



Brand Quality Process

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Goals

- Introduction to brand requirements
- BrandQ purpose and requirements
- Why this matters for a printer
- Live interaction with Chromachecker

What is BrandQ?

Supply chain overview
Initiated by Idealliance
Now an on-line program



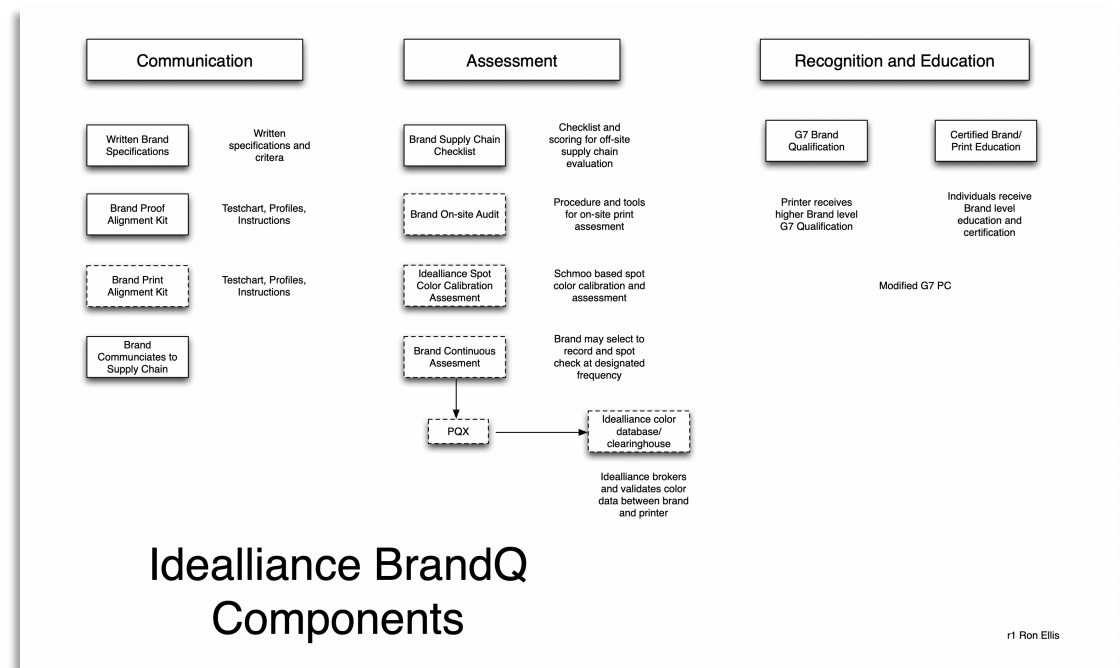


Examples and Case Studies



BrandQ Programs

Education
Brand Manager
Site Certification



Why BrandQ Matters?

- Alignment of brands and suppliers is critical
- Same theory works for suppliers alone
- Standardization makes us more efficient

Practical Use of BrandQ

Use to improve the supply chain alignment

Use to check internal processes

Use top demonstrate competence

Some valuable BrandQ components

Audit

Certification and training

Concepts

BrandQ and ISO

BrandQ concepts based on ISO standards
Audit document refers to and lists relevant standards
Many brands require a link to ISO standards

Using the BrandQ Audit

Need to fix
Need to work on
Identify problem areas



Auditing Modules

Module #1	Brand definitions and requirements	Pre	Final	Action
0	All brand personnel involved in making critical color communications and decisions should complete and pass color vision tests			
1	Viewing conditions compliant with ISO 3664:2009			
2	Instrument and settings for measurement verification compliant with ISO 13655:2009			
3	Specification of Aims and Tolerances in CIELAB values and utilizing DE2000			
4	Knowledge of G7 calibration method and its applications			
5	Knowledge of SCCA method and its applications			
6	CMYK aims, ICC Profile, and / or CRPCs (Characterized Reference Printing Conditions)			
7	Spot colors, Brand colors, and CxF/X aims			
8	Registration requirements; color-to-color, front-to-back, and image-to-sheet			
9	Design guide - overview of objectives			
10	Print product structural requirements			
11	Print Sequence - (creating an overprint simulation profile)			

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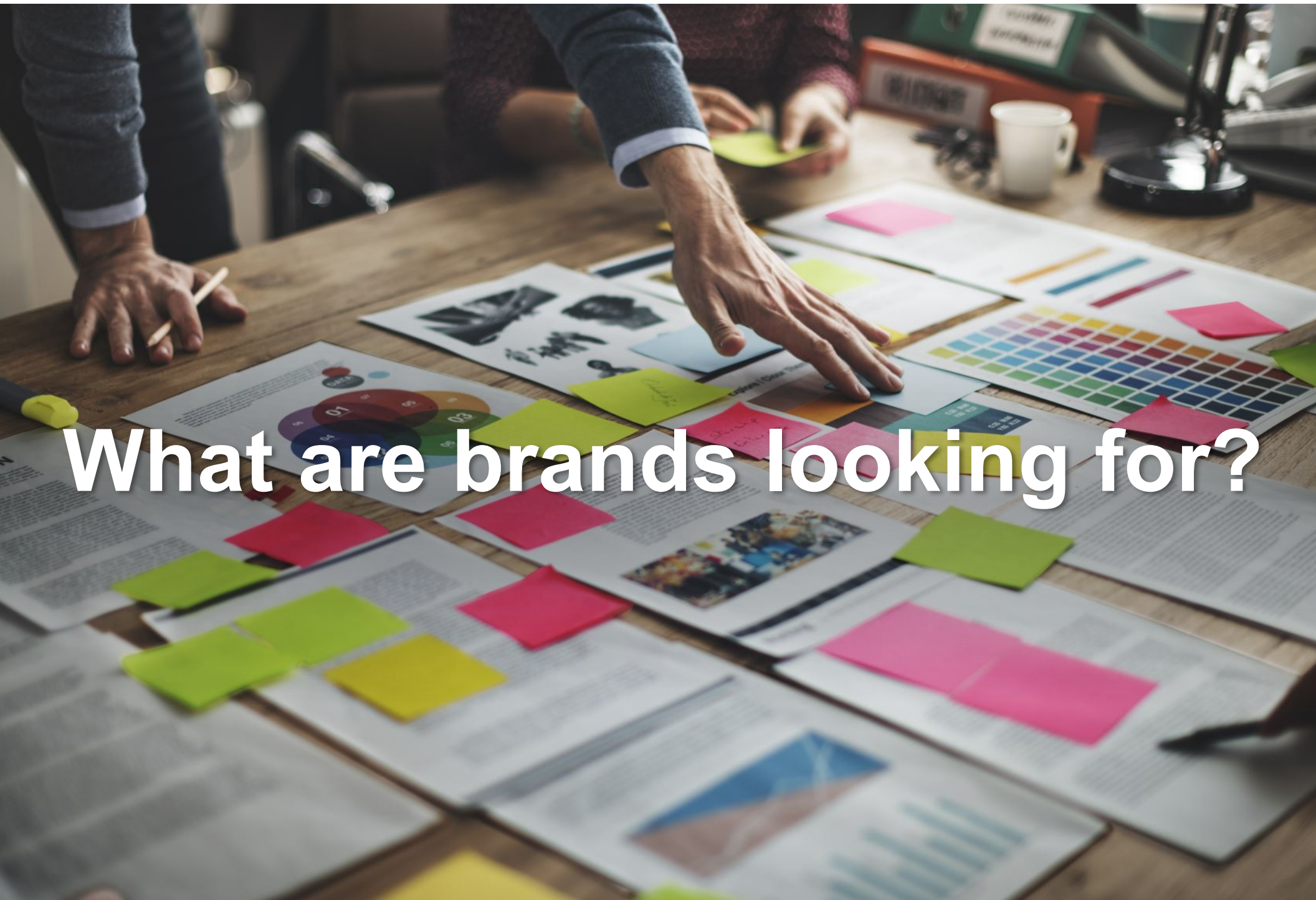
5

