

SWOP™ Application Data Sheet



QUATO Intelliproof 213 Soft Proofing System

using Adobe Photoshop CS2
and ICS Remote Director

The SWOP™ Review Committee has approved the use of off-press proofs as input material to publications. SWOP Specifications recommend that: “the appearance of an off-press proof must closely simulate a SWOP press proof.”

1. Manufacturer: **Quatographic Technology Gmbh**

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2. Products: **Quato Intelliproof 213 TFT Display** **Quato IColor Software** **ICS Remote Director 3.2**

Also Required:
X-Rite DTP94 Optix Colorimeter
Adobe Photoshop CS2
GTI Viewing Booth

3. Introduction

The Quato Intelliproof 213 TFT precision display with IColor software provides a completely integrated calibration and profiling solution that allows users to create SWOP Certified soft proofs using Adobe Photoshop CS2.

When combined with ICS Remote Director, the Quato Intelliproof 213 TFT display provides a Remote Soft Proofing solution with additional calibration and verification to the SWOP Certified Application Data Sheet.

4. Control Guide

SWOP specifies that a control guide such as the SWOP Proofing Bar or other suitable guides that meet these requirements be supplied on every off-press proof. As a minimum, this guide should contain solids of the primaries and two color overprints, as well as a 75%, 50% and 25% tint of each of the process colors. Including a control strip in each soft proofed image is the responsibility of the user.

Quato provides a Quato_SWOPcontrolbar_horiz.tif file for use in verification in Adobe Photoshop CS2.

ICS provides a SWOP control bar for use in verification in Remote Director.

5. System Components/Set Up Conditions

QUATO Intelliproof 213 Soft Proofing System with ICS Remote Director

- QUATO Intelliproof 213 Precision TFT Display
- QUATO IColor software
- ICS Remote Director 3.2
- X-Rite DTP94 Optix Colorimeter
- Viewing Booth
- Environment

QUATO Intelliproof 213 Soft Proofing System with Adobe Photoshop CS2

- QUATO Intelliproof 213 Precision TFT Display
- QUATO IColor software
- X-Rite DTP94 Optix Colorimeter
- Adobe Photoshop CS2
- Viewing Booth
- Environment

Environment:

The room where the Quato Intelliproof 213 Proofing system is installed must have controlled lighting. Room lighting incident at the monitor and viewing booth plane MUST not exceed 30% and SHOULD not exceed 10% of the dimmed booth brightness. The room walls should be neutral gray and the room lighting should be D50 color with no direct entry of daylight.

Viewing booth:

A variable-intensity monitor-side viewing station with D50 reflective lighting.

Best: GTI SOFV-1Ex

Good: GTI SOFV-1E or 2E

Acceptable: GTI PDV-3D

Viewing:

Viewing angle is an important consideration when soft proofing. The user should only judge color when sitting directly in front of, and perpendicular to, the display. The viewing station should be angled so that the viewer can make comparisons without changing their viewing angle relative to the display. The section 'Viewing Instructions' explains how to compare a soft proof to a hard copy proof.

Pre-Installation

- Download the Quato Soft Proof SWOP set-up files from the following location and uncompress them to your hard drive
- <http://www.chromaticity.com/quato/quatoswop2006.zip>

Quato Intelliproof 213 and Quato IColor Software

- Install Quato display and IColor software per manufacturer instructions
- Calibrate the display using the following parameters in IColor
 - Hardware Calibration for Intelli Proof Displays
 - Gamma: 2.3
 - White Point: 5000K
 - Luminance: Maximum
 - Profile Calculation: LUT
- After calibration is completed, save the profile as a LUT-profile .
- Select this new profile and activate it according to the instructions in the software.
- Using the Test option in IColor, verify the accuracy of the profile and calibration using the Profile Validation option. The Test process should report all colors with a Delta E CIE 94 result of less than 2.0 Delta E.

Adobe Photoshop CS2

- Locate the ICC profile named “Quato_SWOP_2006_0320.ICC” from the uncompressed SWOP set-up files that you downloaded as part of pre-installation and install it in to the appropriate area of your operating system so that Photoshop can use it.
- From the View Menu in Photoshop choose: Proof Setup, then Custom
- In the Custom dialog, choose the “Quato_SWOP_2006_0320.ICC” profile and make sure that both Preserve CMYK Numbers and Simulate Paper Color are selected. This will ensure that you are properly viewing a SWOP proof in Photoshop.
- Verify your set-up by measuring the “Quato_SWOPcontrolbar_horiz.tif” using the Quato IColor application as directed in section 7 of this document.

