USING EPSON® STYLUS PRO 7900/9900 WITH AN ONBOARD SPECTROPHOTOMETER

EFI Colorproof XF and EFI Fiery XF v3.1.8 & Print Pack support the new large-format Epson Stylus Pro 7900/9900 printer as a contone driver.

One of the most important features of this printer is the optional embedded spectral measuring device (Epson SpectroProofer™ powered by X-Rite LS20EP). Two versions are available: a non-UV and a UV cut device, with changable white or black backing.

The measuring device has some interesting new features for checking device and media, as well as for reliable remote status control.

As a further important new feature, the device supports the new generation of 11-color Espon inks known as the Ultrachrome HDR (High Dynamic Range) ink set. This ink set includes Orange and Green full-tone channels, making it particularly interesting for the packaging and flexographic market, as well as for spot color support. Thus, the device is suitable for production and contract proof, as well as for fine-art and photographic applications.

New in Epson's MicroPiezo TFP™ (Thin Film Piezo) printing technology are the absolutely spherical dots, double the number of nozzles and a resolution of up to 2880 dpi with an increased speed of up to 40m² per hour.

The printer has both Matte and Photo Black inks onboard, which fully does away with the need to exchange ink cartridges. You simply make the black ink selection at the printer's control panel.

What about the gamut?

When compared to ISOcoated v2 the Orange/Green ink enlarges the gamut, particularly in bright orange and green areas.

Gamut comparison

1 **Red: Epson Stylus Pro x900 Ultrachrome HDR on EFI Gravure 4245 Semimatt**

2 **ISOcoated_v2.icc**
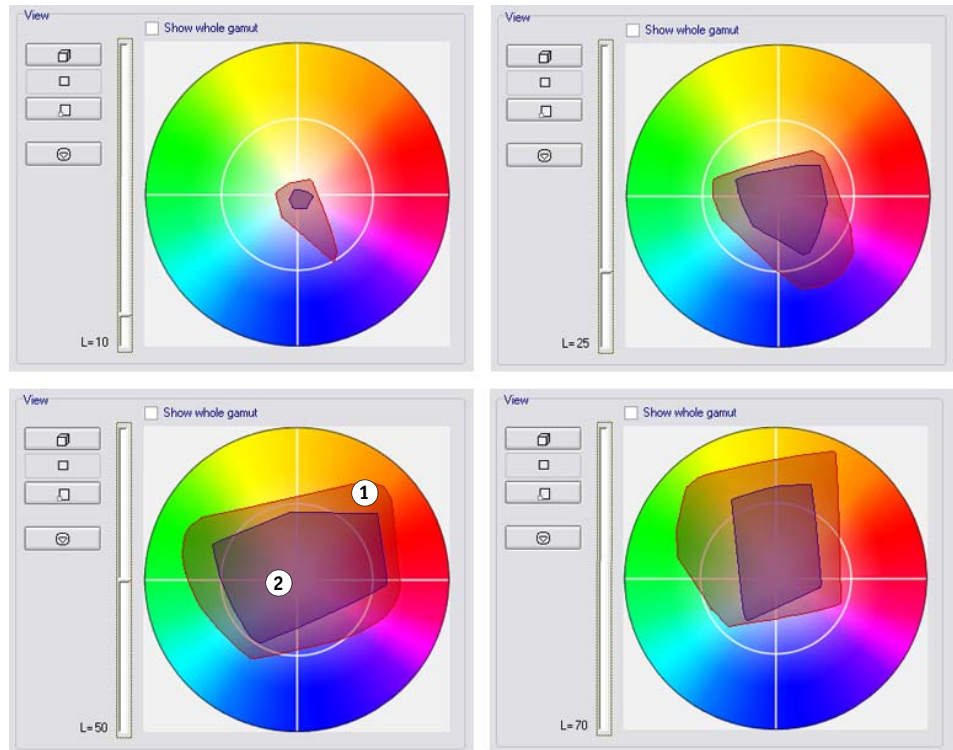
When checked with the Pantone library (XF Pantone), 93% of the gamut is covered.