What parts of BrandQ matters to me?

There is more in here than you need

It needs to be 'filtered' to most important concepts

Audit is adapted to customer needs



What are brands looking for?

Some Big Ideas

Communication

Assessment

Recognition and Education

PQX and PRX

PQX (ISO 20616-2) Used to communicate various attributes of print quality from the printer to the print buyer for assessment, reporting and scoring.

PRX – (ISO 20616-1) Used to communicate print requirements from print buyer to the printer

Going through the audit

Critical items we will examine live with Chromachecker

‘Nice to have’ we will review

Discussion of importance

What can you do with this

Which parts are important?

Which parts really matter?

What will you use from this?

If I had to make a 'short list' what would it be?

Module 1

Brand definitions and requirements

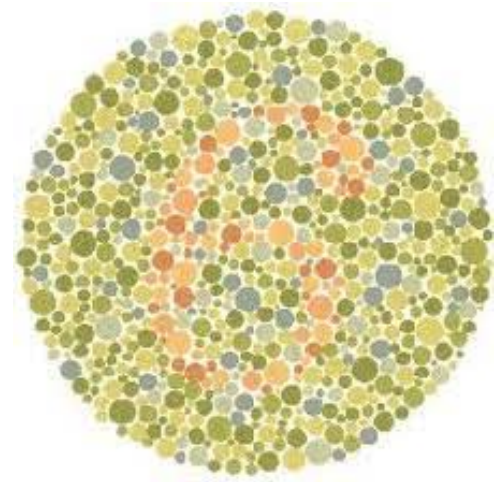
Vision

All brand personnel involved in making critical color communications and decisions should complete and pass color vision tests

Vision

Munsell Hue 100 test

- Ishihara Color Blindness Test



Viewing conditions

Viewing conditions compliant with ISO 3664:2009

Lighting Inspector

Instruments

Light Sources

Add Light Source

List of light sources

	Name	Location	Validation	Audit	#	Last Measurement		CRI	MI	Illuminance	CCT	EF	ISO Compliance	
<input type="checkbox"/>	Customer Lighting		M	Y	No measurements uploaded yet.									

Measurement parameters

Instrument and settings for measurement verification
compliant with ISO 13655:2009

Instrument Inspector

License expire: 2023-07-01 23:59

Instruments

Baselines

Harmonizer

Tolerances

Targets


Add Instrument

Manual

1. Manage Instruments and load measurements. Set Target for long-term verification. Perform a larger series of measurements and create a baseline from it - this will be your reference point.

2. Manage Baselines. Compare the baseline of the same or other instruments. See what are the differences and how different Targets change the picture of these differences.

3. Manage harmonization, set the master instrument. Compare the efficiency of harmonization for one instrument or one printing condition.



Techkon SpectroDens Premium

sn. B806062

Instrument Setup

Manual


Report

EF

3.35

H-100

A



Search

Settings

Refresh

Measurement	M. cond.	Target	Created	Worst patches	Max. ΔE	Avg. ΔE	Std. dev.	EF	✓	✗	🔍
<input type="checkbox"/> Capture Measurement for baseline.	<div>M0M1M2</div>	A	2019-05-17 10:18	<div></div>	0.92	0.34	0.18	0.67	<div>✗</div>	<div>✗</div>	<div>🔍</div>

Tolerances

Specification of Aims and Tolerances in CIELAB values and utilizing DE2000

Tolerances - Process

Specification of Aims and
Tolerances in CIELAB values and
utilizing DE2000

Personal E-Factor Blind Exercise

Spot

Image

BL



E-Factor Online Exercise

Individual

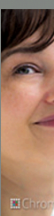
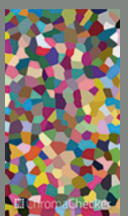
This exercise is designed to assess a person's level of expectation for an acceptable color match. Every person has different expectations, and this exercise is designed to define each person's level of acceptance.

Group Instructions

If your company has multiple people that assess color "match" for acceptance, then we recommend each person perform the exercise separately and compare their results afterward. Should E-Factors vary, the group will need to compromise and establish a common E-Factor for the company.

