contained in press I.C.C. profiles that we wish to analyze, when these profiles do not contain spectral measurements, which is frequent; and also, for other very specific applications.



For example, the same spectral measurement file of 15 charts measured on 15 printed copies, can be recorded with three slightly different file formats:

Mesures_Offset_15_x_mires_CMJN_sur_une_ligne_32_plages_i1Profiler_CGATS_Personnalisé_M0.txt Mesures_Offset_15_x_mires_CMJN_sur_une_ligne_32_plages_iProfiler_CGATS_Spectral_M0.txt Mesures_Offset_15_x_mires_CMJN_sur_une_ligne_32_plages_PM5_CGATS_Spectral_M0.txt

These three measurement files will of course give the same results with **MagicPrepress**, but preferably use the universal format of the last file: **ProfileMaker5 CGATS Spectral (*.txt)**.

Balayage unque (M0) Charte test basse résolution : Charte test basse résolution : Paramètres des données de mesure Norme détail du pérphérique : XRGA - X Rite Cénotifier de mesure : S1: 0	→ ~ ↑ 🔜 « X-Rite → i1Prof rganiser ~ Nouveau dossier	iler > ColorSpaceCMVK > MeasureReferenc	eMeasurements v ඊ	Rechercher dans : MeasureR	
Paramètres des données de mesure Norme d'étal. du périphérique : XRGA - X-Rite Géométrie de mesure : 45 : 0	rganiser 🔻 Nouveau dossier				
Conditions de mesure : 140 (UV inclus)	Pièces jointes Dublic Dublic Ce PC Bureau Documents Images Musique Diguage 3D Teléchargements	Nom Mesures_Offset_ Mesures_Offset_	م 5٫٫mires_CMIN_sur_une_ligne_32_plages_iProfile 5٫٫mires_CMIN_sur_une_ligne_32_plages_iProfile	Ier_CGATS_Personnalise_M0.bt rr_CGATS_Spectral_M0.bt	
	Vidéos Sure System (C:) Nom du fichiers Vipe: ProfileMakerS CGAT Masquer les dossiers	v < mirec CMIN sur une ligne 32 plages PM5 S Spectral (*.txt)	III CGATS_Spectral_M0.txt	Enregistrer Annuler	

For example, open this spectral measurement's file with MagicPrepress:

Extern Meres Accual teartor Mirs er page Termide Development Accual Development Condex <	Wilfrid Meffre 🎴 🖬 – 👩 🗙
Impression 4 couleurs : CMJN sans teinte d'accompagnement Vous pouvez sauvegarder vos chemins d'accès pour l'ouverture et l'enregistrement des fichiers en enregistrant votre application ("Ctrl s") Fichier : Mesures_Offset_15_x_mires_CMJN_sur_une_ligne_32_plages_PM5_CGATS_Spectral_M0.txt 15 copies ont été mesurés 12/02/2022#Time:17:55:14 Ouvrir un fichier de mesure de mires	
The set of	
Vous pouvez sauvegarder vos chemins d'accès pour l'ouverture et l'enregistrement des fichiers en enregistrant votre application ("Ctrl s") Fichier : Mesures_Offset_15_x_mires_CMIN_sur_une_ligne_32_plages_PMS_CGATS_Spectral_M0.txt 15 copies ont été mesurés Ouvrir le dossi Ouvrir un fichier de mesure de mires	
Impression 4 couleurs : CMJN sans teinte d'accompagnement Vous pouvez sauvegarder vos chemins d'accès pour l'ouverture et l'enregistrement des fichiers en enregistrant votre application ("Ctrl s") Fichier : Mesures_Offset_15_x_mires_CMJN_sur_une_ligne_32_plages_PM5_CGATS_Spectral_M0.txt 15 copies ont été mesurées 12/02/2022#Time:17:55:14 Ouvrir un fichier de mesure de mires	
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Ouvrir le dossi 15 coples ont été mesurées 12/02/2022#Time:17:55:14 Ouvrir un fichier de mesure de mires 12/02/2022#Time:17:55:14	
Uvvrir un fichier de mesures 12/02/2022#11me12/1:35:14	er des fichiers de mesures de mires
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HATENCOLV.SC13 HATENCO	



7-4) Measuring a 7CLR press calibration bar with i1Profiler:

Of course, place the CGATS text reference files of the 7CLR control bar to be measured in Windows directory C:\ProgramData\X-Rite**i1Profiler\ColorSpaceCMYK+3\PatchSets**.

