

FUJIFILM

PROFESSIONAL SERVICES GROUP & COLORPATH SYNC™ SOLUTIONS

Printing using the new ISO 12647-2:2025+

November 3, 2025



Device Link Profiler



Brand Color Optimizer



Align



Ink Optimizer

Presenter

Don Schroeder

Senior Director | Professional Services and Technical
Solutions Development

FUJIFILM North America Corporation, Business Innovation
Division

USA ISO TC 130 Expert (10 years)

Assistant Convenor of WG3

Standards worked on and participated in:

ISO 12627-2

ISO 15311-1 and 2

ISO 15339-2

ISO 3664

ISO 22067-1 and 2

ISO 19313

ISO / TR 19312

Many other Ad Hoc groups in support

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Agenda

- Decision to edit 12647-2 (2017 Tokyo)
- Look back at work pre and post covid
- Proposal to create a “New” Universal Characterization Dataset
- Beta testing Update
- Benefits and moving forward



ISO 12647-2:2025+



ISO TC 130 N

Date: 2023-10-16

ISO 12647-2:2025(E)

TC /SC /WG N xxx

Secretariat: SAC

Graphic technology — Process control for the production of half-tone colour separations, proof and production prints — Part 2: Offset lithographic processes

Graphic technology — Process control for the production of half-tone colour separations, proof and production prints — Part 2: Offset lithographic processes

1 Scope

This document specifies a number of primary parameters and their values to be applied when producing colour separations, printing formes and print production for four-colour sheet-fed and web-fed offset printing presses, excluding metal decoration printing and coldset offset lithography on newsprint.

The parameters and values are chosen in view of the typical workflow covering the stages of colour separation, proof production, making of the printing forme, selection of OK print and production printing on all commercially available production substrates, excluding surfaces where ISO 13655 compliant measurements do not give reliable measurement data such as transparent film, metals or metallic coated paper.

This document

- is directly applicable to press proof prints and four-colour offset printing,
- is applicable to press proof prints and printing processes with more than four process colours as long as direct analogies to four-colour printing are maintained,
- is applicable for all kinds of ink drying and ink curing methods.

This document is not applicable to other processes than offset lithography such as printing directly from digital data.

More than one way to Align an Offset Press

- For many years ISO 12647-2 had only one method stated in how to align an offset lithographic press, this was TVI or Tone Value Increase.

★ AI Overview

"Tone value increase" (TVI) refers to the phenomenon in printing where the actual printed tone appears darker than intended, often caused by increased dot size or optical effects. While often used interchangeably with "dot gain," TVI is a broader concept that accounts for changes in tonal value even in non-dot-based printing processes. It measures the difference between the tone in the original digital file and the darker, printed result, with the increase typically calculated by comparing the input tint value to the measured effective dot area. [🔗](#)

Why TVI Matters

Quality Control

: TVI is a crucial metric for ensuring color consistency and quality in printing, particularly for premium or showcase products. [🔗](#)

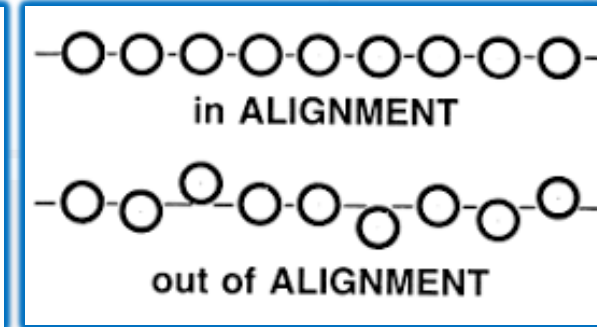
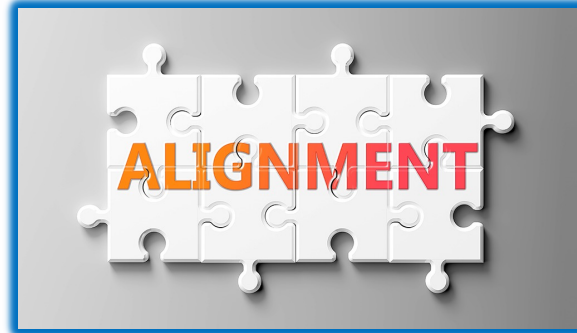
Process Adjustment

: By measuring TVI, printers can adjust their prepress and printing processes to compensate for the effects, such as adjusting plate pressure or changing ink settings. [🔗](#)



More than one way to Calibrate and Align an Offset Press

- It had become recognized that other calibration processes were used in other regions of the world!
- These methods were used over 12 plus years and had Tens of thousands of locations using them everyday shipping printing to all regions of the world



More than one way to Calibrate and Align an Offset Press

- In 2018 a decision by Working Group 3 was made to include other alignment method used across the world.



ISO/TC 130 N 3837

ISO/TC 130
Graphic technology

Email of secretary: tc170_cyc@126.com
Secretariat: SAC (China)

CIB launched regarding Resolution 714

Document type: Other committee document

Date of document: 2018-10-31

Expected action: INFO

Background: Dear members of ISO/TC 130,

During 32nd ISO/TC 130 plenary meeting on 2018-10-19, the following Resolution 714 was approved:

Resolution 714

ISO/TC 130 resolves, at the request of WG 3, to launch an 8-week CIB ballot for the decision to revise ISO 12647-2 "Graphic technology—Process control for the production of half-tone colour separations, proof and production prints—Part 2: Offset lithographic processes" to incorporate the near-neutral process control method as an alternative method to the existing equal TVI method.

[Background statement: In the ISO/TC 130/WG 3 Tokyo meeting, the WG members reached consensus that the widely used near-neutral method should have an equivalent status with the TVI method (as specified in ISO 12647).]

ISO/TC 130 requests its secretariat to undertake the steps necessary to implement this resolution.

Introduction

This document lists values or sets of values of the primary process parameters and related technical properties of a half-tone offset lithographic print. Primary process parameters constitute a general printing condition and are defined here as the printing ink set colours (L^* , a^* , b^* values of the solids K, C, M, Y and their overprints), printing ink sequence, substrate, screening and tone value. Tone values are specified either for each ink colour (as tone value increase) or for a near-neutral scale (as CIELAB values) and for the black (K) ink (as CIELAB L^* values).

Conformance to the specified values in press proof and production printing assures, in principle, a good visual match between specimens produced and consistent colour reproduction through print production. As the reference values for the near neutral calibration (NNC) method depend on the actual print parameters (colour of the substrate, solid black and the three colour overprint) these parameters need to be communicated and controlled to assure a good visual match and consistent colour reproduction.

To broaden the range of calibration options supported, two CIELAB-based calibration methods are introduced as an alternative to density-based tone value calibration: colour tone value (CTV) for single colour patches and near-neutral CIELAB measurements for specified CMY combinations and for K separations. While the CTV method takes up the idea of ISO 20654 (SCTV) to provide a colorimetric alternative to density based TVI, the near-neutral method represents a grey balance approach.