Start Exercise

Choose a sample on which to
or select "variable" with ra
changing ex



VARIABLE

Tolerances - Spot

Specification of Aims and
Tolerances in CIELAB values and
utilizing DE2000



G7

Knowledge of G7 calibration method and its applications

G7 Curve Inspector

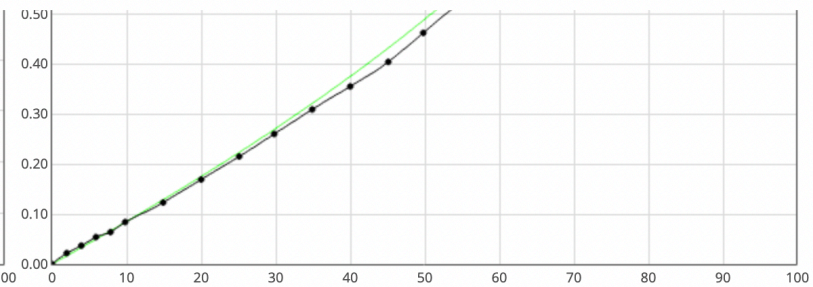
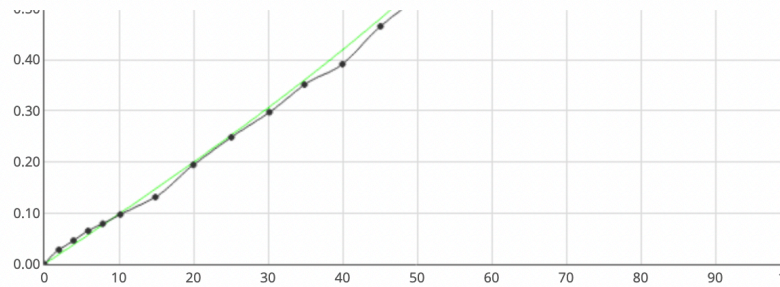
Measurement

G7® Curves

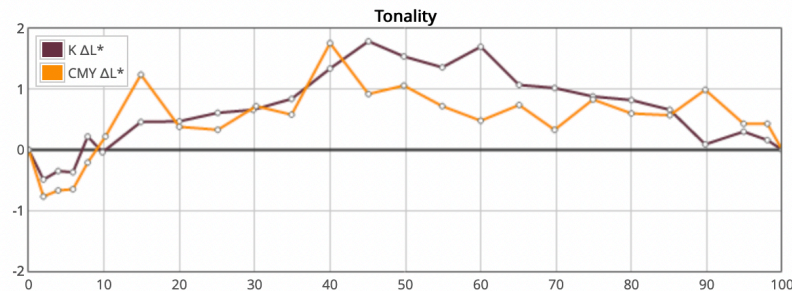
Curve: Offset_Press_OffsetPress_Coated_2020-10-16 Device: Offset Press Track: Coated Created: 2020-10-16 12:09:34

Edit

New calculation



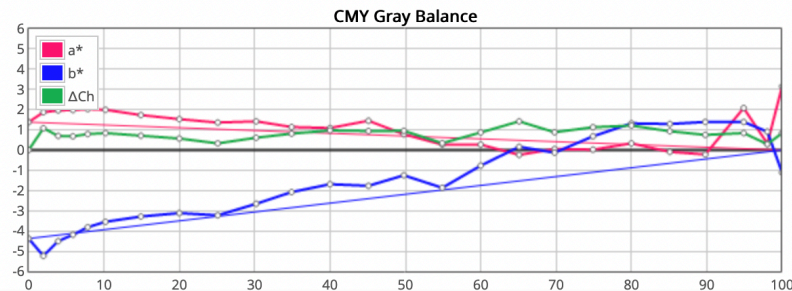
Tonality ($w\Delta L^*$ for CMY and K)



Normative	Average		Max	
CMY	0.68 (1.5)	✓	1.76 (3)	✓
K	0.75 (1.5)	✓	1.79 (3)	✓

Informative	HC (25%)	HR (50%)	SC (75%)
CMY	0.33	1.06	0.83
K	0.61	1.54	0.88

Gray balance ($w\Delta Ch$, a^* , b^* for CMY)



Normative	Average		Max	
CMY	0.81 (1.5)	✓	1.42 (3)	✓

Informative	HC (25%)	HR (50%)	SC (75%)
CMY	0.33	0.95	1.13

Screenshot

SCCA

Knowledge of SCCA method and its applications

Substrate Corrected Colorimetric Aims (SCCA) Calculator

Reference Characterization dataset
CGATS21-2-CRPC6

Substrate (enter measured paper)
L*: 95.00 a*: 0 b*: 2

4-Color Solid (Optional)
L*: 7.91 a*: 6.23 b*: -4.82

CALCULATE

Substrate Corrected Colorimetric Aims (SCCA)

Substrate $\Delta E_{00} = 5.81$
Prognosis of output data quality: poor.
A custom ICC profile is strongly recommended.


Color	Original			Corrected			ΔE_{2000}
	L*	a*	b*	L*	a*	b*	
s	95.00	1.00	-4.00	95.00	0.00	2.00	5.81
C	56.00	-37.00	-50.00	56.00	-37.54	-44.68	1.85
M	48.00	75.00	-4.00	48.00	74.28	-0.68	1.33
Y	89.00	-4.00	93.00	89.00	-4.93	95.34	0.63
K	16.00	0.00	0.00	16.00	-0.15	0.71	0.73
CMYK	9.05	0.20	0.39	9.05	0.21	0.08	0.31
R	47.00	68.00	48.00	47.00	67.31	49.05	0.65
G	50.00	-66.00	26.00	50.00	-66.40	28.33	0.89
B	25.00	20.00	-46.00	25.00	19.66	-42.60	1.32

DOWNLOAD CORRECTED DATASET

Defined CMYK print conditions

CMYK aims, ICC Profile, and / or CRPCs
(Characterized Reference Printing Conditions)

Defined CMYK print conditions

 ICC Profile Inspector

Data Sets

ICC Profiles






ICC Profile: HP12K_Flo_M1

Download

Show ICC Profile


Edit ICC Profile

Summary

	Solid	L*	a*	b*
 Substrate		94.34	1.90	-6.78
 Cyan		56.31	-35.41	-50.93
 Magenta		49.38	76.05	-2.09
 Yellow		88.64	-5.30	89.37
 Black		12.23	0.10	1.34

Rendering Intent	Black Start	Max. Black	Max. Chroma Error	TAC
Absolute Colorimetric	9.8	100.0	1.4	290%
Relative Colorimetric	2.9	100.0	7.0	290%
Perceptual	2.9	100.0	7.0	290%
Saturation	2.9	99.6	7.0	289%

ICC Profile Quality (Roundtrip error test)

 **0.65**

Max	2.52
Average	0.20
Standard deviation	0.24

Defined Spot print conditions

Spot colors, Brand colors, and
CxF/X aims

Color Exchange Format

Corporate Spots

Compatibility mode

Library™ CxF/X-4

eXact™ Manager

P compatible

ric CxF3

Format Description

Supported:

- L*a*b values
- Spectral values
- Multi measurement conditions
- Tolerances

Not supported:

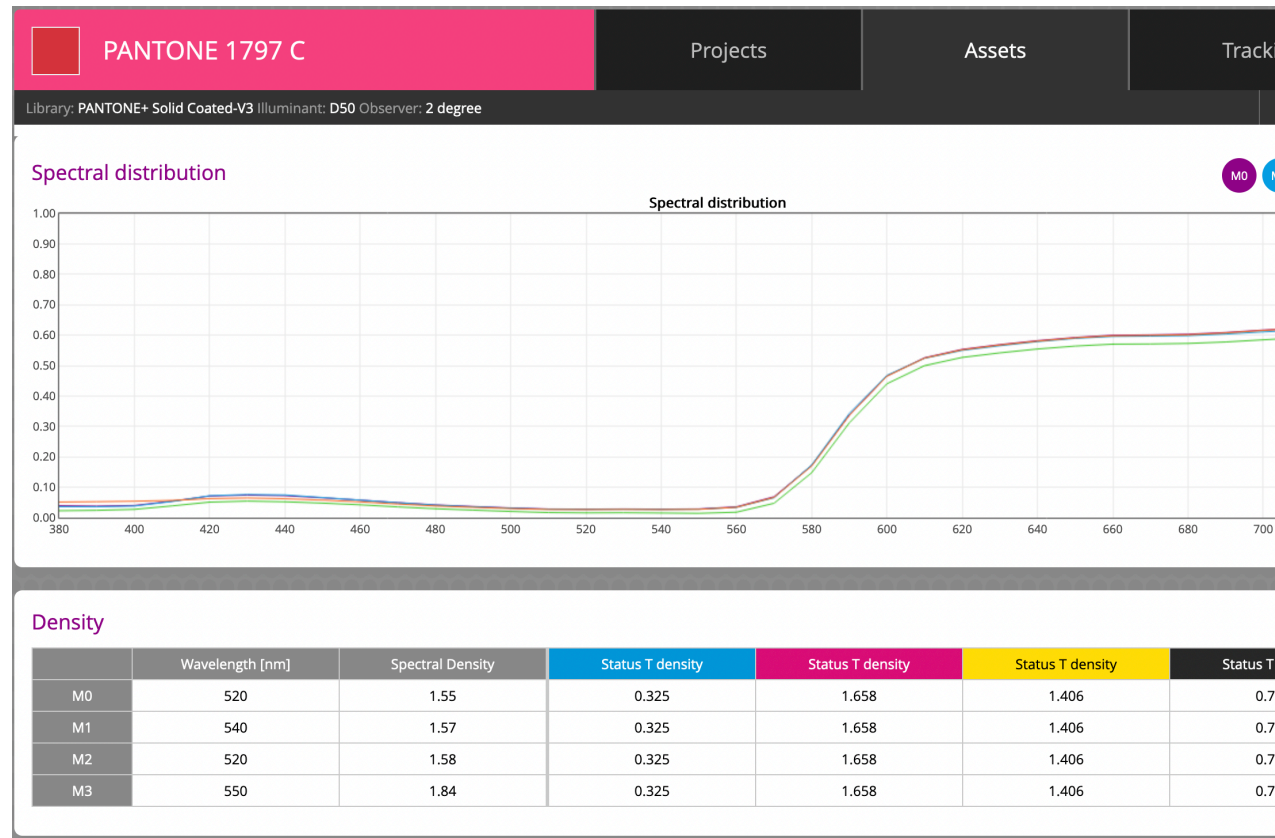
- CxF/X-4 Tints on Substrate
- CxF/X-4 Tints on Process Black

Measurement Conditions

- ☒ M0
- ☒ M1
- ☒ M2

EXPORT

Defined Spot print conditions

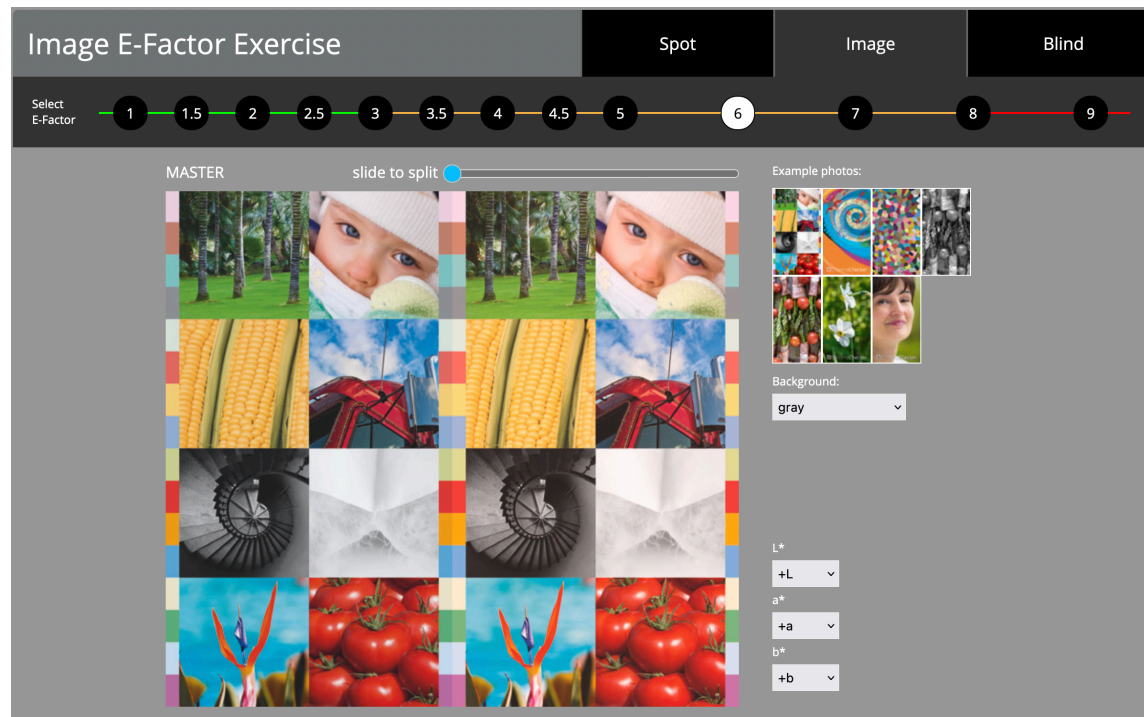


Print Quality

Registration requirements; color-to- color, front-to-back, and image-to-sheet

Design guidelines

Design guide - overview of objectives



Structural

Print product structural requirements

Sequence

Print Sequence - (creating an overprint simulation profile)