ICS Remote Director

- Prior to launching ICS Remote Director place the following files in the appropriate location on the hard drive.
 - Copy the profile: “ICS SWOP Validate.icc” into the Profile directory located in Applications(Program Files)/ICS Color Software/Remote Director/Support/Profiles. Overwrite the existing profile that is already installed in this location
 - ICS Remote Director will also install another profile with this same name in some other location on your hard drive appropriate for your operating system. Locate this directory and also copy this same profile “ICS SWOP Validate.icc” into that location as well, again choosing to overwrite the existing profile
 - Copy the file: “ICS_SWOP_Quato_Display.CIE” into the SWOP Certified Displays directory located in Applications(Program Files)/ICS Color Software/Remote Director/SWOP Certified Displays
 - Launch Remote Director and Select *Prepare Proof...* from the *File* menu, name the job something like “SWOP Test”, and click *OK*.
 - In the palette that follows set *Color Temperature* to D50 and *Luminance* to Maximum, then click *Add Files...*
 - Navigate to the file(s) you wish to proof. Highlight the file or files and click *Add* then *Done*. Your files will be displayed in Remote Director’s main window. NOTE: PDF’s should be rasterized at minimum of 150 DPI (Remote Director default) for proper color viewing.
 - Select *Display – Calibrate* from the menu bar and the Remote Director Display Calibrator palette will appear.
 - Follow the instructions as Remote Director builds the monitor profile. NOTE: This will take several minutes, during which time room lighting must remain absolutely constant. If the ambient room lighting changes for any reason, re-start the calibration process.

- When calibration is finished, the file will be displayed with the default CMYK source profile. Open the *Color Management* palette from the *Tools* menu and select the profile named “ICS SWOP Validate” in the *Source Profile – Custom* popup list. Be sure to activate the radio button alongside the list to make the selection active.

6. Viewing Instructions

This section is included to ensure the best possible comparison between the soft proofing screen and an actual hard-copy proof. Because today’s monitor technologies cannot achieve the illumination intensity of a standard pre-press viewing booth, a soft proof will appear too dark when compared to a hard copy proof illuminated in a standard graphic arts viewing booth. A dimmable D50 viewing booth located alongside the monitor solves this problem.

- Adjust the light intensity of the viewing booth so that the base material (paper) of the hard-copy proof is the same apparent brightness as the simulated paper on the soft proof. To display a large area of simulated proofing paper, slide the *Matte* control in the *Navigation* tool to the right. NOTE: The brightness level to which the viewing booth must be dimmed depends on the age and calibration settings of the monitor, as well as the evenness of light distribution within the viewing booth itself. Owing to the wide range of variables, the dimming process is best governed by subjective judgment rather than instrumentation.
- Note that all viewing booths exhibit some lighting unevenness, usually appearing brighter nearer the light source. This unevenness is typically worse in smaller booths and can significantly affect the apparent match between a soft proof and a hard-copy proof. Viewing booths which illuminate from two or more directions, such as the GTI SOFV-1EX, largely eliminate this problem.
- Check the viewing booth for evenness and decide the best position in which to place the hard copy proof. When viewing very large hard-copy proofs it may be necessary to adjust the booth intensity so that the area of interest is illuminated to the same brightness as the monitor.
- Image size can affect apparent matching quality. For the most critical match, adjust the soft proof to the same magnification as the hard copy proof.

7. Finished Proof Characteristics

A properly prepared SWOP proof on a Quato Intelliproof 213 display can be verified in Adobe Photoshop CS2 using the supplied Quato SWOP Control bar and The Quato IColor application.

A properly prepared SWOP proof on a Quato Intelliproof 213 display can be verified in ICS RemoteDirector 3.2 using the ICS digital SWOP control bar and the SWOP verification tool.

All measurements above were made using a calibrated X-Rite DTP94 Optix Colorimeter. Colorimetric measurements were done under D50 Illuminant, 2° observer.

Verification in Adobe Photoshop CS2

- Open and the file: "Quato_SWOPcontrolbar_horiz.tif" in Photoshop CS2 and set the viewing size of the file to 200% in Photoshop.
- Ensure that Photoshop CS2 is set-up correctly for soft proofing as described in section 5 of this document.
- Launch the Quato IColor application and verify that the calibration and profile are valid to less than a Delta E of 2.0 as described in section 5 of this document.
- Validate the Quato display by following the instruction in the SWOP validation tool. First measure the white patch in the Quato application before moving the proper patches of the "Quato_SWOPcontrolbar_horiz.tif" file in Photoshop in front of the X-Rite DTP94 instrument and measuring each patch in the order instructed.
- The Delta E values should remain less than 3.0 Delta E for a SWOP Certified display system in Adobe Photoshop CS2.
- If the systems passed certification a SWOP logo will appear and a report of the validation process can be saved and printed.