To allow more flexibility three classes of printing conditions are defined:

- Native: printing conditions as defined in this document,
- Registered: printing conditions as published at www.color.org,
- Relative: use of a native or registered printing condition with substrate compensation correction applied.

The native printing conditions for TVI and CTV are similar to those in previous versions of this document. These printing conditions did not incorporate the CTV method. Hence, where the CTV calibration method is used, the printed results can differ slightly from those using the tone value increase (TVI) method.

The principles of the NNC method and the TVI/CTV methods are different. For NNC the LAB values of the CMY grey patches (25, 50, 75) are not fixed reference values, but depend on the actual print parameters. In the tables, the values for an ideal print (all values conform with the reference values) are given.

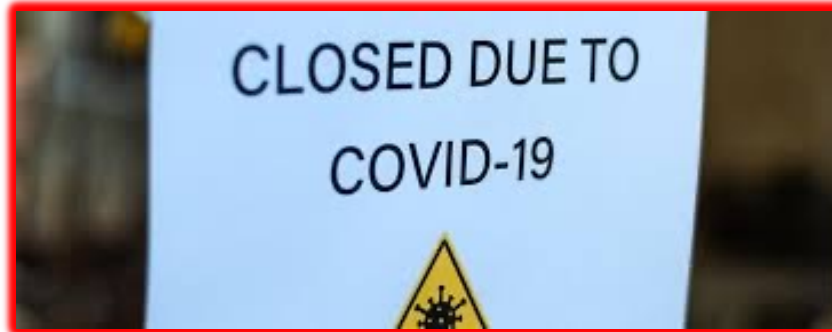
Printing condition PC1 has been modified slightly so that all calibration methods produce a consistent result. The "equal TVI curves" from the previous edition of this document (on which several practice-proven ICC standard printing condition profiles are based) are still within the tolerances of this document.

A printing process is in conformance with this document when measurement values from print samples meet the aim values for parameters of a reference printing condition within the required tolerance.

It should be noted that this document addresses typical industrial printing under feasible economical constraints. The tolerance values have therefore been chosen to provide a reasonable balance between customer expectations (meaning small variations are acceptable), technical production limits and production costs. Assuming agreements between all parties concerned, tolerances might be tightened especially when primary or secondary process parameters (e.g. specific paper grade) can be fixed in the planning stage.

More than one way to Calibrate and Align an Offset Press

- From 2018 to 2020 work was done and of course Covid happened. This slowed the work in person, but many meetings were held remotely.
- Actual Press runs were difficult due to lack of resources onsite



Coming out of Covid...

EDITS



- An Adhoc group of about 12 experts was formed to write in the Near Neutral standard.
- The team was made up of experts from around the world
- Edits were done and updates to the working group happened regularly!

3.3.7.2 tone value increase

TVI

difference between a density tone value – a.k.a. “tone value (printing)” – and the tone value (data) in the digital data file

[SOURCE: ISO 12647-1:2013, 3.40, modified — ISO 12647-1 uses ΔA instead of TVI.]

3.3.7.3 colour tone value

CTV

apparent intensity (3.3.1) of a printed single-colour scale calculated from CIEXYZ measurements in the same way as SCTV is calculated in ISO 20654

Note 1 to entry: These measurements are different from ‘tone value (colorimetric)’ as defined in ISO 12647-1 which refers to tone value A calculated from tristimulus values (CIEXYZ) of single ink solids, print substrate and half-tone.

Note 2 to entry: The range of this CTV metric is 0 % to 100 %, where 0 represents substrate and 100 represents solid colour. With a linear CTV curve, the series of tone value patches between the unprinted substrate and the fully covered, solid tone will produce an approximately uniform visual spacing of the colours of the printed tones. E.g., a 50 % CTV patch is perceptually approximately halfway between the substrate and the solid.

Note 3 to entry: The scope of ISO 20654 defines this method only for the use with spot colours but it can be used for process colours (in this case, the primary colours CMYK) in the same manner.

ΔCTV

difference from linear colour tone value

Note 1 to entry: $\Delta CTV = CTV(T) - T$, where T is digital tone value.

3.3.7.5 near-neutral CMY tone value

apparent intensity (3.3.1) of a patch of a printed neutral CMY scale as described in CGATS.15 [2]

3.3.7.6 near-neutral black tone value

apparent intensity (3.3.1) of a patch of a printed black scale as described in CGATS.15 [2]

Two different approaches to calibration of a press are described in this document. One approach using TVI or CTV is based on the single-colour patches for all process colours, the other (near-neutral) is based on three-colour (CMY) near-neutral patches with a separate adjustment for the black single colour patches.

6.2 Tone value calibration methods

The tone values of printed single-colour scales shall be calculated using either density values (TV) or CIELAB values (CTV).

TV and TVI of printed single-colour scales shall be calculated using the density-based tone value method described in ISO 12647-1.

CTV of printed single-colour scales shall be calculated in the same way as SCTV described in ISO 20654, and ΔCTV shall be calculated as a deviation from linear CTV. Tone scales comprising sets of single colour patches shall be used for each colour.

Where an evaluation of grey reproduction is requested, Annex C may be used.

The TVI and ΔCTV reference curves shall be defined by fourth order polynomials according to Annex D and Annex E.

6.3 Near-neutral calibration method

To calibrate using the near-neutral method, the L^* value for specific black digital tone values (typically 25 %, 50 % and 75 %) and the CIELAB L^* , a^* and b^* values for specific CMY multi-colour patches are used. These CMY patches are adjusted to follow a specific tone scale, the three-colour near-neutral tone scale.

The CIELAB aim values for 25 %, 50 % and 75 % tones are specified for prints where the paper colour, solid black and three colour overprint match values given in the tables.

For actual prints, the aim values shall be adapted to the actual paper and the solid black and the three colour overprint.

The three-colour near-neutral tone scale is defined as a set of C, M and Y digital tone-value triplets that have the relationship defined by Formula (1).

$$M = Y = 0,747\,0 \times C - 4,100 \times 10^{-4} \times C^2 + 2,940 \times 10^{-5} \times C^3 \quad (1)$$

where

C is the digital tone value of cyan in the range 0 to 100;

M and Y are the digital tone values for magenta and yellow, respectively.

The percentage values computed should be maintained to at least 2 decimals.

The three-colour near-neutral tone scale is calibrated using a set of CIELAB a^* , b^* aim values specified for 25 %, 50 % and 75 % tones. Annex G shows, how these aim values can be calculated.

The black and the three-colour near-neutral tone scales are calibrated using a set of CIELAB L^* aim values typically specified for 25 %, 50 % and 75 % tones.

A detailed description of the derivation of the L^* values corresponding to the digital tone values is given in Annex G.

12647-2:2025+ Calibration descriptions...

- The main part of the ISO document describes the calibration description in detail to the end user
- This part of the document allows users to decide the best method for their production based on their need.
- Exactly what a Standard should do. Allow more than one method of a process in the standard to garner similar final output reproduction!

7.4 Calibration description

7.4.1 General

There are three sets of calibration descriptions, one for the TVI method, one for CTV method, and one for the near-neutral method. The deviation and variation tolerances used in these calibration methods are the same for all printing conditions.