Dies

Die line(s) indications

Reporting

Minimum requirements for print and reporting

Organization Name: dpaudit

Full Company Name: *

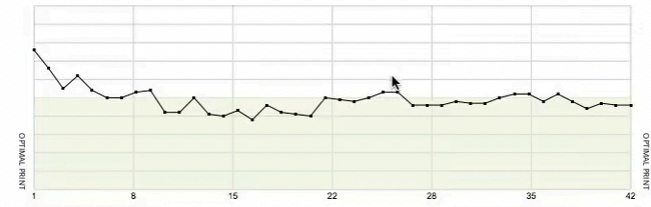
Country:

United States

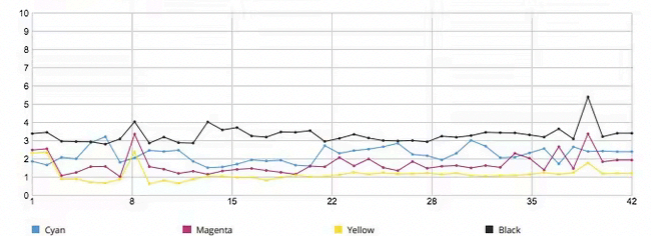
JOB REPORT

PRINTED BY: ChromaChecker
CUSTOMER: ABC Design
JOB NAME: 216010-F1-112310
TIME RANGE: Week 36 / 2019.09.05
TOLERANCE SET: E-Factor < 5
REFERENCE: GRACol2013_CRPC6
SUBSTRATE: Semi
MEASUREMENTS: 42

Color Conformance

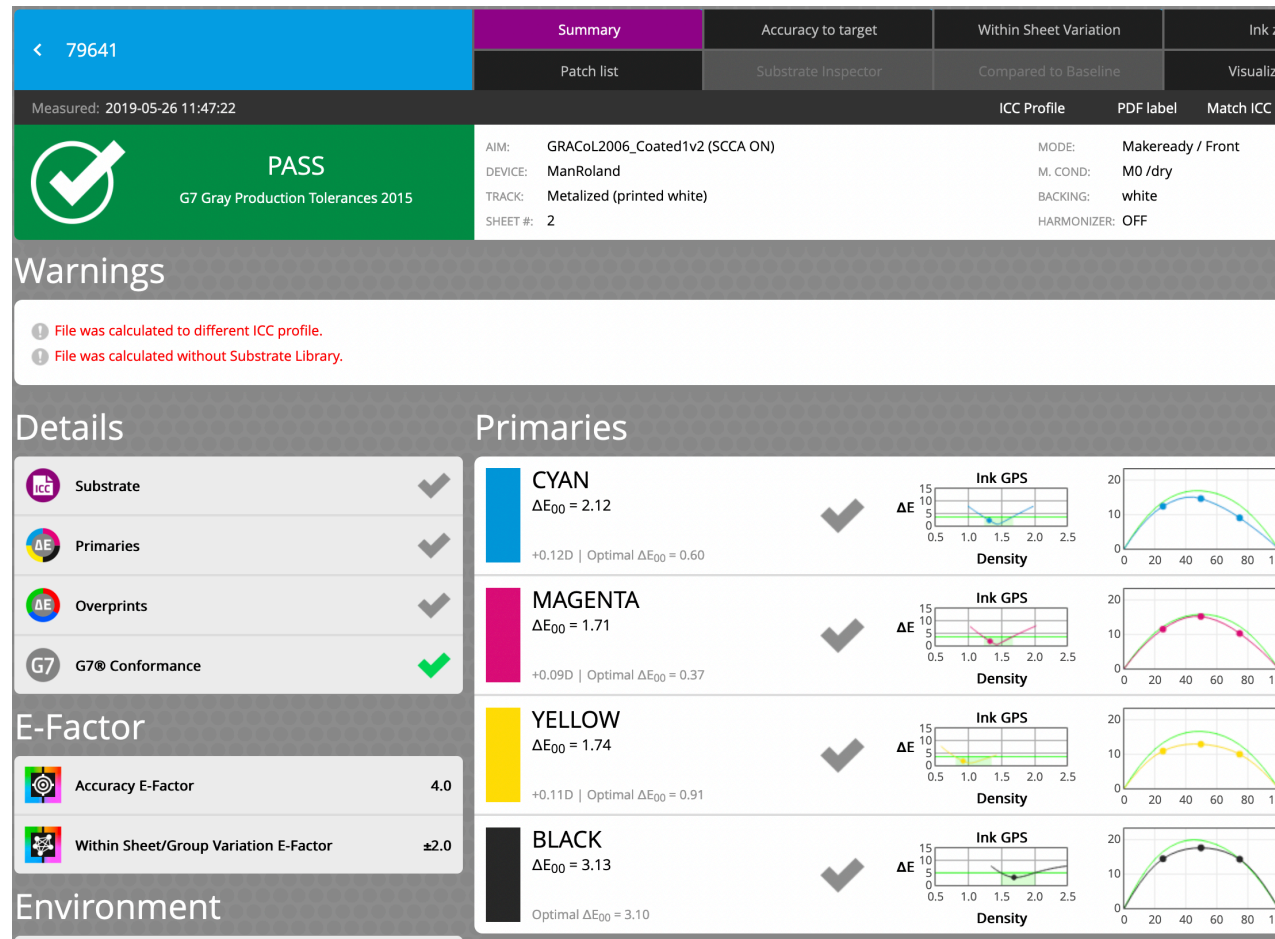


Primaries + Spots



COA

Certificate of Analysis (CoA)
and Certificate of
Conformance (CoC) testing
and reporting requirements