Overview of output device and EFI software suite

Software Media Name	Input Resolution (dpi)	Printer Resolution (dpi)	Print Quality	Black Ink Type	Printer Media Name
Premium Glossy Photo Paper	360 x3 60 720 x 720	720 x 1440	Normal	Photo	
Premium Semigloss Photo Paper	360 x 360 720 x 720	720 x 1440	Super		
Premium Luster Photo Paper	360 x 360 720 x 720	2880 x 1440	Super		

Software Media Name	Input Resolution (dpi)	Printer Resolution (dpi)	Print Quality	Black Ink Type	Printer Media Name
Premium Glossy Photo Paper (250g)				Photo	• Premium Glossy Photo Paper (250g)
Premium Semigloss Photo Paper (250g)					
Premium Luster Photo Paper (260g)					
Premium Semimatte Photo Paper (260g)	360 x 360 720 x 720	720 x 720	Normal		
Premium Glossy Photo Paper (170g)	360 x 360 720 x 720	720 x 720	Super		
Premium Semigloss Photo Paper (170g)	360 x 360 720 x 720	720 x 1440	Normal		
Photo Paper Glossy (250g)	360 x 360 720 x 720	720 x 1440	Super		
Premium Glossy Photo Paper (250g) Duty Up	360 x 360 720 x 720	2880 x 1440	Super		
Epson Proofing Paper White Semimatte[1]				Photo	• Epson Proofing Paper White • Epson Proofing Paper Publication • Epson Proofing Paper Commercial • Epson Proofing Paper White Semimatte
Epson Proofing Paper Publication[1]					
Epson Proofing Paper Commercial[1]	360 x 360 720 x 720	720 x 720	Normal		
Epson Proofing Paper White Semimatte (Wide Gamut)[2]	360 x 360 720 x 720	720 x 720	Super		
Epson Proofing Paper Publication (Wide Gamut)[2]	360 x 360 720 x 720	720 x 1440	Super		
Epson Proofing Paper Commercial (Wide Gamut)[2]	720 x 720 1440 x 1440	1440 x 1440	Super		
Epson Proofing Paper White Semimatte DutyUp[3]	360 x 360 720 x 720	2880 x 1440	Super		
	360 x 360	720 x 360	Normal	Matte	
Synthetic Paper	360 x 360 720 x 720	720 x 720	Normal		
Enhanced Synthetic Paper	360 x 360 720 x 720	720 x 720	Super		
Velvet Fine Art Paper				Matte	• Velvet Fine Art Paper • Watercolor Paper - Radiant White • Textured Fine Art Paper • UltraSmooth Fine Art Paper
Watercolor Paper - Radiant White	360 x 360 720 x 720	720 x 1440	Normal		
Textured Fine Art Paper	360 x 360 720 x 720	720 x 1440	Super		
UltraSmooth Fine Art Paper	360 x 360 720 x 720	2880 x 1440	Super		

Velvet Fine Art Paper (Photo Black)				Photo	• Velvet Fine Art Paper • Watercolor Paper - Radiant White • Textured FineCanvas (Photo Black) Art Paper • UltraSmooth Fine Art Paper
Watercolor Paper - Radiant White (Photo Black)					
Textured Fine Art Paper (Photo Black)	360 x 360 720 x 720	720 x 1440	Normal		
UltraSmooth Fine Art Paper (Photo Black)	360 x 360 720 x 720	720 x 1440	Super		
Canvas (Photo Black)	360 x 360 720 x 720	720 x 720	Normal	Photo	Canvas
	360 x 360 720 x 720	720 x 720	Super		
	360 x 360 720 x 720	720 x 1440	Normal		
	360 x 360 720 x 720	720 x 1440	Super		
Canvas	360 x 360 720 x 720	720 x 720	Normal	Matte	Canvas
	360 x 360 720 x 720	720 x 720	Super		
	360 x 360 720 x 720	720 x 1440	Normal		
	360 x 360 720 x 720	720 x 1440	Super		
• Single-weight Matte Paper • Double-weight Matte Paper	360 x 360	720 x 360	Normal	Matte	
	360 x 360 720 x 720	720 x 720	Normal		
	360 x 360 720 x 720	720 x 720	Super		
	360 x 360 720 x 720	720 x 1440	Normal		
	360 x 360 720 x 720	720 x 1440	Super		
Single-weight Matte Paper (Line Drawing)	360 x 360	720 x 360	Normal	Matte	Single-weight Matte Paper
	360 x 360 720 x 720	720 x 720	Normal		
	360 x 360 720 x 720	720 x 720	Super		
	360 x 360 720 x 720	720 x 1440	Super		