NOTE 1 Depending on the calibration method used, the print output can be different in colour appearance as the native printing conditions are similar to those in the previous version of this document and these printing conditions did not incorporate the new calibration methods.

NOTE 2 Printing condition 1 has been designed to ensure that all calibration methods lead to similar print output. This explains why the CMY and the black CTV tone scales are not linear.

Depending on the application, one of the calibration methods shall be selected as the calibration method, i.e., the normative process control method for the application. The calibration shall be communicated. Tolerances and reference values for the primary calibration method are normative, the values for the other methods are informative.



12647-2:2025 Calibration descriptions...

- As you can see the Calibration description are clear and concise!
- Users can decide which method is best
- Exactly what a Standard should explain!
- The calibration method allows for high quality alignment and high-quality output!

7.4.2 Calibration description for the tone value increase calibration method (TVI method)

The parameters for the TVI method describe the digital tone values for 25 %, 50 % and 75 % and for CMY additionally the mid-tone spread (CMY).

NOTE 1 The aim value for the mid-tone spread is zero, so it is omitted in Tables 2 to 5.

As an alternative to the density Murray-Davies based TVI, CIELAB-based CTV can be used to evaluate the tone values (see 7.4.3).

NOTE 2 The CTV and TVI aim values are different.

7.4.3 Calibration description for the colour tone value (CTV) method

For CTV, the reference values for the increase (ΔCTV) are usually zero as this produces approximately visually uniform colour scales. Due to historic choice for the native printing conditions, the CTV values are adapted to ensure the same output as the density-based calibration method. For new printing

12

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ISO/DIS 12647-2:2025(E)

conditions linear CTV reference values should be used. This might lead to different TVI aims for K, C, M and Y tone scales.

7.4.4 Calibration description for the near-neutral calibration method (NNC method)

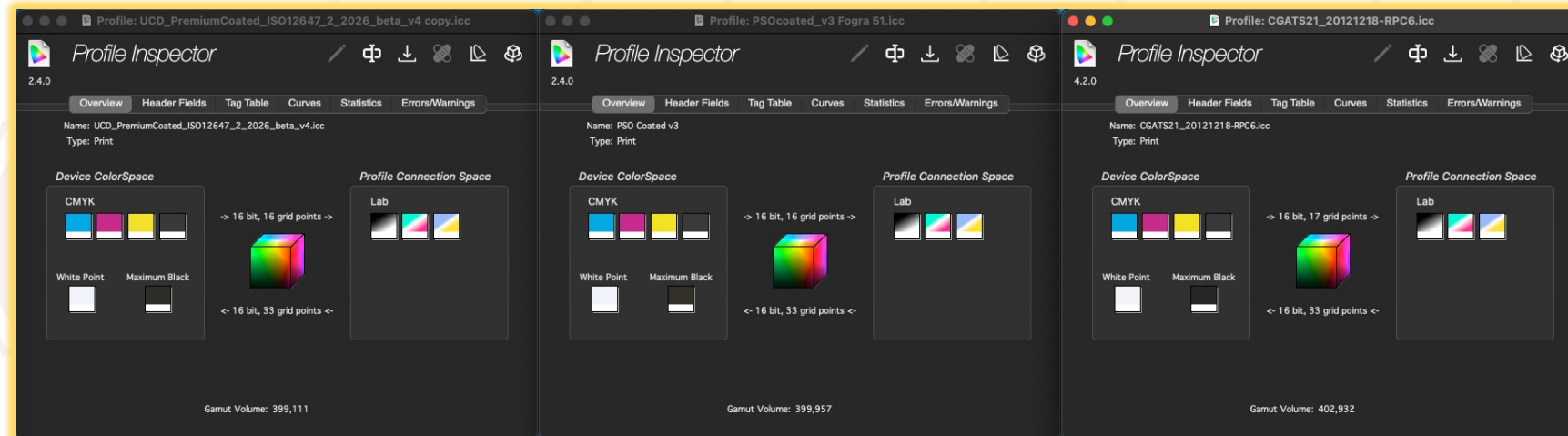
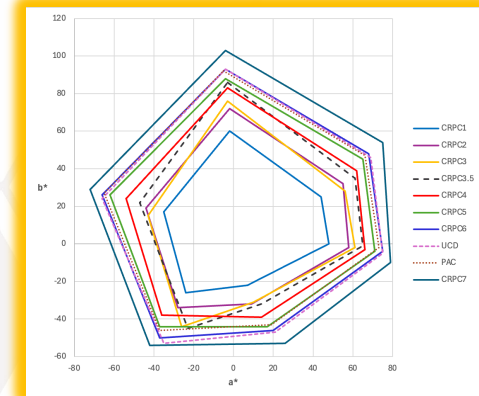
To calibrate using the near-neutral method, the CIELAB L^* value for black tones of 25 %, 50 % and 75 % are specified. For the CMY tones of 25 %, 50 % and 75 % the CIELAB values are specified.

Note: As the NNC method depends on the actual printing values, the reference values for the gray patches and the black screens may vary with each calibration.