In the **i1Profiler** home window, choose **CMYK+3 Printer** from the **Device Selection** drop-down menu, and then press the **Measure Reference Chart** button.

Specify the target 7 colors to be measured, as with **MeasureTool** on the previous page, using for example the reference file **7CLR_chart_25_patches_1_line_12X.txt** that allows measuring 12 calibration bars on 12 copies:



The "colors to be measured" are not displayed above by **i1Profiler** in the order specified by the reference file, because in the 7-CLR reference file we use, the CMYK inks are not placed in columns CLR_1 to CLR_4. But no worries: The colors patches will be measured properly, in the order specified by the reference file: **C**, **Orange**, **Green**, **M**, **K**, **Purple**, **Y**:



How to measure your proof and press control and calibration bars with i1Pro, i1Pro 2 and i1Pro 3

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8) Two-color press calibration, using MeasureTool or i1Profiler:

The following test chart can be measured for **MagicPress** by a single scan after the first paper pass, using **MeasureTool** or **i1Profiler** software.

After the first paper pass:



MagicPress will display the **C** and **M** density corrections to be made. The measurement file does not contain the Yellow, Black, Red (M+Y), and Green (C+Y) measurements, but it will allow **MagicPress** determining the optimal densities of **Cyan** and **Magenta**, which will avoid you any problem when printing the second paper pass.

After the second paper pass:



MagicPress will display the Y and K density corrections to be made.

Note that if you do not use the CMYK calibration chart with Cyan vertical separation bars printed as above, it will not be possible to scan the chart after the first paper pass, but it will still be possible to measure it in manual mode, with **MeasureTool** or **i1Profiler**: With **MeasureTool** choose **Patch** mode, and with **i1Profiler** choose **Spot** mode.

9) Color palette measurements with i1Pro, i1Pro 2 and i1Pro 3:

SPOT_Color_Manager application is intended to check the formulation of spot colors such as PANTONE or else, **before installing them on the printing press**. It is then necessary to measure not a control bar specified by some CMYK or N-Color reference file, but various samples of solid inks and papers that are not structured as a chart. For this purpose, you can use **MeasureTool**, or **i1Profiler** or **i1Share** (**Eye-One Share**) software.

9-1) Measurement of tints using Eye-One Share application, with i1Pro and i1Pro 2:

With **i1Pro** and **i1Pro 2**, the excellent and free **i1Share** application allows you measuring palettes including one or more tints, name each of these measured tints, and export directly to Excel format, each palette with the names of each tint and its reflectance curve.

All you have to do is measuring your solid ink(s) and paper(s) in the form of a palette in CxFv1 format (e.g., a customer's graphic chart), and then export this palette to Excel format (File Menu/Export choose Excel Palette) in the drop-down menu:



i1Share also allows light source measurements, for controlling the **color temperature** and **Color Rendering Index** (**CRI**) of light sources. (The color rendering index indicates the spectral conformity of the measured light source with incandescent illumination of nearest apparent color, in the C.I.E. Lu'v' space).

How to measure your proof and press control and calibration bars with i1Pro, i1Pro 2 and i1Pro 3

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Note that it is possible to convert all PANTONE libraries to modern **CxFv3** format to CGATS text file format, by using **Colorsource** applications; and then, if you own the **MeasureTool** license, you can save the resulting CGATS format PANTONE libraries into **CxFv1** format, for use with **i1Share** application.

Important note for using Eye-One Share with i1Pro or i1Pro 2 on 64-bit Windows versions:

- i1Share will only display colors properly if you make and/or use a monitor I.C.C. profile complying to I.C.C. v2.0 standard and not I.C.C. v4.0 (This is an option in your monitor's calibration application). Using I.C.C. v2.0 monitors profiles does not cause any loss of performance in Graphic Industries, where D50 standard viewing booths are used.
- The **i1Share** installer has not been updated for 64-bit Windows versions. The **EyeOne.dll** library (dated 03/07/2007) supplied in the distribution ZIP of **SPOT_Color_Manager** application should replace the original **EyeOne.dll** file dated 2004:



Eye-One Share download link: https://www.xrite.com/fr-fr/service-support/downloads/i/i1share v1 4

9-2) Measurement of tints using MeasureTool application, with i1Pro and i1Pro 2:

You can also use **MeasureTool** application by choosing **Measuring Chart**, **Custom**..., then for example, as below, 8 Columns on 1 Row, if you want to measure 8 shades:





9-3) Color measurement of tints using i1Profiler application, with i1Pro 2 and i1Pro 3:

With **i1Profiler**, do not use the **Measure Reference Chart** button, but the **Measure Chart** button. Then specify on the following menu the number of tints to be measured. For example, as below for 8 shades (for example 1 row of 8 columns):

							-	0	×
0	Définir la charte Paramètres des profis								
	🖹 Définir la charte								
	V Config. du périphérique 19 Utiliser les chartes héritées : Co	₩2							
	♥ digumsation des paticla 6 Uperson page 1 9 Colones par page 1 ~								

10) Structure of the CGATS reference files:

10-1) Structure of the CGATS reference files of CMYK controls bars:

Consider the following CMYK press calibration bar:



The reference file named CMYK_chart_offset_1_line_32_patches_1X.txt, allows you to measure this chart once, on a single copy, for MagicPress:

LGOROW CREATED KEYWORI KEYWORI	/LENGTH "1/26/20 D "Sample D "SAMPLE	1 (= Cha 014" # Time: ID" =_NAME"	art patches are 14:58	e on 1 row)		
NUMBER	_OF_FIELDS	6 (= Nun	nber of colum	ns in the file	index, patch	h name, C, M, Y, K)
BEGIN_D	ATA_FORM	Α Τ				
SampleID	SAMPLE	NAME	CMYK_C	СМҮК_М	СМҮК_Ү	СМҮК_К
END_DAT	FA_FORMAT					
NUMBER	_OF_SETS	32 (= Nu	mber of patch	ies)		
Measure	ment_mode					
BEGIN_D	ATA					
1	A1	100	0	0	0	
2	B1	0	0	0	10	
3	C1	90	0	0	0	
4	D1	0	0	0	20	
5	E1	80	0	0	0	
6	F1	0	0	0	40	
7	G1	60	0	0	0	
8	H1	0	0	0	60	
9	11	40	0	0	0	
10	J1	0	0	0	80	
11	K1	20	0	0	0	
12	L1	0	0	0	90	
13	M1	10	0	0	0	
14	N1	0	0	0	100	
15	01	0	0	0	0	
16	P1	0	100	0	0	
10	QI D1	0	0	10	0	
10	RI C1	0	90	0	0	
19	31 T1	0	0	20	0	
20	11	0	80	40	0	
21	V1	0	60	40 0	0	
22	V 1 \\/1	0	0	60	0	
23	X1	0	40	0	0	
2 4 25	V1	0	40	80	0	
25	71	0	20	0	0	
27	241	0	0	90	0	
28	2B1	0	10	0	õ	
29	201	0	0	100	õ	
30	201	0	100	100	õ	
31	261 2F1	100	0	100	õ	
32	2E1	100	100	0	õ	
END_DAT	FA	200	200	2	-	



The following reference file named **CMYK_chart_offset_1_line_32_patches_15X.txt**, allows to measure 15 times this chart, on 15 sheets: (15 x 32 patches = 480 patches in total):