Software Media Name	Input Resolution (dpi)	Printer Resolution (dpi)	Print Quality	Black Ink Type	Printer Media Name
	360 x 360 720 x 720	720 x 720	Normal	Matte	• Enhanced Matte Paper • Archival Matte Paper • Enhanced Matte Poster Board
	360 x 360 720 x 720	720 x 720	Super		
Enhanced Matte Paper	360 x 360 720 x 720	720 x 1440	Normal		
Archival Matte Paper	360 x 360 720 x 720	720 x 1440	Super		
Enhanced Matte Poster Board	360 x 360 720 x 720	2880 x 1440	Super		
Enhanced Matte Paper (Photo Black)				Photo	• Enhanced Matte Paper • Archival Matte Paper • Enhanced Matte Poster Board
Archival Matte Paper (Photo Black)	360 x 360 720 x 720	720 x 1440	Normal		
Enhanced Matte Poster Board (Photo Black)	360 x 360 720 x 720	720 x 1440	Super		

*1 Wide gamut conscious mode
*2 Primary color linearity conscious mode
*3 This is a 5% DutyUP mode for 3rd party media.

How to profile?

You can use the output device as a normal printer with your traditional measuring device. If you prefer to use the embedded spectrophotometer, choose Epson SpectroProofer in the drop-down list box in the first step of Color Manager.

Make sure that you make the right ink setting! If you want to use matte Black, you need to switch the ink at the printer's control panel (depicted by a black ink droplet) and choose the correct ink type in Color Manager.

As the printer is supported as a contone driver, the linearization file should be modified as little as possible. The Epson library always applies the best combination of inks for the selected media type, so this setting is very important.
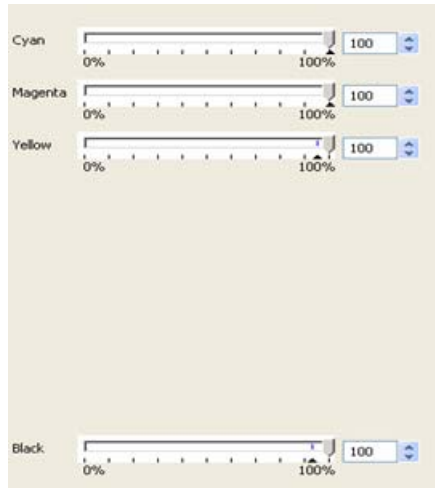
However, it may be useful to reduce the maximum TIL if 400% is not suitable for the selected media. For matte papers the value can be reduced to 250%.

The easiest way to ascertain whether the TIL is too high is to have a look at the reverse side of the media. No ink should soak through the media and there should be no cockling. A little over-inking may be acceptable if you allow time for the ink to dry.