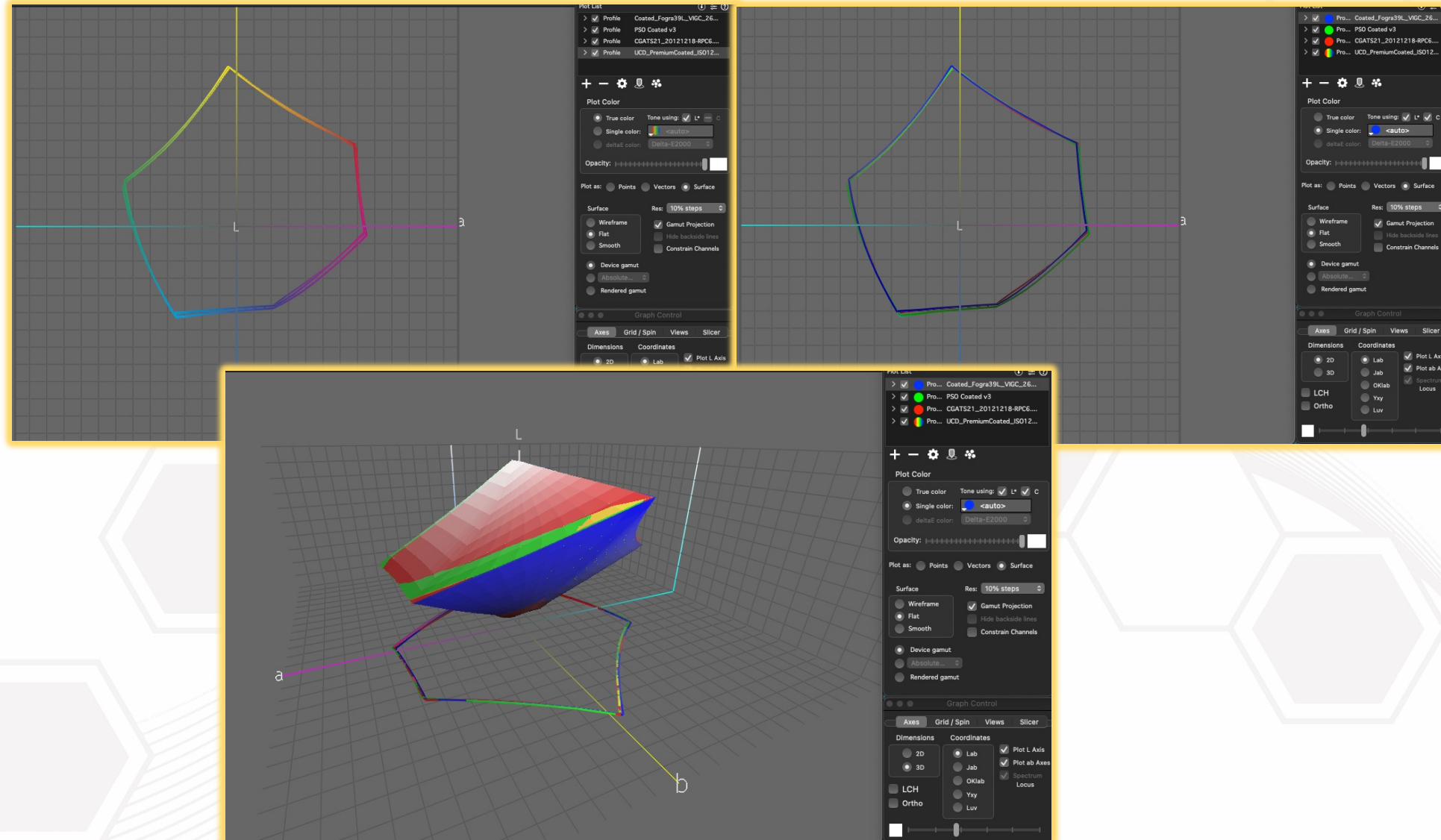
Proposal to create a “New” Universal Characterization Dataset

- In 2021 discussions start about a “ColorSpace” that is harmonized across the regions.
- FOGRA39 FOGRA51 and CRPC6 GRACoL 2013 are so close, why not attempt to work on these and see if a “UCD could be created”!
- Perfect timing to add to the 12647-2:25+ document and add to ISO 15339-2!



Proposal to create a “New” Universal Characterization Dataset

- 2 and 3 Dimensional Gamut plots of the Color spaces worked on.
- FOGRA39, FOGRA51, CRPC 6 GRACoL 2013, and UCDv4!
- In the 3 D plot all Gamuts in a single color to see slight differences!



Proposal to create a “New” Universal Characterization Dataset

AGENDA

- How to print:
- Select paper (PC1)
- Choose the calibration method (TVI, NNC, CTV)
- Calibrate the press (TVI / NNC)
- Print test forms according to the new ISO-standard values (12647-2 V5)
- Measurement/visual comparison
- Measure P2P and ISO test chart
- Compare visually with test form 2 how the calibration method would influence the outcome
- Consider a “Unified Characterization Data Set” in addition to [Gracol](#) / [Fogra](#)

Ronald Ellis Consulting

FUJIFILM
Value from Innovation



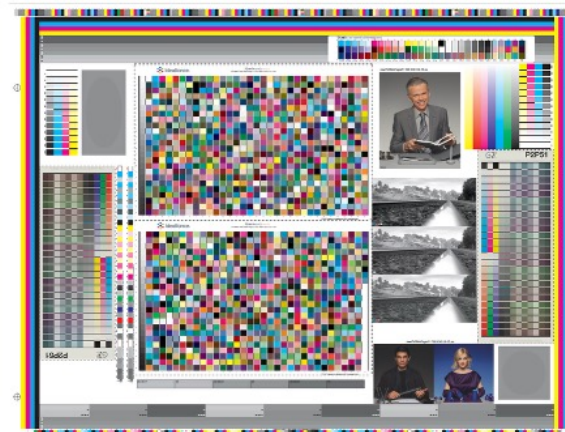
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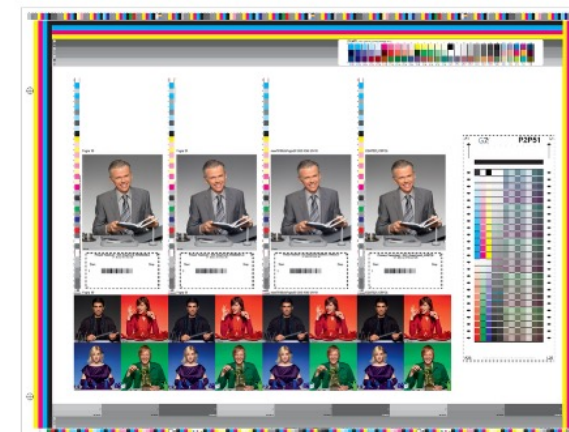


Proposal from WG3 meeting: Timeline field-test

- Only PC1 will be used
- Test will consist of proofs, prints according to the PC1 and different calibration methods
- In a 1st step the basic M1 characterization data will be created
- Based on prints with these M1 data, M2 (based on current instruments), M3 and M4 data will be measured
- In a 2nd step, based on the M1 data, a default ICC profile will be created and tested
- Participants Germany: Fogra, BVDK, GMD, ECI, Heidelberger Druckmaschinen AG
- Other countries are invited to join this ad hoc group