Adobe Photoshop CS2 SWOP Reference Data								
Patch Description	Patch CMYK				Target CIE L*a*b*			Delta E CIE 94 Max Delta E
	% Cyan	% Magenta	% Yellow	% Black	CIE L*	CIE a*	CIE b*	
C100	100	0	0	0	57.4	-27.3	-39.6	3
C75	75	0	0	0	63.8	-26.5	-32.9	3
C50	50	0	0	0	74	-16.9	-20.1	3
C25	25	0	0	0	84	-8.7	-9.4	3
M100	0	100	0	0	48.6	66.8	-2.3	3
M75	0	75	0	0	56.4	53	-3.6	3
M50	0	50	0	0	69	32.2	-2.5	3
M25	0	25	0	0	82.7	14	-1	3
Y100	0	0	100	0	88	-4.5	76.1	3
Y75	0	0	75	0	89.4	-3.9	60.3	3
Y50	0	0	50	0	90.4	-3.7	38.1	3
Y25	0	0	25	0	91.9	-2.1	19.9	3
K100	0	0	0	100	20.8	0.7	2.4	3
K75	0	0	0	75	38.2	-0.1	-0.4	3
K50	0	0	0	50	56.9	-0.4	-0.7	3
K25	0	0	0	25	71.8	-0.7	-0.4	3
R100	0	100	100	0	48.3	62.6	37.3	3
R75	0	75	75	0	55.5	50.3	32.4	3
R50	0	50	50	0	67.5	30.7	24.4	3
R25	0	25	25	0	81.3	11.4	15	3
G100	100	0	100	0	52.3	-56.5	24.2	3
G75	75	0	75	0	59.8	-42.6	18.3	3
G50	50	0	50	0	72.1	-24.3	13.2	3
G25	25	0	25	0	83.3	-11.8	8.1	3
B100	100	100	0	0	27.4	12.9	-42.9	3
B75	75	75	0	0	36.9	16	-35.4	3
B50	50	50	0	0	54.5	12.9	-22.3	3
B25	25	25	0	0	74.3	5.2	-11.7	3
P	0	0	0	0	92.8	0.3	2	3

Verification in ICS Remote Director

- To verify that the displayed proof meets this application data sheet you can measure your display's rendition of a Virtual Proofing Bar using Remote Director's *Verify SWOP* selection from the *Display* option in the menu bar.
- Standard measured values for each 'patch' in the proofing bar (listed below) are stored as a data set within Remote Director. During the Verify SWOP function these stored values are compared to the measured values and an average Delta E (color difference) is displayed, along with a peak value for the patch with most difference.
- If your average Delta E and peak value Delta E are less than 3.0, your display is within the ADS specification of color matching.

ICS Remote Director SWOP Reference Data								
Patch Description	Patch CMYK				Target CIE L*a*b*			Delta E CIE 94
	% Cyan	% Magenta	% Yellow	% Black	CIE L*	CIE a*	CIE b*	Max Delta E
Cyan	100	0	0	0	54.9	-27.1	-38.1	3
Magenta	0	100	0	0	46.0	66.3	-2.6	3
Yellow	0	0	100	0	85.9	-4.0	74.3	3
Black	0	0	0	100	17.5	0.9	1.0	3
Red	0	100	100	0	45.5	62.0	34.1	3
Green	100	0	100	0	48.8	-52.3	19.8	3
Blue	100	100	0	0	25.7	9.5	-39.2	3
Cyan75	75	0	0	0	61.9	-27.3	-30.8	3
Magenta75	0	75	0	0	55.3	49.8	-3.3	3
Yellow75	0	0	75	0	87.2	-4.7	57.4	3
Black75	0	0	0	75	36.5	0.5	-0.9	3
Gray75	75	63	63	0	38.0	-2.8	-4.9	3
Red75	0	75	75	0	53.8	46.9	30.9	3
Green75	75	0	75	0	57.5	-38.6	16.0	3
Blue75	75	75	0	0	35.8	12.7	-31.7	3
Cyan50	50	0	0	0	72.6	-16.8	-19.3	3
Magenta50	0	50	0	0	68.2	29.6	-2.6	3
Yellow50	0	0	50	0	88.5	-3.9	35.4	3
Black50	0	0	0	50	53.9	0.0	-1.4	3
Gray50	50	39	39	0	54.2	0.0	-0.9	3
Red50	0	50	50	0	66.5	27.7	23.7	3
Green50	50	0	50	0	69.0	-23.1	12.3	3
Blue50	50	50	0	0	52.6	10.1	-21.6	3
Cyan25	25	0	0	0	82.0	-8.7	-8.8	3
Magenta25	0	25	0	0	80.5	13.0	-0.4	3
Yellow25	0	0	25	0	89.5	-2.0	18.2	3
Black25	0	0	0	25	68.8	-0.5	0.1	3
Gray25	25	16	16	0	74.6	-2.5	-0.3	3
Red25	0	25	25	0	79.6	11.2	14.9	3
Green25	25	0	25	0	80.4	-10.4	7.8	3
Blue25	25	25	0	0	71.6	4.5	-11.2	3
White	0	0	0	0	91.3	-0.4	1.8	3

8. Sample Proofs

Chromaticity Incorporated has demonstrated a QUATO Intelliproof 213 Soft Proofing System that conforms to this SWOP Application Data Sheet to the SWOP Technical Committee for analysis and verification.