The recommended dot gain setting is 0, as this works perfectly with the contone library.
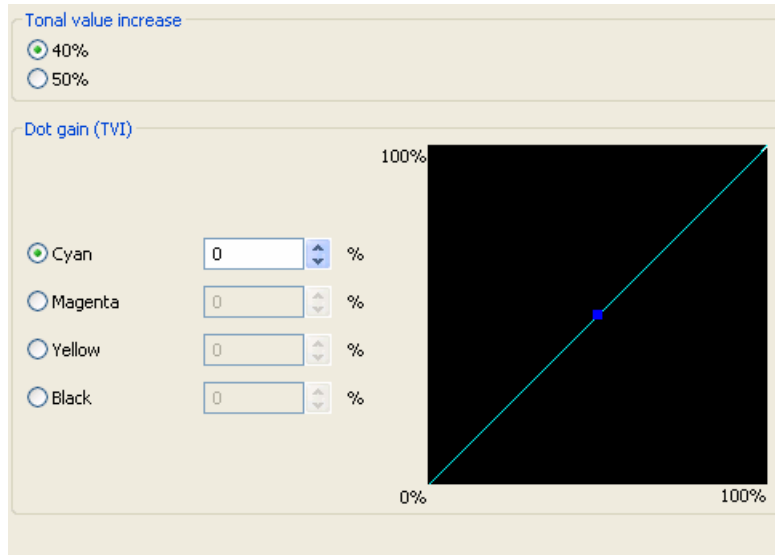
An uncalibrated output may give the impression that there is "something wrong", but this depends on the technology. In the final profiled, color-managed version the gamut should be the same as usual, fit well to ISOcoated and be optimized to good results in a single cycle. This is because the Epson Contone Library uses an internal exchange look-up table for the conversion from CMYK to CMYKOG plus light inks (similar to a device link profile).

Result comparison with ISOcoated v2 (Fogra 39L)

For proofing it is recommended that you use the Epson Proofing Paper White Semimatte media set. To verify ISOcoated v2 compliancy we compared a profile created for Proof Media EFI Gravure Proof Paper 4245 Semimatt with the characterization data. The profile created with the Epson SpectroProofer measuring device showed good results after the optimization.

The results for the full tone colors were also good.

If you do not want to purchase the optional Espon SpectroProofer you can also achieve ISO-compliant results (Fogra 39L) using an EFI ES-1000 or an X-Rite iSis measuring device.

Below are the results achieved using an iSis measuring device for profiling and verifying.
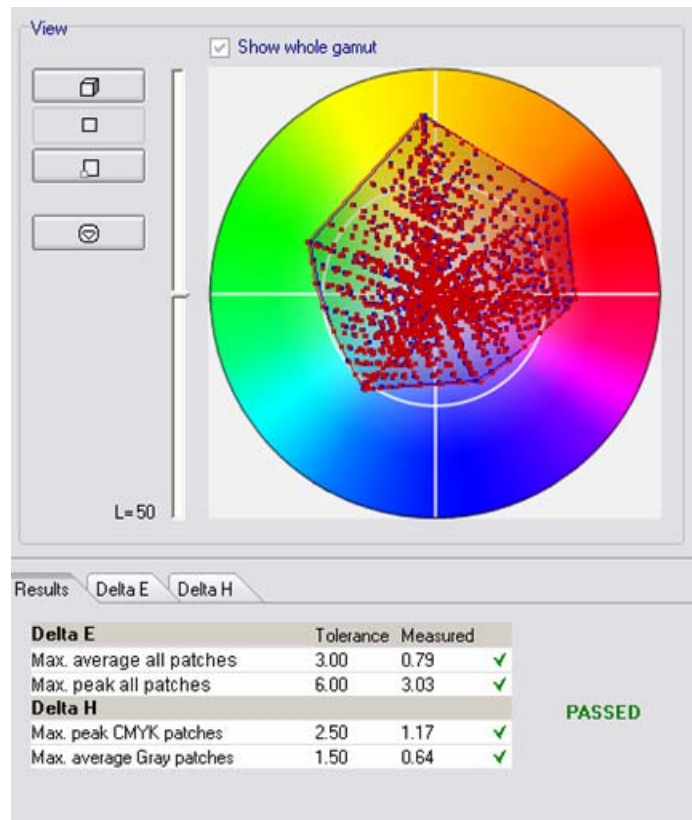
Once again, the results for the full tone colors were also good.

But what is the compatibility of the Epson SpectroProofer to conventional measuring devices?

If you compare, for example, the first optimization (it8.7/4) of Epson SpectroProofer with X-Rite iSis, you will achieve the following results.

