Off-Press Proof Application Data Sheet

GMG ColorProof Epson x900 series printers using GMG ProofPaper semimatte 250 for SWOP #5

The IDEAlliance Print Properties Working Group has established a certification process for off-press proofs as input material to publications. In accordance with this process: "The appearance of a hard copy or soft proof used in this application must have the ability to closely match specific CGATS or other documented characterization data sets within outlined tolerances. See further explanations and recommendations on www.swop.org or www.gracol.org.

The following information is intended to assist producers and consumers in using proofing materials specified by the vendor in an off-press proof application:

I. Manufacturer

GMG Americas
35 Pond Park Road, Suite17
Hingham, MA 02043-4366
781.740.4077

II. Product

Certified 12/20/2010

GMG ColorProof – Epson x900 printer using Epson Inks and GMG ProofPaper semimatte 250 SWOP #5

III. Introduction

The GMG ColorProof color management software combined with the Epson x900 inkjet printer provides a contract-quality proofing system in ContoneProof mode.
The GMG ColorProof software includes four main components that are part of the standard software package:

- GMG ColorProof with 4-D GMG color engine
- GMG ProfileEditor
- GMG RIP Server for PDF and PostScript®
- GMG SpotColor Editor

The GMG ColorProof software can drive up to three printers in parallel without compromising quality or performance. All connected printers will meet the color requirements for SWOP® compliant proofing.

IV. Control Guide

IDEAlliance specifies that control aids such as an ISO 12647-7 Digital Control Strip 2007 should be printed on each off-press proof. As a minimum requirement, any control strip used for proofing applications should contain solid patches for the primary process colors (YMCK), two-color overprints (RGB), and a three-color overprint (YMC), as well as a 25%, 50%, and 75% tint in stated line screen resolution of each of the primary process colors and 3-color gray patches. The accuracy of the original values should be verified for all control strips. Use and interpretation of a control guide is the responsibility of the creator.

GMG recommends usage of the IDEAlliance ISO 12647-7 Digital Control Strip v2.