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	_								
	_								
	1000								
CREATED KEYWORD SampleID KEYWORD SAMPLE_N NUMBER_OF_FIELDS	9/26/2009 JAME 6 (= Numbe	# Time: 1	s in the file :	index, patch	name, C, M	, Y, K)			
BEGIN_DATA_FORM	AT .								
SampleID									
FND DATA FORMAT	SAIVIPLE_I	NAME	СМҮК_С	СМҮК_М	СМҮК_Ү	СМҮК_К			
END_DATA_FORMAT	ARO (- Num	NAME	CMYK_C	смүк_м	СМҮК_Ү	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA	480 (= Nun	NAME	CMYK_C hes = 15 x 32	СМҮК_М	СМҮК_Ү	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1	480 (= Nun	NAME nber of patc 100	CMYK_C hes = 15 x 32	СМҮК_М	СМҮК_Ү 0	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1 2	480 (= Nun "" A1 A2	NAME nber of patc 100 100	CMYK_C hes = 15 x 32 0 0	СМҮК_М	СМҮК_Ү 0 0	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1 2 3	480 (= Nun "" A1 A2 A3	NAME nber of patc 100 100	CMYK_C hes = 15 x 32 0 0	СМҮК_М ;) 0 0	СМҮК_Ү 0 0	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1 2 3 4 Ftc	480 (= Nun "" A1 A2 A3 A4 Etc	NAME nber of patc 100 100 100 100	CMYK_C hes = 15 x 32 0 0 0 0	СМҮК_М 2) 0 0 0	СМҮК_Ү 0 0 0	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1 2 3 4 Etc 14	480 (= Nun "" A1 A2 A3 A4 Etc A14	NAME nber of patc 100 100 100 100 100 100	CMYK_C hes = 15 x 32 0 0 0 0 0 0 0	CMYK_M	СМҮК_Ү 0 0 0 0 0	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1 2 3 4 Etc 14 15	480 (= Nun "" A1 A2 A3 A4 Etc A14 A15	NAME nber of patc 100 100 100 100 100 100 100	CMYK_C hes = 15 x 32 0 0 0 0 0 0 0 0 0 0	CMYK_M	СМҮК_Ү 0 0 0 0 0 0 0	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1 2 3 4 Etc 14 15 16	480 (= Nun "" A1 A2 A3 A4 Etc A14 A15 B1	NAME 100 100 100 100 100 100 100 0 0	CMYK_C hes = 15 x 32 0 0 0 0 0 0 0 0 0 0	СМҮК_М 0 0 0 0 0 0 0 0 0 0	СМҮК_Ү 0 0 0 0 0 0 0 10	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1 2 3 4 Etc 14 15 16 17 Etc.	480 (= Nun "" A1 A2 A3 A4 Etc A14 A15 B1 B2 Etc	NAME nber of patc 100 100 100 100 100 100 100 0 0 0	CMYK_C hes = 15 x 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0	СМҮК_М 0 0 0 0 0 0 0 0 0 0 0 0 0	CMYK_Y 0 0 0 0 0 0 0 0 10 10	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1 2 3 4 Etc 14 15 16 17 Etc 477	480 (= Nun "" A1 A2 A3 A4 Etc A14 A15 B1 B2 Etc 2E12	NAME nber of patc 100 100 100 100 100 100 100 0 0 0 100 0 100 0 0 100	CMYK_C hes = 15 x 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	СМУК_М ;) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	СМҮК_Ү 0 0 0 0 0 0 10 10 10 10 0	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1 2 3 4 Etc 14 15 16 17 Etc 477 478	480 (= Nun "" A1 A2 A3 A4 Etc A14 A15 B1 B2 Etc 2F12 2F13	NAME nber of patc 100 100 100 100 100 100 100 0 0 100 0 0 0 0 0 0 0 0 0 0 0 0	CMYK_C hes = 15 x 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CMYK_M 0 0 0 0 0 0 0 0 0 0 0 0 0	CMYK_Y 0 0 0 0 0 0 0 0 10 10 10 10 0 0 0	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1 2 3 4 Etc 14 15 16 17 Etc 477 478 479	480 (= Nun "" A1 A2 A3 A4 Etc A14 A15 B1 B2 Etc 2F12 2F13 2F14	NAME nber of patc 100 100 100 100 100 100 0 0 0 100 100 100 100 100 100 100 100 100 0 0 100 1	CMYK_C hes = 15 x 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CMYK_M 0 0 0 0 0 0 0 0 0 0 0 0 0	CMYK_Y 0 0 0 0 0 0 0 0 0 10 10 10 10 0 0 0 0	СМҮК_К			
END_DATA_FORMAT NUMBER_OF_SETS Measurement_mode BEGIN_DATA 1 2 3 4 Etc 14 15 16 17 Etc 477 478 479 480	480 (= Nun "" A1 A2 A3 A4 Etc A14 A15 B1 B2 Etc 2F12 2F13 2F14 2F15	NAME nber of patc 100 100 100 100 100 100 0 0 10 1	CMYK_C hes = 15 x 32 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CMYK_M 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	CMYK_Y 0 0 0 0 0 0 0 0 0 10 10 10 10 0 0 0 0	СМҮК_К			

By the way, please note that the patches of above chart (i.e., 15 times a single row of 32 patches), are sorted by column in the reference file, not by rows. And the same will apply to the measured spectral data.

Please note also that, for **i1Profiler** application, (but not for **MeasureTool**), it is strangely compulsory to respect the following nomenclature for the names of each patch (Column 2 of the text reference file):

- The columns of the chart are named from left to right from A, to Z (26th column), and then 2A, 2B ... 2Z, and then 3A, 3B... 3Z, etc.
- The rows of chart are named by numbers from 1 to N,
- The patch at **column X** and **row i** is named **Xi**: For example, the patch above N° 478 named 2F13 is located in column 2F (i.e., 26 for A to Z + 6 for 2A to 2F), at row 13.