Delta E	Tolerance	Measured	
Max. average all patches	3.00	0.97	✔
Max. peak all patches	6.00	2.98	✔
Delta H			
Max. peak CMYK patches	2.50	1.42	✔
Max. average Gray patches	1.50	0.30	✔

PASSED

Primary color max. peak delta E

		Tolerance	Measured	
	Cyan	5.00	0.61	✔
	Magenta	5.00	0.47	✔
	Yellow	5.00	1.75	✔
	Black	5.00	0.57	✔
	White	3.00	0.93	✔
	CMYK	5.00	0.85	✔

The overall difference is up to delta E 1. The main deviation seems to be in Yellow.

Hue differences

		Tolerance	Measured	
	Max. peak Cyan	2.50	0.56	✔
	Max. peak Magenta	2.50	0.10	✔
	Max. peak Yellow	2.50	1.42	✔
	Max. peak Black	2.50	0.08	✔
	Max. average Gray	1.50	0.30	✔

Verification

Job verification requires the following steps:

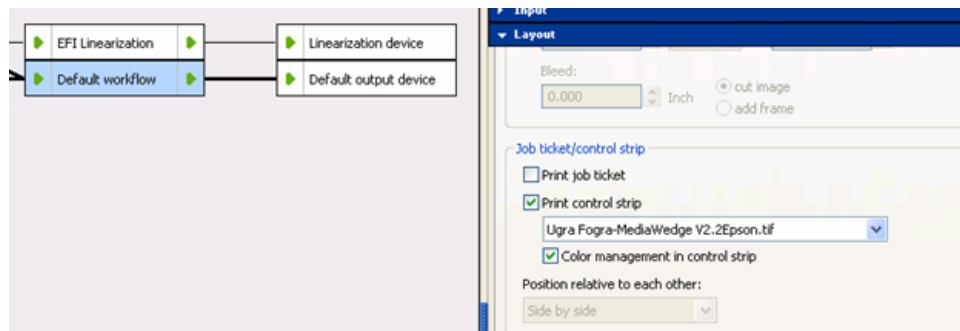**1 Open the Color Verifier tab for the workflow.**
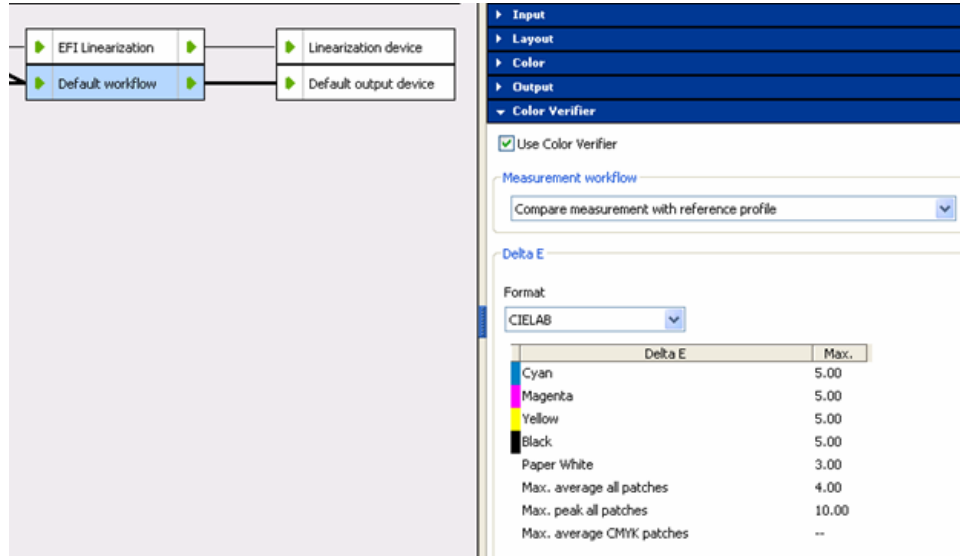
2 Select the check box Use Color Verifier.