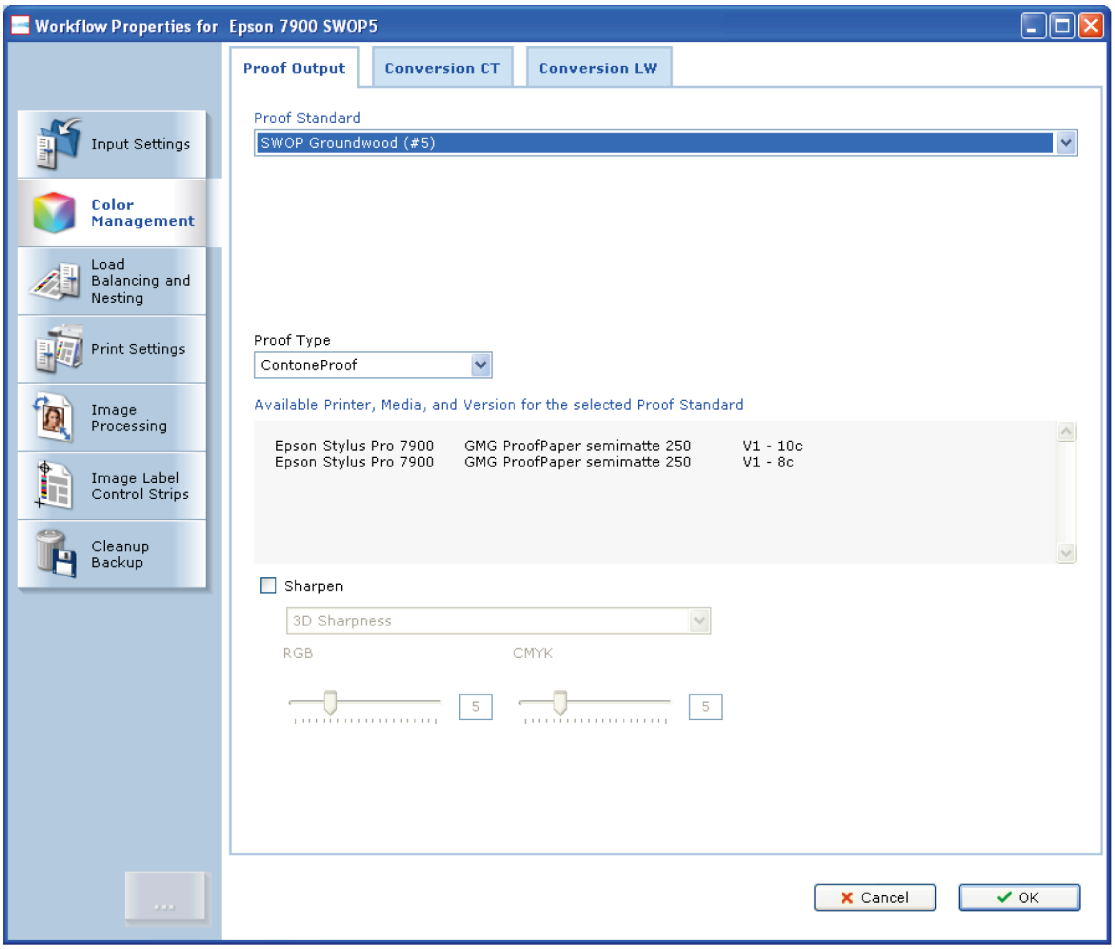
V. System Components

The following GMG ColorProof components and calibration procedures must be used to achieve conformance with this specification:

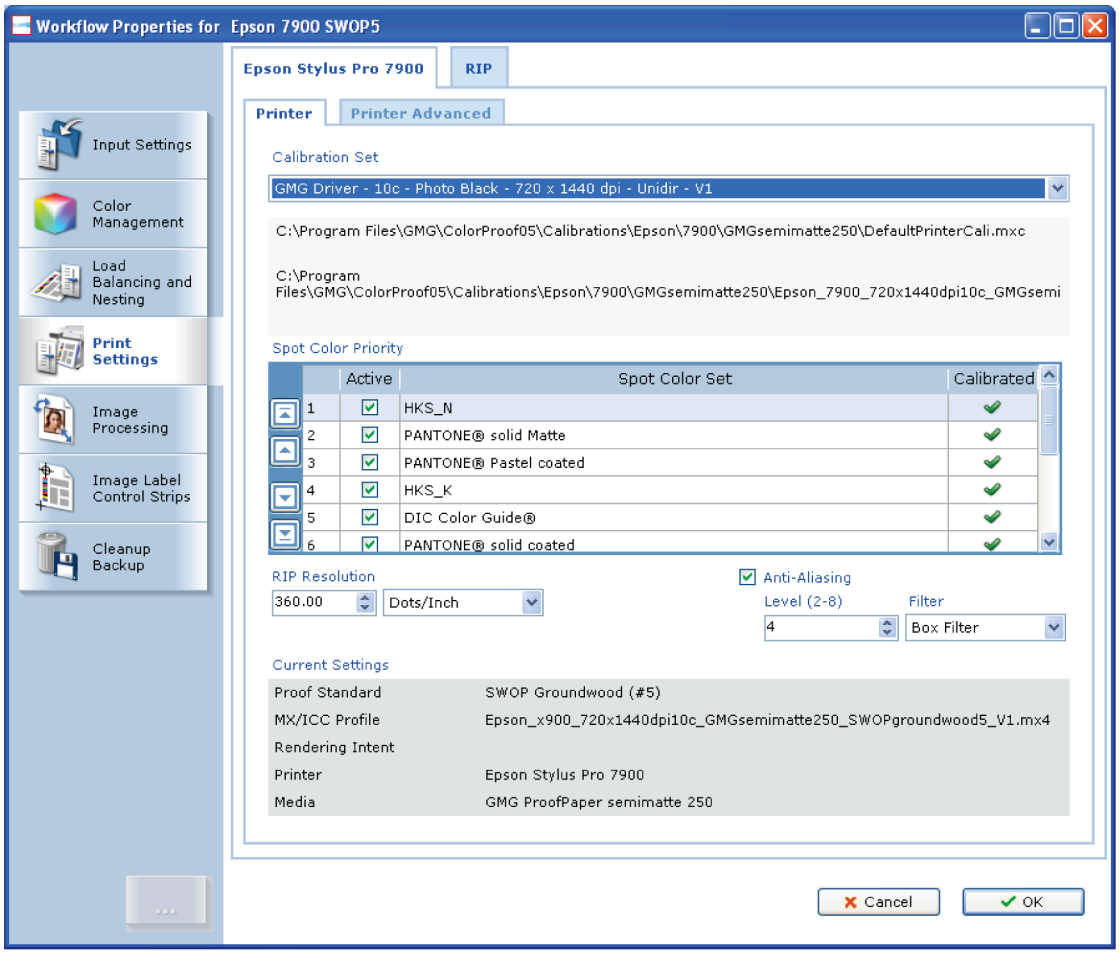
- GMG ColorProof Off-Press Proofing System Components
- GMG ColorProof Software 5.2 or later
- Epson x900 series printer with Epson UltraChrome HDR Inks
- GMG ProofPaper semimatte 250