Press Form 1 for Metrics and calculations



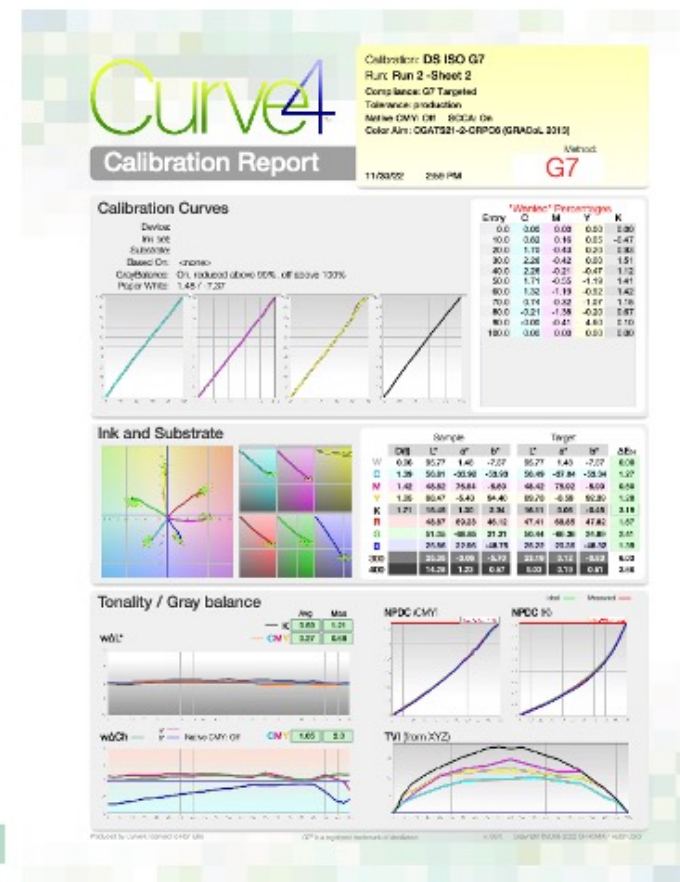
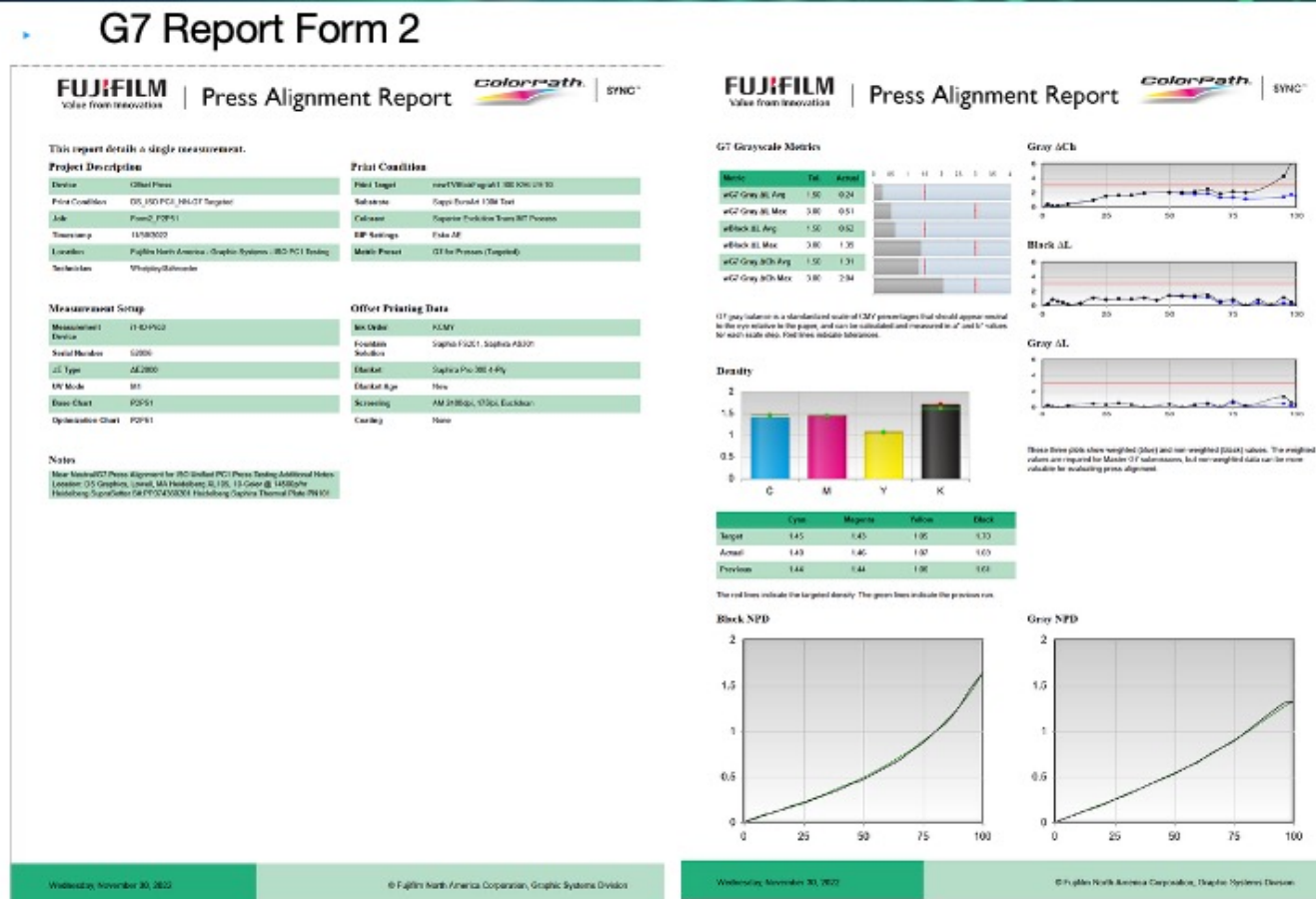
Press Form 2 for Validation runs and visual comparison

- In 2022 the Ad Hoc groups gets working on the UCD
- In Mid 2022 a profile and text file is created and the First UCDv1 is tested.
- Don Schroeder leads a group from the USA to test the process and profile
- The goal is Calibrate using TVI or Near Neutral and see if the UCDv1 passes with both alignment methods!
- Tests forms created and printing happened around the world

Proposal to create a "New" Universal Characterization Dataset



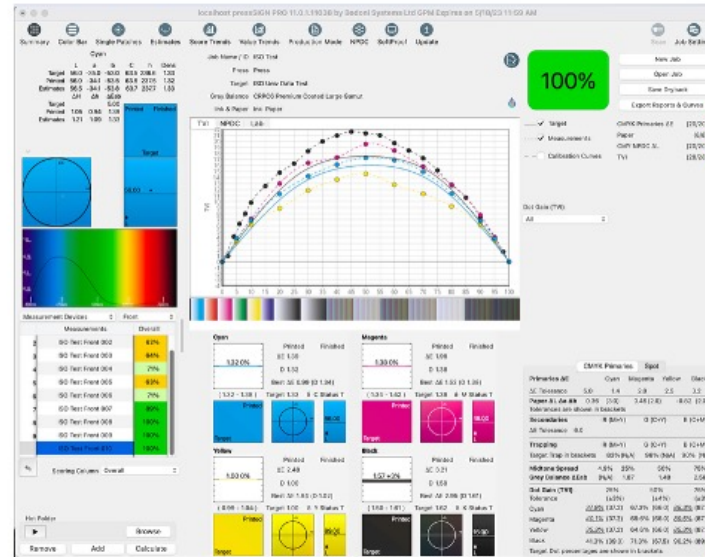
- Metrics from the run in North America using both calibration methods and the new UCDv1
- Also output samples on the Fujifilm JPress 750 Ink Jet Press!
- Results were extremely positive!



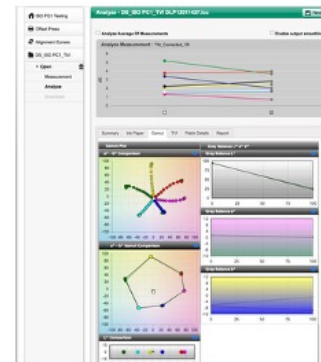
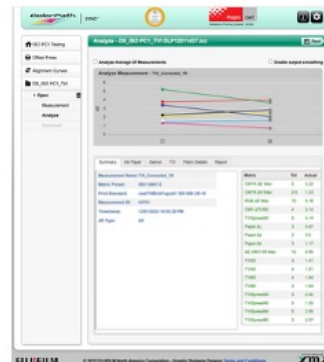
Proposal to create a “New” Universal Characterization Dataset

- Metrics from the run in North America using both calibration methods and the new UCDv1
- Also output samples on the Fujifilm JPress 750 Ink Jet Press!
- Results were extremely positive!
- **Used 3 industry delivering tools, Curve 4, Press Sign and ColorPath Sync**

ISO Report Form 1



ISO Report Form 2 (ColorPath Sync Report)



TVI - Tonal Value Increase



Proposal to create a “New” Universal Characterization Dataset

- Overall the results were very good
- It proved this concept of a Universal Characterization Dataset is possible
- Reviewed the sheets with others printed around the world in the UK in the Spring of 2023
- Moved forward with more testing and development!