You can see the deviation tolerances permitted in accordance with ISO 12647-7.

3 Go to the Layout tab and choose the media wedge you want to attach.

For the Epson SpectroProofer the Fogra media wedges 2.2 and 3.0 are available.

**4 Go to Job Explorer and load the job you want to be verified.**

The job is printed and job processing stops at 95% until the measuring process has been completed.
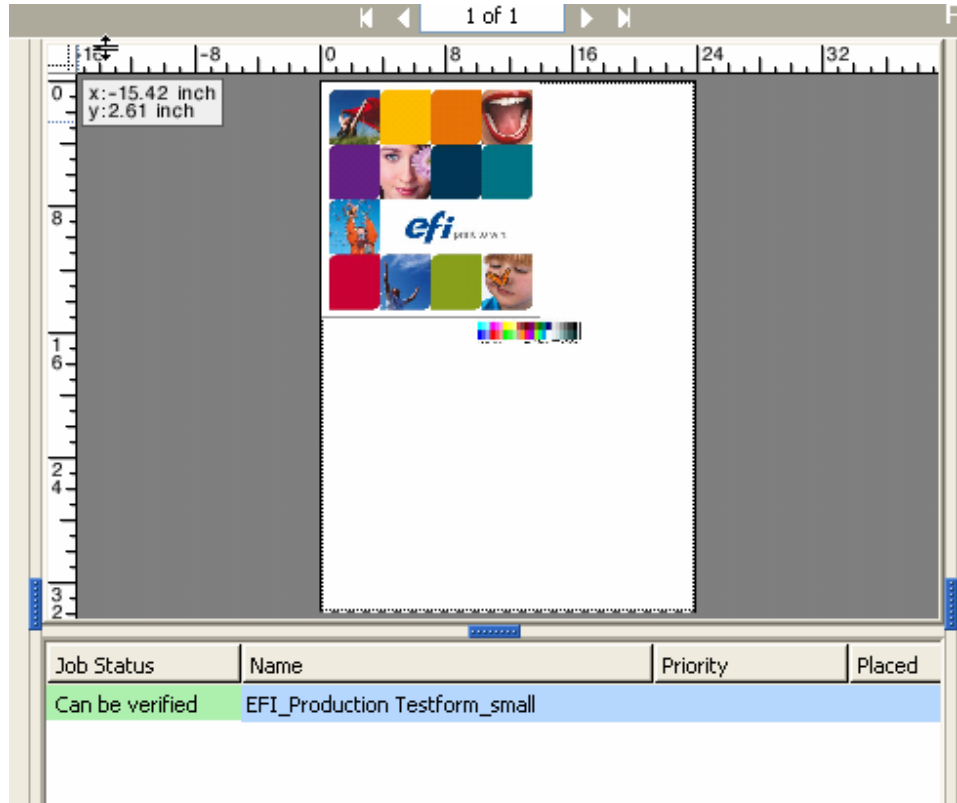
When the measurement is finished, the job info changes to green and displays the job status "Can be verified".