• Hotfolder / Workflow Setup:
To follow this ADS sheet you will need to have the Epson x900 installed for use in ColorProof and have at least one Hotfolder/Workflow setup. Complete instruction on how to set up a Hotfolder and Workflow can be found in the CPo5Manual. The Interactive Help can be accessed from within ColorProof by pressing the F1 Key, (or in the PDF located in C:\Program Files\GMG\ColorProof05\Documentation\GMG-CP05_Manual_en.pdf.) (Section 7.3)

1. To configure your Workflow to print SWOP #5 proofs, open the Workflow Properties window.
2. Click **Color Management** (2nd option down on left-hand column).
3. Under **Proof Standard,** select SWOP Groundwood (#5)
   Choosing this will display the available calibration sets specified in this Proof Standard.
   Under **Proof Type** only Contone Proof will be available



4. Next select **Print Settings** (4th option down on left)
5. On **Printer** Tab, from the Calibration Set dropdown menu
   select: **GMG Driver 10c PhotoBlack – 720 x 1440 dpi – Unidir – V1**



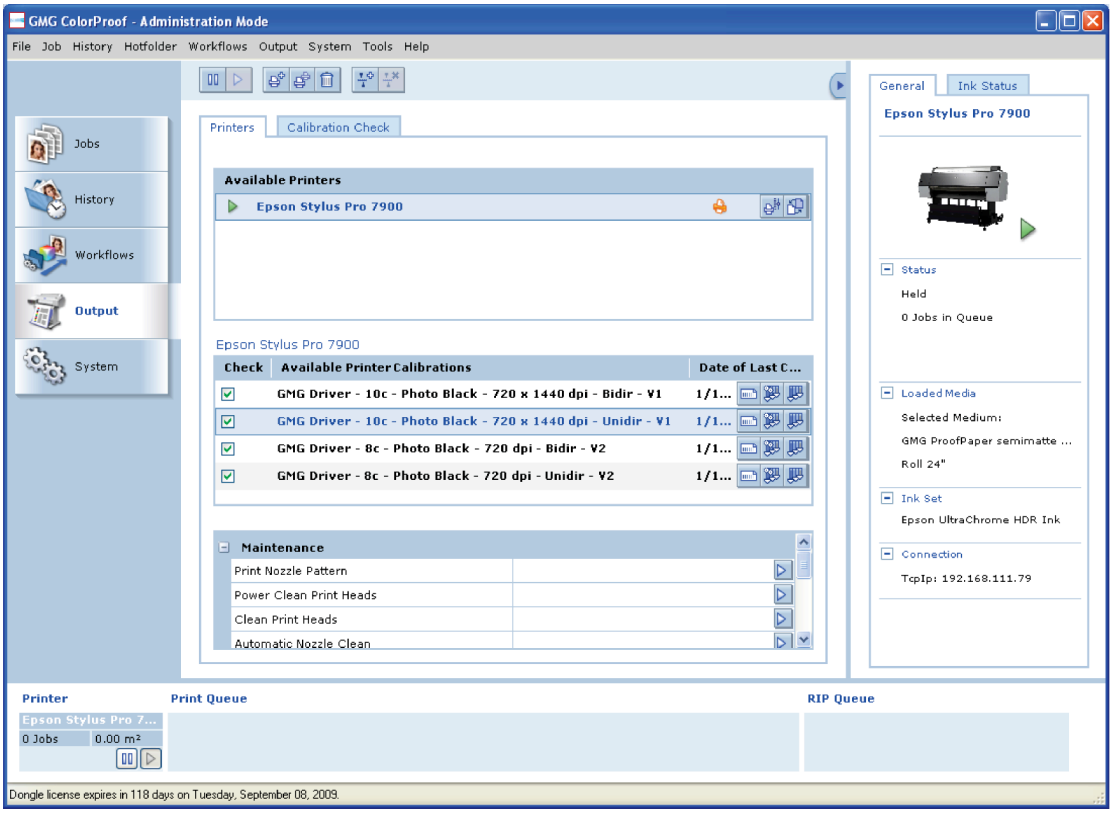
Printer Calibration Procedure

Once the Workflow is configured, the Printer needs to be calibrated to meet SWOP proofing requirements
The Epson x900 printer must be calibrated using GMG ColorProof AutoCalibration Wizard.