10-2) Structure of CGATS reference files of N-Color control bars:

Below is a reference file describing this calibration control bar to be measured on a single copy. This reference file can be used with both **MeasureTool** and **i1Profiler** applications:

LGORO LGOMO LGOMO LGOMO LGOMO LGOMO	LGOROWLENGTH 1 (= Chart patches are on 1 row) LGOMCCHANNEL01 "InkName = 'Sun-Cyan_015' LabFullToneColor = '59.0 -37.9 -46.0' InkPriority = '-1' IndividualInkLimit = '100"" LGOMCCHANNEL02 "InkName = 'Sun-Mag_018' LabFullToneColor = '55.1 65.8 -1.9' InkPriority = '-1' IndividualInkLimit = '100"" LGOMCCHANNEL03 "InkName = 'Sun-Yellow_024' LabFullToneColor = '93.2 -6.8 93.0' InkPriority = '-1' IndividualInkLimit = '100"" LGOMCCHANNEL04 "InkName = 'Sun-Yellow_024' LabFullToneColor = '18.0 -0.5 -0.8' InkPriority = '-1' IndividualInkLimit = '100"" LGOMCCHANNEL05 "InkName = 'Sun-Green_hexa' LabFullToneColor = ' 69.5 -65.6 23.4' InkPriority = '-1' IndividualInkLimit = '100"" LGOMCCHANNEL06 "InkName = 'Sun-Green_hexa' LabFullToneColor = ' 47.6 46.2 -32.0' InkPriority = '-1' IndividualInkLimit = '100"" LGOMCCHANNEL05 "InkName = 'Sun-Green_hexa' LabFullToneColor = ' 47.6 46.2 -32.0' InkPriority = '-1' IndividualInkLimit = '100"" LGOMCCHANNEL06 "InkName = 'Sun-Green_hexa' LabFullToneColor = ' 47.6 46.2 -32.0' InkPriority = '-1' IndividualInkLimit = '100"" LGOMCCHANNEL06 "InkName = 'Sun-Green_hexa' LabFullToneColor = ' 47.6 46.2 -32.0' InkPriority = '-1' IndividualInkLimit = '100"" LGOMCCHANNEL06 "InkName = 'Sun-Violet_044' LabFullToneColor = ' 47.6 46.2 -32.0' InkPriority = '-1' IndividualInkLimit = '100""									
LGOMO	LGOMICCHANNELU/ "InkName = Sun-Urange_U/2 LabruilioneCoor = 7.0.5 55.9 75.4 InkPriority = -1 IndVidualInkLimit = 100" I COMICOPTIONS - "Page Nume = Sun-Urange_U/2 LabruilioneCoor = 7.0.5 55.9 75.4 InkPriority = -1 IndVidualInkLimit = 100"									
LGUMCUP HUNS "PaperName = 'ShinyWhite' Paper = '[1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1										
CREATED "19/02/17 # 09H23m4/s" KEVWORD "SampleID"										
KEYWO	RD "SAMPLE	NAME"								
NUMBE	R OF FIELD	S 9 (= Num	ber of colum	ns in the file	: index. pato	h name. 7CL	R 1.7CLR 2	. 7CLR 3. 7C	CLR 4. 7CLR 5. 7CLR 6. 7CLR 7)	
BEGIN	DATA FORM	AT			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,		,,		
Sample	ID SAMPLE	NAME	7CLR_1	7CLR 2	7CLR_3	7CLR 4	7CLR_5	7CLR_6	7CLR_7	
END_D/	ATA_FORMA	Г	_	_	_	_	_	_	_	
NUMBE	R_OF_SETS	25 (= Nu	mber of patcl	hes)						
Measure	ement_mode									
BEGIN_	DATA									
1	A1	100	0	0	0	0	0	0		
2	B1	80	0	0	0	0	0	0		
3		40	0	0	0	0	0	U 100		
4		0	0	0	0	0	0	00		
5 6		0	0	0	0	0	0	00 40		
7	G1	0	0	0	0	100	0	40		
8	H1	0	0	0	0	80	0	0		
9	11	0	0	0 0	0	40	Ő	Õ		
10	J1	0	100	0	0	0	0	0		
11	K1	Ō	80	0	0	0	0	0		
12	L1	0	40	0	0	0	0	0		
13	M1	0	0	0	100	0	0	0		
14	N1	0	0	0	80	0	0	0		
15	01	0	0	0	40	0	0	0		
16	P1	0	0	0	0	0	100	0		
17	Q1	0	0	0	0	0	80	0		
18	R1	0	0	0	0	0	40	0		
19	S1	0	0	100	0	0	0	0		
20	11	0	0	80 40	0	0	0	0		
∠ I 22	V1	0	100	40 100	0	0	0	0		
22	W1	0	0	0	0	0	0	0		
24	X1	100	0	100	0	0	0	0		
25	Y1	100	100	0	õ	õ	õ	õ		
END D	ATA			-	2	2	-	-		