- Very close Match!
- TVI Top sheet Offset
- JPress Digital TVI
- JPress Digital Near Neutral
- Near Neutral Off Set Bottom Sheet!



Proposal to create a “New” Universal Characterization Dataset

- Overall the results were very good
 - It proved this concept of a Universal Characterization Dataset is possible
 - Reviewed the sheets with others printed around the world in the UK in the Spring of 2023
 - Moved forward with more testing and development!
- Very close Match on the visual page!
 - TVI and Near Neutral in this test proves that a “unified print space” can be achieved.
 - Minor density moves can allow for a closer match using either calibration method.
 - From this test we also used Digital Production Ink Jet (JPress 750HS) and printed using Optimized DLP (ICC) to a very close match. Sheets to be provided for readings.
 - Finalized 12647-2 standard into production systems like Curve 4 / ColorPath Sync / Press Sign and others, will enable “Unified” Print conditions to be realized across borders.



Proposal to create a “New” Universal Characterization Dataset

- Multiple rounds of new UCD profile edits
- May of 2025 UCDv4 approved for Beta
- Don Schroeder leads the beta testing
- Creates “How to perform” and has site for users to download.



2025-07-24

TC 130/WG3 12647-2 Universal Characterization Dataset Project

For the first time, a characterization dataset that matches both ISO TVI and G7 (near neutral) for premium coated stock can be expected. Based on numerous tests and discussions among ISO TC 130 WG 3 experts, a test candidate has been developed for field testing. The following instructions explain how to print the ISO TC 130 WG 3 'Universal Characterization Dataset Version 4.0' for user testing and validation. Please follow these instructions to participate in the important process of validating the profile and characterization dataset. There are three production process steps to consider and recognize for testing the new characterization data (and ICC profile).

1. Data preparation
2. Proofing
3. Offset printing

Profile: *UCD_PremiumCoated_ISO12647_2_2026_beta_v4.icc*
Characterization Dataset text file: *UCD_PremiumCoated_ISO12647_2_2026_beta_v4.txt* = Universal Characterization Dataset Beta Candidate.

Download at the ICC site: www.color.org/ucd4test.xalter

Main coordinator:

Don Schroeder
 FUJIFILM North America Corporation | Business Innovation Division
 Email: dschroeder@fujifilm.com

If you do test prints (for tasks 2 and 3) please send them to:

Depending on your region, please send sheets to the relevant expert for review at the ISO TC 130 meeting in Hong Kong in November 2025. Sheets should be sent for arrival by 10 October 2025.

North and South America:

Fujifilm North America, Business Innovation Division
 Attention: Mr. Ben Lubin
 850 Central Avenue
 Hanover Park IL, 60133 USA
 Mark packages with title **ISO UCD V4 Beta**.
 Email: ben.lubin@fujifilm.com

Europe:

Fogra
 Attention: Mr. Andreas Kraushaar
kraushaar@fogra.org
 Fogra Forschungsinstitut für Medientechnologien e. V.
 Einsteinring 1a, 85609 Aschheim near Munich, Germany
 Mark packages with title **ISO UCD V4 Beta**.
 Email: kraushaar@fogra.org

Asia Region:

APTC, Advance Printing Technology Centre
 Attention: Ms. Brenda Pang
 1/F, 48-50 Johnston Road, Wanchai, Hong Kong (Ship Street entrance)
 Mark packages with title **ISO UCD V4 Beta**.
 Email: brendaok@aptec.hkprinters.org

2025-07-24

1. Data preparation

- Install the profile in your authoring tools, e.g. Photoshop, InDesign
- Create PDF/X file of your test form with the profile as an output intent as you normally do (perc. and rel+bpc RI)
- Check the profile behavior in general and also the quality of the resulting images (with respect to black generation and gamut mapping)
- Provide your feedback by mail to the main coordinator
- If you want to share some data files please use the email address provided by the regional expert on page 1 highlighted in yellow. Please send before October 29th.

2. Proofing

- Use the PDF/X of your test form or available CMYK test forms (such as Fogra Image Quality Testform F51 – available here: <https://fogra.org/en/downloads/work-tools/image-quality-test-forms>) or Idealliance press test form at [https://](https://www.idealliance.com/)
- Create (Setup) a new proofing setting for the UCD characterization dataset (profile) - reach out to your proofing manufacture in case of questions.
- Use the same media, which you regularly use for proofs of Premium Coated Stock
- Make proof prints of the PDF/Xs using the new proofing setting and your regular settings.
- Validate the proof with the Fogra Media Wedge or IDEAlliance Wedge
- Do a visual assessment, e.g. comparing the visual differences between the UCDv4 proof and your regular proof (Fogra OR CRPC's).
- Provide your feedback by mail to the main coordinator
- If you want to share some data please use a cloud storage and share the URL

3. Offset Printing

- Print your test form with your normal (process calibration) method of TVI or Near Neutral with your Ink Set and media to your prints aims
- Print your test form with the same inks, media, and a new process calibration using the new aims (see Annex A and B)
- Coordinate with your print QA Press alignment manufacturer or use the link to utilize the provided Excel sheet and validate the outcome measure print control strip IDEAlliance or Print Control Strip.
- Submit Prints to Contact person (See information on page 1)
- Create proof (see proofing) and compare proof to match
- Provide your feedback by mail to the main coordinator

Proposal to create a “New” Universal Characterization Dataset

- Aims are communicated
- Profile and “How to” located on the ICC page
- Links are in the “How to”!