GMG AutoCalibration Wizard is used to calibrate printers with an integrated measuring device such as the Epson Stylus Pro 4900, 7900 and 9900.. With the integrated measuring device, the whole process is fully automated. You can use the **Scheduler** to run calibrations at regular intervals. The wizard will lead you through all steps required.

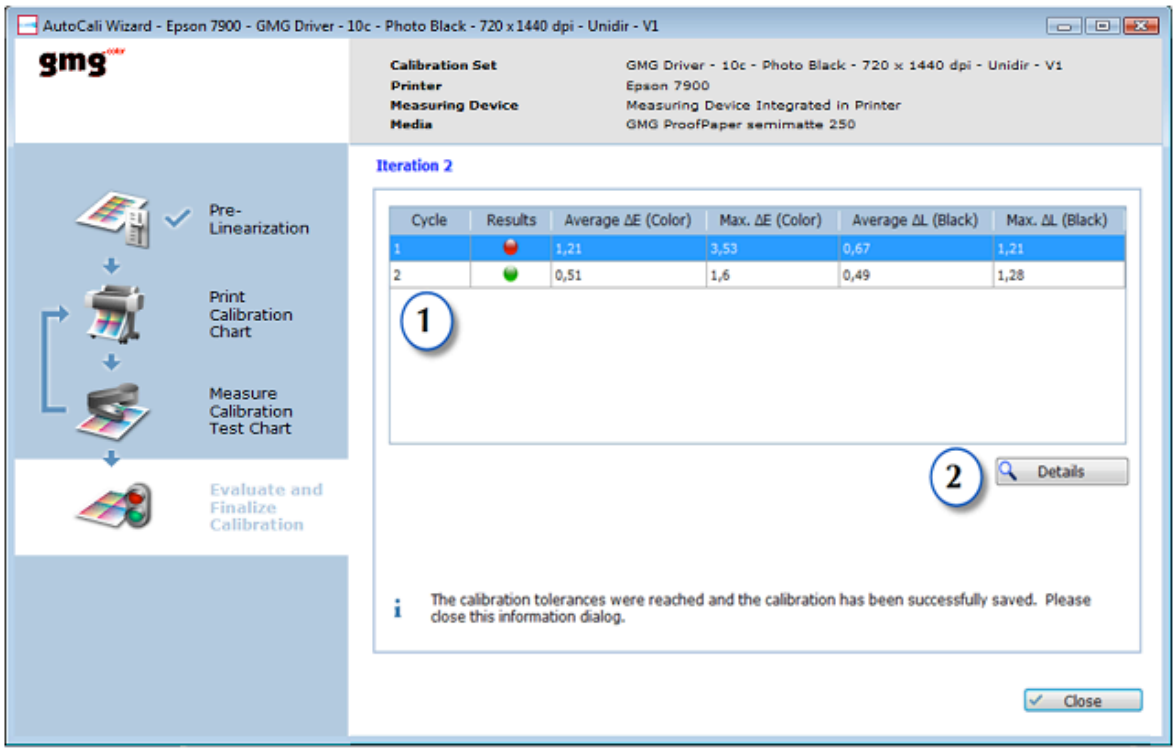
How to start GMG AutoCali Wizard

1. Click the **Output** button on the navigation panel on the left of the main window.
2. Select the your printer from the **Available Printers** list. In this example we use the Epson 7900.
3. From **Available Printer Calibrations** list.select **GMG Driver 10c PhotoBlack – 720 x 1440 dpi – Unidir – V1**
This is the calibration set specified during workflow setup.
4. Click the **AutoCali Wizard** button on the right side of the calibration set. The GMG AutoCali Wizard is started.



5. Follow the instructions of the wizard.

The iteration cycle continues until the measured values are in the **tolerances** of the target values.
The printer calibration file with the new output values is automatically saved after a successful calibration.



GMG AutoCali Wizard after successful calibration.