The LGOMCCHANNEL01 to LGOMCCHANNEL07 rows respectively assign a name to each ink present in columns 7CLR_1 to 7CLR_7, and assigns a purely indicative color to each ink, specified either by CIE Lab or spectral data.

These indicative colors present in the reference file are used by **MeasureTool** to display approximately the colors of the reference file, even before any measurement the according chart. But these indicative colors in the reference file are not used by **i1Profiler**, which will not prevent appropriate measurement of the chart.

For **i1Profiler**, it is imperative to respect the nomenclature of patches A1, B1 etc. as mentioned on previous page, which also depends on the number of rows of the measured chart, since the patches are arranged in the reference file by column, and not by row.

10-3) Displaying CGATS reference files in a graphic manner:

Drag and drop your CGATS reference text file onto the main window of **MeasureTool** or **Colorlab** applications: Although your reference files do not contain any colorimetric or spectral measurements, you will immediately see the type of color chart described by your reference file.



11) Drawing CMYK or N-Color printable charts from their CGATS reference file:

Each **Colorsource** application comes with all the necessary CGATS reference files and corresponding printable charts. We recommend that you first use the standard charts and reference files supplied with each application.

You can also specify your own color targets by a CGATS reference file, and then generate from this reference file the corresponding printable color chart:

a) If you own a **ProfileMaker** key, you can use the **MeasureTool** charts' generator to produce a printable chart from any CGATS reference file. However, the generated charts often have an inconvenient and unnecessarily cumbersome geometry for use as a calibration bar on the press, so that the following solution is better, and free of charge:

b) Free **Colorlab** software allows you to generate your CMYK printable chart from any CGATS text reference file (Do **Filter/Layout and Format/Test Chart Define**). **Colorlab** also allows you generating printable N-CLR charts from N-CLR text reference files, with 4 to 8 colors: The generated chart is a TIF with alpha channels to be imported in Photoshop and then converted into multilayer .eps. Simply name each layer and assign it a Lab color for a more pleasant or realistic display.

Download link of the **Colorlab** software: <u>https://www.xrite.com/service-support/downloads/c/colorlab-utility-freeware-v281x</u>

12) Create custom color targets to be used as Fingerprints by MagicPress, MagicPrepress and Magic_Proof_&_Print_Control, from CMYK or N-Colors I.C.C. profiles:

Colorsource applications allow you choosing for aim standard any of the **ISO 12647-2**, **12647-3**, **12647-4**, **12647-6**, **G7/IDEAlliance**, or **WAN-IFRA** public CMYK print standards.

Colorsource applications allow you as well specifying **your own private CMYK or N-Colors aim printing standards** by specifying them by a **Fingerprint**.

A **Fingerprint** is a CMYK or N-CLR press characterization file that can be declared to be the aim standard to be matched. A **Fingerprint** measurement file can be established by measuring a reference press characterization test chart (Averaging a few press' characterization measurement files is even better).

A **Fingerprint** measurement file can also be computed from any existing CMYK or N-CLR press I.C.C. profile, such as for example "**Euroscale.ICC**" or "**USSheetFed_coated.icc**" CMYK profiles.

Colorlab v2.8.13 application allows computing for any CMYK or N-Colors chart specified by its CGATS text reference file, the Lab colors that will be obtained on paper: This makes it easy to obtain the colors in the form of a CGATS text file C.I.E. Lab targets any frame for any ICC profile.

Of course, this also works for the chart reference files supplied with **Colorsource** applications, which allows you to very quickly calculate your **aim** colors according to any ICC profile for **MagicPress**, **MagicPrepress** and **Magic_Proof_&_Print_Control** applications, then use these colors in their **Fingerprint** tab.

Download link of the **Colorlab** software: <u>https://www.xrite.com/service-support/downloads/c/colorlab-utility-freeware-v281x</u>



How to measure your proof and press control and calibration bars with i1Pro, i1Pro 2 and i1Pro 3

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