2025-07-24
Annex A: TVI aims for the TVI curves:

Process Control Aim values (PC1, ISO 12647-2:2026)							
MD TVI				SCTV (=CTV) , from FOGRA62v4			
Tone Value Data	CMY	K		C	M	Y	K
0%	0%	0%		0.0	0.0	0.0	0.0
5%	3%	4%		4.8	4.8	4.6	4.2
10%	6%	7%		9.8	9.9	9.3	8.4
15%	8%	10%		14.9	14.9	14.1	12.5
20%	10%	12%		20.0	20.0	18.7	16.6
25%	12%	14%		25.1	25.0	23.4	20.6
30%	14%	15%		30.2	30.1	28.3	24.7
40%	15%	17%		40.5	40.4	37.9	33.2
50%	16%	18%		51.1	50.8	48.0	43.2
55%	16%	17%		56.4	56.1	53.1	47.0
60%	16%	17%		61.8	61.4	58.4	52.0
70%	14%	15%		72.8	72.2	69.3	63.0
75%	13%	14%		78.2	77.7	74.9	68.9
80%	11%	12%		83.4	82.9	80.5	75.3
85%	9%	10%		88.2	87.7	86.0	82.0
90%	6%	7%		92.6	92.2	91.3	88.8
95%	4%	4%		96.6	96.2	96.0	95.3
100%	0%	0%		100.0	100.0	100.0	100.0

Annex B: 12647-2 PC 1 UCD_PremiumCoated_ISO12647_2_2026_betav4

Printing condition identifier		UCDv4 Beta					
Common requirements	Measurement condition		M1				
	Typical process		Sheet-fed offset Heat-set web offset				
	Print substrate	Type of surface	Premium coated				
		Gloss range	10 to 80				
		Fluorescence	moderate				
		Fluorescence range	8 to 14				
			L*	a*	b*		
	Colour aim (White balancing)	Colour L*, a*, b*	95	1	-6		
			L*	a*	b*		
		Black	16	0	0		
		Cyan	56	-35	-53		
		Magenta	48	75	-5		
		Yellow	89	-4	92		
		(Red M+Y)	48	69	46		
		(Green C+Y)	49	-66	24		
		(Blue C+M)	25	21	-47		
(C+M+Y solid)		23	0	-0.70			
TVI or ΔCTV calibration aims	TVI		K	C	M	Y	
		25%	14.0	12.2	12.2	12.2	
		50%	17.5	16.0	16.0	16.0	
		75%	14.0	12.7	12.7	12.7	
		25%	-4.4	0.1	0.0	-1.6	
	ΔCTV	50%	-7.8	1.1	0.8	-2.0	
		75%	-6.1	3.2	2.7	-0.1	
		Near neutral calibration aims	Black		L*		
				25%	78.65		
				50%	61.61		
75%	40.46						
	L*			a*	b*		
CMY	25%		CMY 25/18.88/18.88	75.51	0.75	-4.65	
	50%		CMY 50/40/40	57.39	0.50	-3.32	
	75%		CMY 75/66.12/66.12	39.41	0.25	-1.99	

International Color Consortium
MAKING COLOR SEAMLESS BETWEEN DEVICES AND DOCUMENTS

[ABOUT ICC](#)
[RESOURCES](#)
[INFORMATION](#)
[MEMBERS](#)
[GETTING STARTED](#)
[V4](#)
[iccMAX](#)

ICC: EVENTS:

2025
 ICC Expert Day on Individual Colour Matching
 Hong Kong Colour Symposium

2024
 Spectral Imaging Experts' Day, Gjøvik

2023
 London Meeting Invited Speaker session

2022
 HDR Experts' Day

2020
 ICC DevCon 2020
 Munich, 10-11 February

2019
 ICC Color Experts' Day, Bressanone

2018
 ICC Color Symposium Hong Kong, 22 October
 Grand Rapids, MI, 30-31 May
 ICC DevCon 2018
 Munich, 25-26 February

2017
 Ryerson Toronto Graphic Arts Day, 13 October

UCD v4 beta test

This page contains downloads for the beta test of Universal Characterization Data and associated ICC profile.

TC 130 WG3 12647-2 Universal Characterization Dataset Project

UCD v4 ICC profile

Characterization data

ICC: LIVE TOPICS:

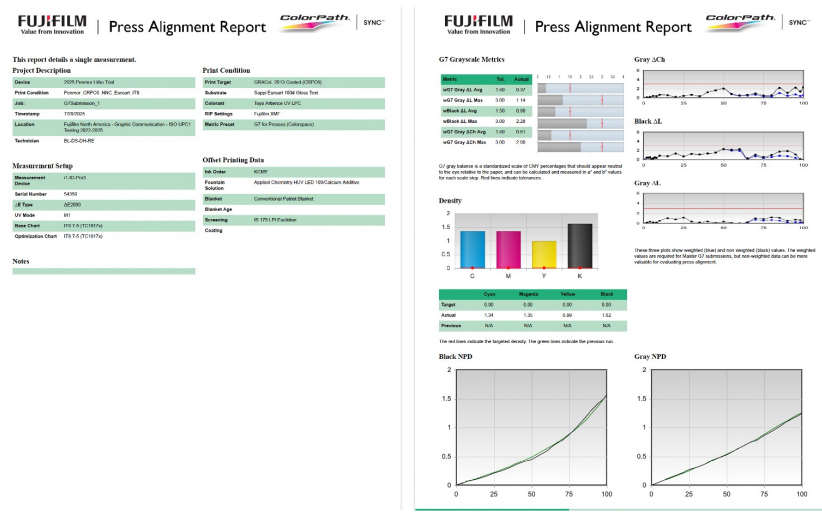
New ICC officers elected
 White paper on weighting functions
 ICC tech note on tristimulus calculation
 New HDR metadata tags registered
 ICC Amendment: Adaptive Gain Curve
 Scholarship fund
 ICC Research Portal
 IP policy
 Colorimetry data
 Profile security
 ICC tech note on embedding an iccMAX profile in a v4 profile
 iccMAX Demo Implementation - v2.1.3 released
 New version of iccMAX published
 Dr Danny Rich
 New ICC specification (v4.4) published
 Tech note on partial adaptation
 Interoperability Conformance Specifications approved
 ICC working group on HDR
 Android lock screen bug
 iccMAX published as ISO 20677
 iccMAX
 ICC video

Proposal to create a “New” Universal Characterization Dataset

Optimization Run 2 alignment to ColorPath Sync NNC CRPC6 (G7)

- USA Beta test reports!
- Happy to report both Beta test resulted in success just as the UCDv1 had performed
- Reports listed on this slide!

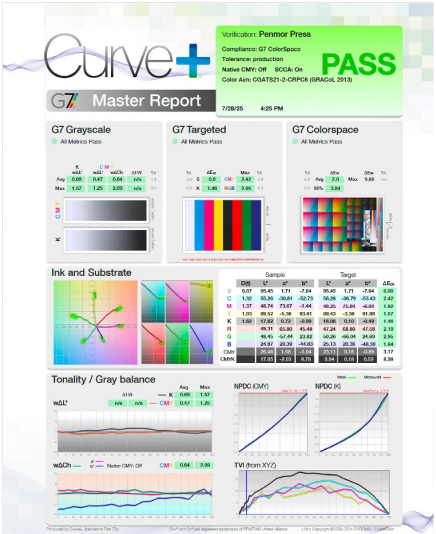
Beta 1



Alignment curves generated for the next press Run
Used the tone value curves from Curve 4