5 Open Color Verifier and wait for the measurement result to be displayed.

If the job has been measured you can see the information on the right side of the Color
Verifier window.
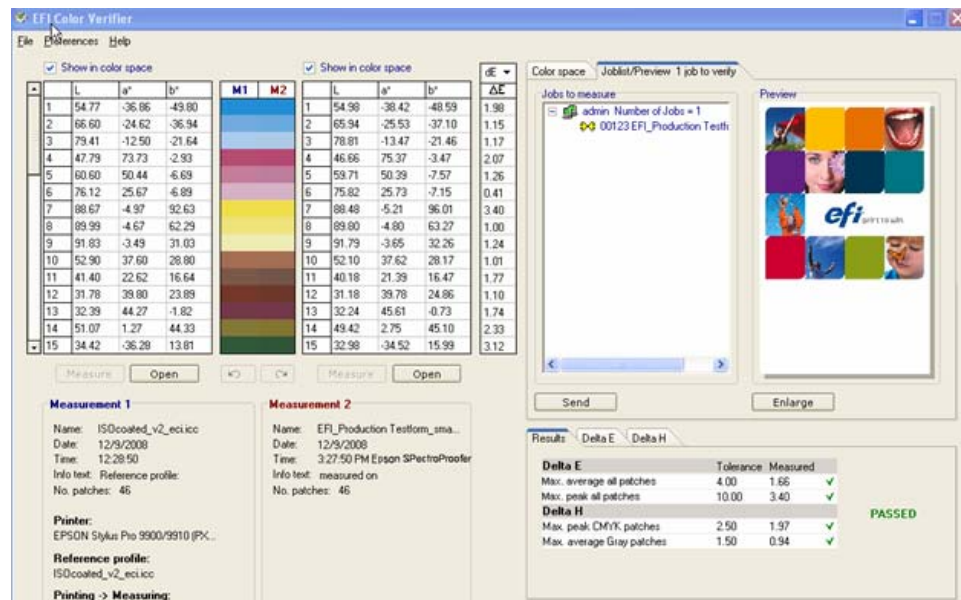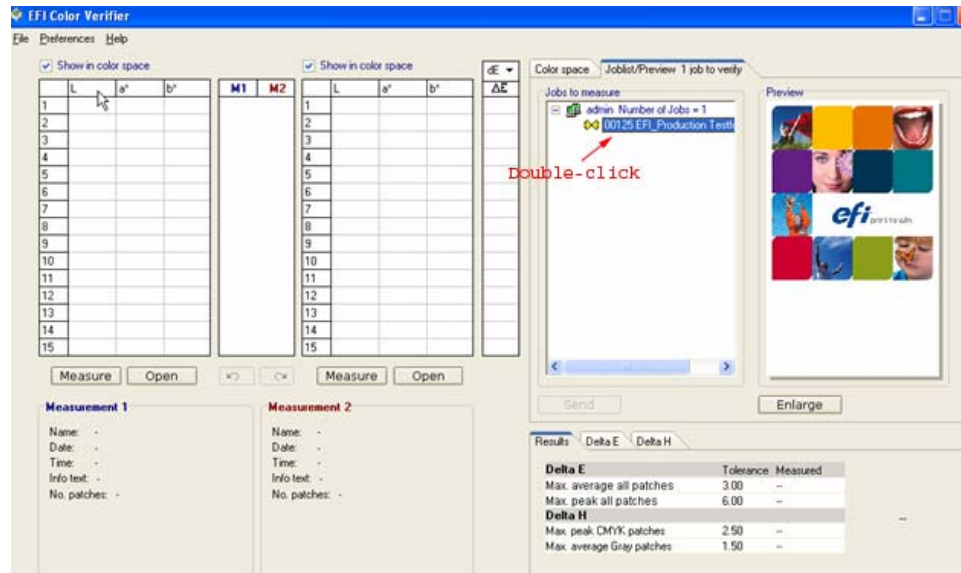
Gamut with Orange/Green

The following media profiles are available:

Proof/Photo

- EFI Gravure Proof Paper 4245 Semimatt
- EFI CertProof Paper 6225 Semimatt
- EFI Offset Proof Paper 9200 Semimatt
- EFI Flexo Proof Glossy Film
- EFI Proof Paper 9120 XF Matt (photo black Ink)
- EFI Proof Paper 9120 XF Matt (matt black Ink)
- EFI Photo Paper Classic Baryt 4270 Satin
- EFI Photo Paper 4250 Glossy

Epson

- Espon Premium Luster Paper (250g)
- Epson Standard Proofing Paper

Further EFI media as well as the main Epson media will be added and be made available via the Profile Updater.

Summary

The new Espon Stylus Pro printer is an easy-to-use device with interesting new features and capabilities. Speed is much improved and the gray balance for RGB photo prints is smooth and neutral.

With matt black, the darkest black enables a high dynamic range and contrast. The advanced Orange and Green area offers new possibilities in flexoproof and spot color simulation. The optional high-quality embedded measuring device makes light work of digital printing.