In the above example, the measured (current) values of the first iteration cycle were outside the tolerances defined in the **Quality Criteria** of the calibration set. Therefore, **Print** and **Measure** steps have been repeated in a second iteration cycle. The output values for iteration 2 are derived from a calculation based on the first iteration, resulting in acceptable values. The status is set to calibrated and the printer can be used. The updated calibration file is saved.

A successful calibration can normally be reached in less than 3 iterations. If the calibration tolerances cannot be reached, make sure the proper printer maintenance has been performed including nozzle checks and print head cleanings, then try calibrating again.

Once the workflow is configured and the printer is calibrated, all necessary steps are complete.

VI. Finishing Procedures

By using the GMG ColorProof off-press proofing system, described in this ADS, no finishing procedure is required.

VII. Finished Proof Characteristics

A proof with the color characteristics referenced in Appendix 1 is to be expected when measured from the IDEAlliance ISO 12647-7 Digital Control Strip 2007 having been properly made to all the listed system components and finishing procedures.

Note: Three-color grays are comprised of Cyan, Magenta, Yellow: 75, 66, 66; 50, 40, 40; and 25, 19, 19 values.

All measurements to control and verify SWOP and GRACoL proofs must be done with the X-Rite Eye One Pro (D50, 2 degree observer, no UV cut filter, white backing).

VIII. Sample Proofs

GMG Americas has supplied three (3) sets of hard copy proofs for retention that conform to this Application Data Sheet by an IDEAlliance certifying contractor.

Appendix 1
Characterization Data CIELab Values

IDEAlliance ISO 12647-7 Digital Control Strip 2007 for SWOP 2006 Coated #5

Patch ID Top	CIELab Data			Maximum
	L*	a*	b*	CIE ΔLab
A1	32.65	-22.26	-23.31	-
A2	56.56	-37.98	-40.93	5
A3	64.70	-26.67	-29.70	-
A4	78.29	-11.19	-11.42	-
A5	26.42	40.29	-3.23	-
A6	47.64	69.97	-3.54	5
A7	58.14	49.08	-2.95	-
A8	75.88	19.59	0.11	-
A9	47.09	-4.83	44.51	-
A10	85.43	-5.82	84.62	5
A11	86.28	-5.18	60.33	-
A12	88.09	-2.76	26.91	-
A13	54.38	-50.05	-13.62	-
A14	37.79	50.15	-21.11	-
A15	68.36	21.69	65.39	-
A16	48.86	15.14	31.31	-
A17	40.69	32.61	12.52	-
A18	33.04	22.15	-14.98	-
A19	51.08	-17.54	25.50	-
A20	36.75	-2.64	-22.16	-
A21	87.97	-0.06	3.85	-
A22	83.35	-0.16	3.31	-
A23	73.53	-0.34	2.37	-
A24	56.84	-0.35	1.34	-
A25	38.89	0.04	0.98	-
A26	27.07	0.55	1.06	-
A27	19.00	1.01	1.18	5

Patch ID Bottom	CIELab Data			Maximum
	L*	a*	b*	CIE ΔLab
B1	15.76	11.76	-23.91	-
B2	26.54	18.56	-42.01	5
B3	40.30	15.39	-31.31	-
B4	65.80	7.14	-13.75	-
B5	26.49	34.78	21.45	-
B6	47.43	64.38	42.74	5
B7	57.01	44.95	36.24	-
B8	74.61	17.32	19.99	-
B9	30.65	-35.02	14.67	-
B10	52.26	-61.49	26.76	5
B11	61.52	-39.10	20.93	-
B12	76.68	-14.80	10.89	-
B13	44.23	-17.41	-40.21	-
B14	47.52	67.23	15.19	-
B15	70.77	-24.24	58.75	-
B16	66.70	19.12	19.70	-
B17	51.52	34.92	26.64	-
B18	40.31	31.25	24.75	-
B19	45.31	-25.37	-1.12	-
B20	90.06	-0.01	4.14	-
B21	87.67	0.00	3.75	-
B22	82.19	-0.02	3.09	-
B23	71.47	-0.07	2.12	-
B24	54.70	-0.44	1.24	-
B25	39.10	-0.23	1.19	-
B26	24.73	0.21	-0.12	-
B27	10.04	0.30	0.53	5

Note: Color measurements comparing measured proof data to this reference data requires the use of a calibrated spectrophotometer.