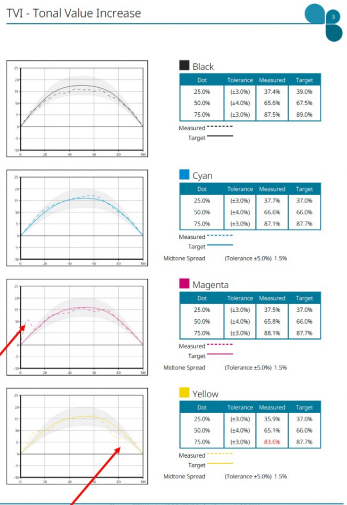
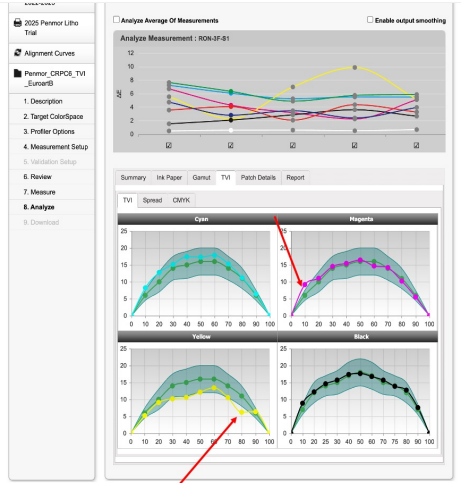


Curve4+ Compliance to NNC CRPC6

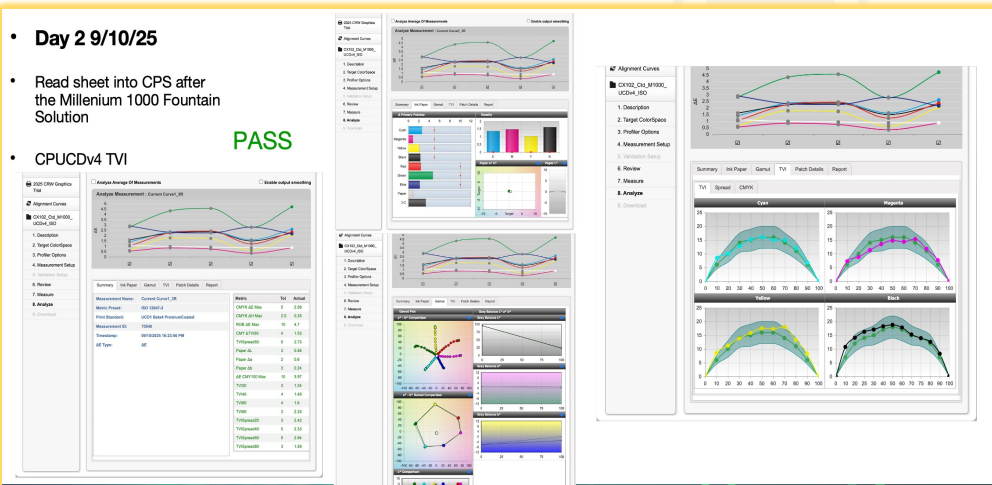


Run 2 optimization we were able to achieve NNC G7, NNC UCDv4, and UCDv4 TVI Compliance

ColorPath Sync and Press Sign to UCDv4 TVI. A few points outside specification.



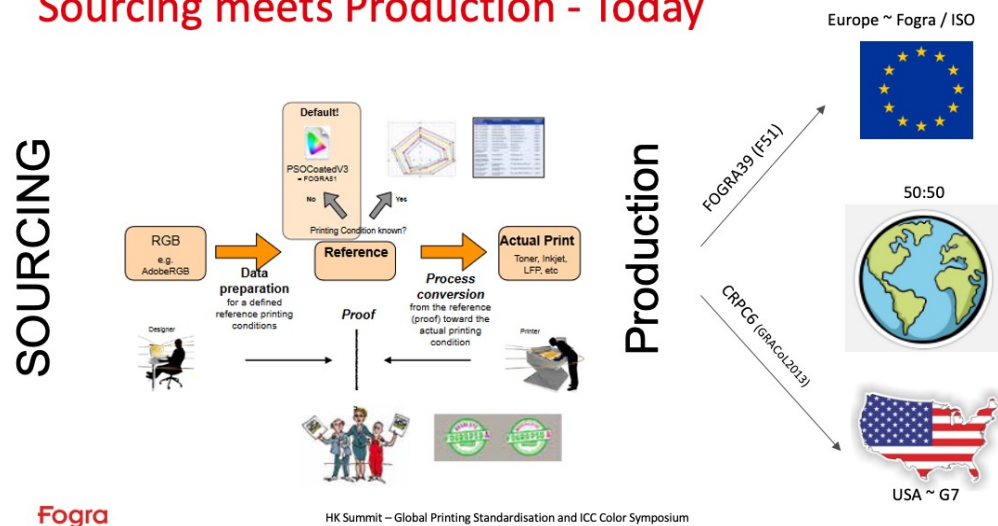
- ## Beta 2



Benefits Moving Forward!

- ISO 12647-2 will be fully updated to the most comprehensive Alignment methods to date!
- The Standard will have directions on TVI, CTV and Near Neutral alignments
- PC1 will be updated to support the new UCDv4
- A Universal Characterization Dataset will align color around the world
- A concept started almost 25 years ago!
- More to come!

Sourcing meets Production - Today



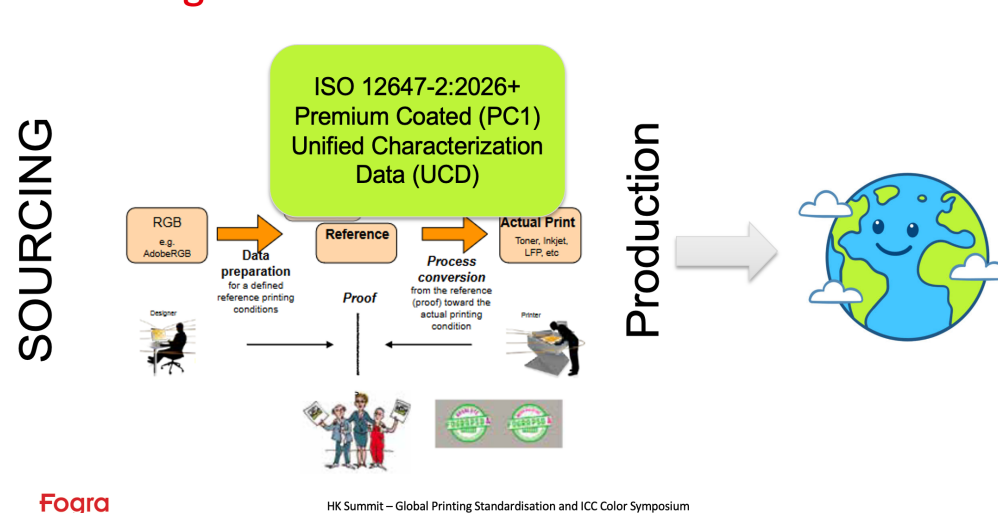
Offset



Offset and Digital



Sourcing meets Production - Tomorrow



FUJIFILM

PROFESSIONAL SERVICES GROUP & COLORPATH SYNC™ SOLUTIONS

Thank You!

November 3, 2025



Device Link Profiler



Brand Color Optimizer



Align



Ink Optimizer