Standard Operating Procedures



Module 2 Design and composition responsibilities

PDF

File Format (Native files or PDF/X-4)
Pre-flighted file delivery - PDF/X-4



File Types

software compatible with
vector/Raster formats



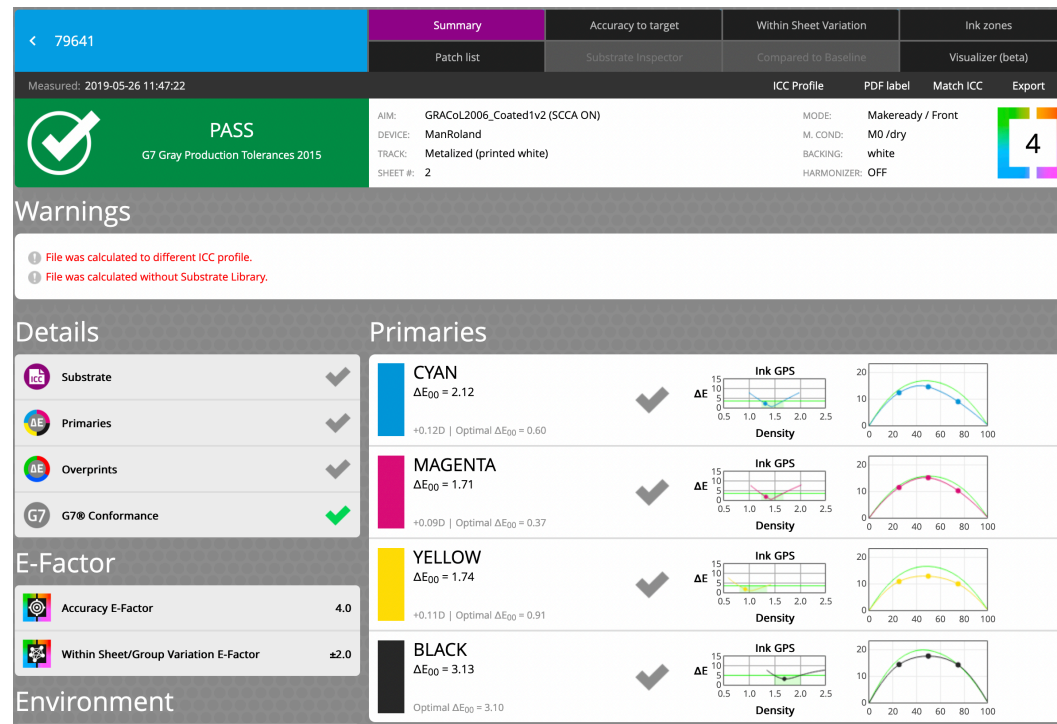
Embedded Profiles

Photography RAW and TIFF with embedded ICC Profiles



Validation Prints

Validation print protocol - validation of color accuracy



SOP

SOP documenting all procedures, and equipment upgrades



Color Space

ICC Profile Inspector

Data Sets

ICC Profiles

12K_Flo_M1

Download

Show ICC Profile

Edit ICC Profile

Solid	L*	a*	b*
	94.34	1.90	-6.78
	56.31	-35.41	-50.93
	49.38	76.05	-2.09
	88.64	-5.30	89.37
	12.23	0.10	1.34

Rendering Intent	Black Start	Max. Black	Max. Chroma Error	TAC
metric	9.8	100.0	1.4	290%
metric	2.9	100.0	7.0	290%
	2.9	100.0	7.0	290%
	2.9	99.6	7.0	289%

Image Quality (Roundtrip error test)

0.65

2.52

0.20

ation 0.24

- Has defined color working space

Color Space

Has color conversion SOP

Has profiles available for third parties

Adobe CS Apps loaded with proper color working space

Proofer, other apps loaded with proper color working space

Staff knowledge of color working space

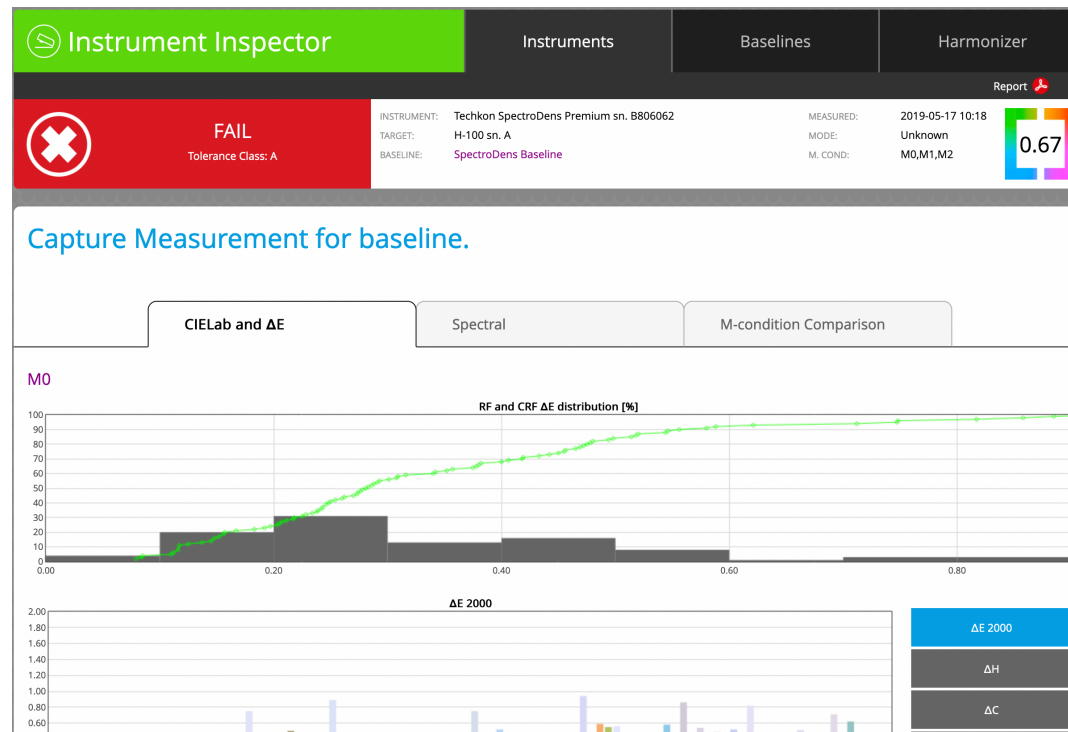
Module 3 Pre Media Responsibilities

Pre-flight

Pre-flight with reporting to supplier procedure for process improvement

Instrument verification

Instrument for measurement verification



File formats

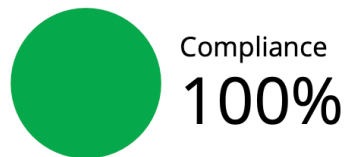
File format - ISO 15390-7 PDF/X-4
Pre-flighted file delivery - PDF/X-4









Color Accuracy

Validation print protocol - validation of color accuracy Contract proofs per ISO 12647-7 with documentation

Ron Ellis Consulting • Week 13 / 2019.03.26 • Test



Summary

#	Sheet	Date				G7	G7			
1		2019-03-26 09:42	✓	✓	✗	✓	±1.2	3.3	3.3	✓
2		2019-03-26 09:35	✓	✓	✗	✓	±2.5	3.8	3.8	✓

Workflow and Print

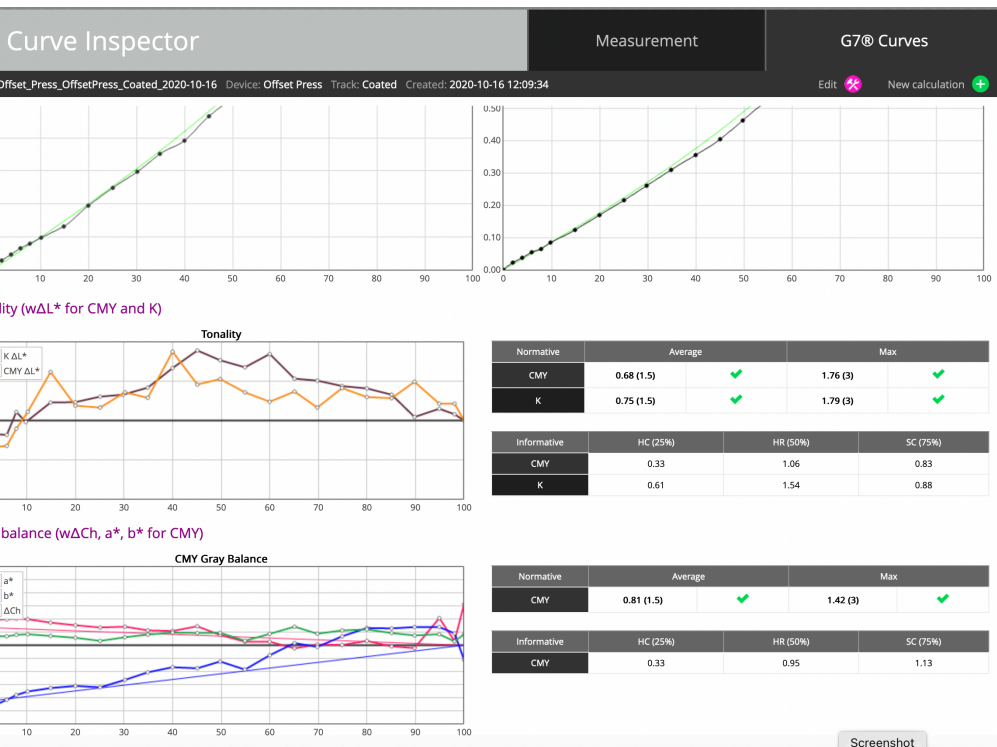
Workflow per ISO 10128

G7 Calibration methodology

ISO 12647 - series TVI (tone value increase)

Plate Supplier provides micro enlargement and measurement on minimums, and 50% on all plate delivery

Workflow and Print



Curve Inspector

Curve settings

Name: Custom curve 2023-01-22 21:39

Patches pattern: Simple curve

Channels: 4 (CMYK)

Mode: TRC (from 0 at 0 to 100 at 100)

Import file with curves definition

Upload

Curve patches

Cyan	Magenta	Yellow	Black
0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
5 (5.10)	5 (5.10)	5 (5.10)	5 (5.10)
25 (25.10)	25 (25.10)	25 (25.10)	25 (25.10)
50 (49.80)	50 (49.80)	50 (49.80)	50 (49.80)
75 (74.90)	75 (74.90)	75 (74.90)	75 (74.90)
95 (94.90)	95 (94.90)	95 (94.90)	95 (94.90)
100 (100.00)	100 (100.00)	100 (100.00)	100 (100.00)

Custom curve patches

Custom patch: Add

SAVE

Printing Aims

Has written printing aims

Staff can communicate printing aims

Printing aim values are colorimetric

Printing aim values based on characterization reference data set

Capable of calculating SCCA printing aim CIELAB values using printing paper colorimetric measurement

Proof to Press Accuracy

Written SOP for comparing proof to aim

Press sheets contain colorimetric data on color control bar (not just density)

Proof contains G7/ISO 12647-7 Control Strip

Site has equipment and system for measurement of control strips

Site has internal tolerances

Staff can communicate aims and evaluation methods

PDFX

Job options for PDF creation
Pre-flight method for PDF reception
Use GWG Specifications
Use(s) GWG Test Suite
Pre-flight Audit Trail



Data Reception

“Data Reception How To” available
Pre-flight procedure
Color Conversion procedure
Data Reception – Control Strip Required
Data Creation SOP
Transparency procedures
Test GWG Suite
TAC Management

Platemaking

Platemaking Checklist

Test file in place

Test file rendered

Plate-reader

nFactor (if required)

Plate control targets

Capable of create and check linear plate


Capable of create and check curved plate

Platemaking

 Plate Inspector

Readers

Setters

Add Plate Reader 

Add new Plate Reader

Plate Reader details

Reader Name

Plate

Serial number

Model

Location

Location

✓ -

 Add new

Department

-

 Add new

Accountability Inspector

Operator

☐ Ron Ellis

☐ test test

ADD PLATE READER

Module 4 Print Production Responsibilities

Communication

Confirming files and elements received are accurate and reporting to supplier for process improvement



COA

Bar Code verification per ASTM
Certificate of Analysis (CoA) on all incoming receivables
Substrate with documentation per ISO 15397
Ink manufacturers provides Certificate of Analysis (CoA)
with spectral data and conformance demonstrating
Color aims met and light fast qualities met
Laminates meet brand requirements

Brand Capable

Print consistently - Optimized to meet brand requirements

Reporting of aims being met

SOP documenting all procedures, and equipment upgrades



G7

G7 SOP

Calibration tool on-site G7

Calibration Method G7 Gray

G7 Targeted

G7 Colorspace

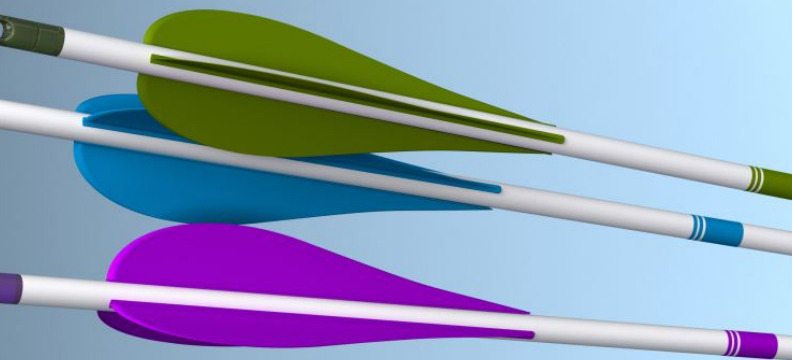
G7 Elements on press control bar

G7 Master

C, M, Y, K solids (Targeted)

R, G, B overprints (Targeted)

Recorded result Characterization
data



Ink

ISO 2846-1 Qualified Inks

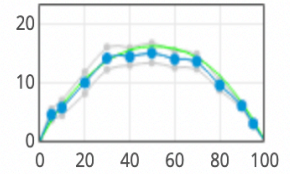
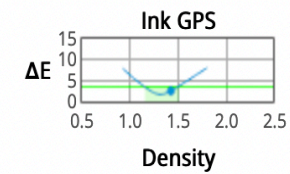
ISO 12647- Inks – Production
Run Recorded values –
Solids/overprints Backup ink
supplier identified

Primaries



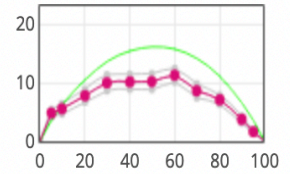
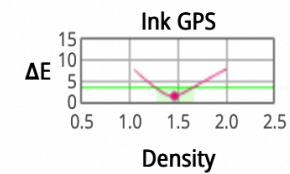
CYAN
 $\Delta E_{00} = 2.5$

-0.10D | Optimal $\Delta E_{00} = 1.67$



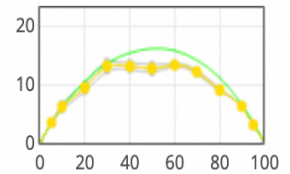
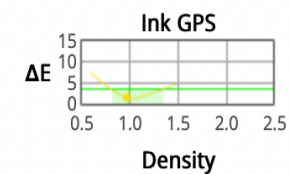
MAGENTA
 $\Delta E_{00} = 1.43$

Optimal $\Delta E_{00} = 1.41$



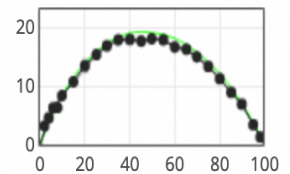
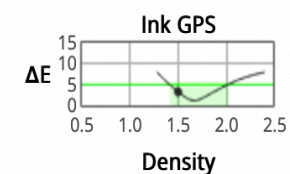
YELLOW
 $\Delta E_{00} = 1.45$

Optimal $\Delta E_{00} = 1.24$



BLACK
 $\Delta E_{00} = 3.25$

+0.18D | Optimal $\Delta E_{00} = 1.14$



Overprints



CM
 $\Delta E_{00} = 4.94$



MY
 $\Delta E_{00} = 1.73$



CY
 $\Delta E_{00} = 0.87$



CMY
 $\Delta E_{00} = 4.4$

G7@ Conformance

Color Theory

RGB Color space(s) identified

CMYK Color space identified

Applying CIELAB and G7 Color Metrics

G7 Press conditions recorded CIELAB values

G7 Press conditions recorded CMYK Dens

Demonstrate CIELAB understanding

Paper Relative Theory

Relative paper theory tool on-site

Substrate Corrected Colorimetric Aims (SCCA) Calculator

Reference Characterization dataset
CGATS21-2-CRPC6

Substrate (enter measured paper)
L*: 95.00 a*: 1.00 b*: -7

4-Color Solid (Optional)
L*: 7.91 a*: 6.23 b*: -4.82

CALCULATE

Process Capability

ChromaChecker

Events | St

Process Performance
SOP

Process Performance Tool

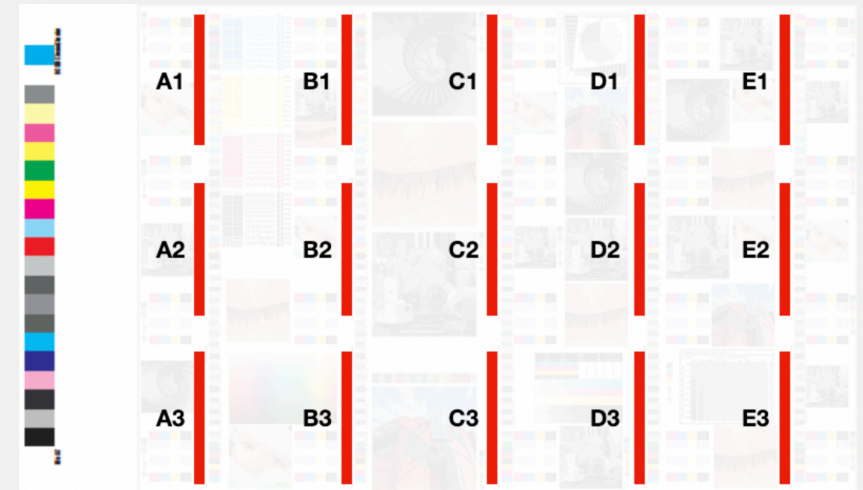
Written/Recorded
Machine Capability for
each printing machine

< Previous

8. Offset Benchmark - Test Form 2

Print variations — the key to understanding repeatability/precision.

Within-page variations



The same control strip - in this case, minimal G7 — is repeated several times on the sheet. In a perfect world, all patches of the same kind should be identical - in the real world, there are differences. To perform objective analysis there is no aim value - and all possible pairs - ten make static analysis of error distribution.

Soft Proofing

Calibrated Monitor

Profiled Monitor

Configuration of Working Space

Configuration of Proof Simulation

Dedicated Soft-proofing
Application

Appropriate display(s)

Calibration/profiling device

Calibration/profiling software

Visual match

Display Inspector

Workplace

Workflow

Workflow Name

Eizo

Repeat Periodically

Monthly

Vimeo ID

Notes

SAVE

Pre-Qualification

Calibrate

Emulate

Profile

Validate

Evaluate

Calibration Mode

Automatic (default)

Tonal Response

L* (default)

White Point

Monitor Native

White Point Tolerance (Δab)

White Luminance

Custom [cd/m2]

160

White Luminance Tolerance ($\pm\%$)

Black Luminance

Min Native

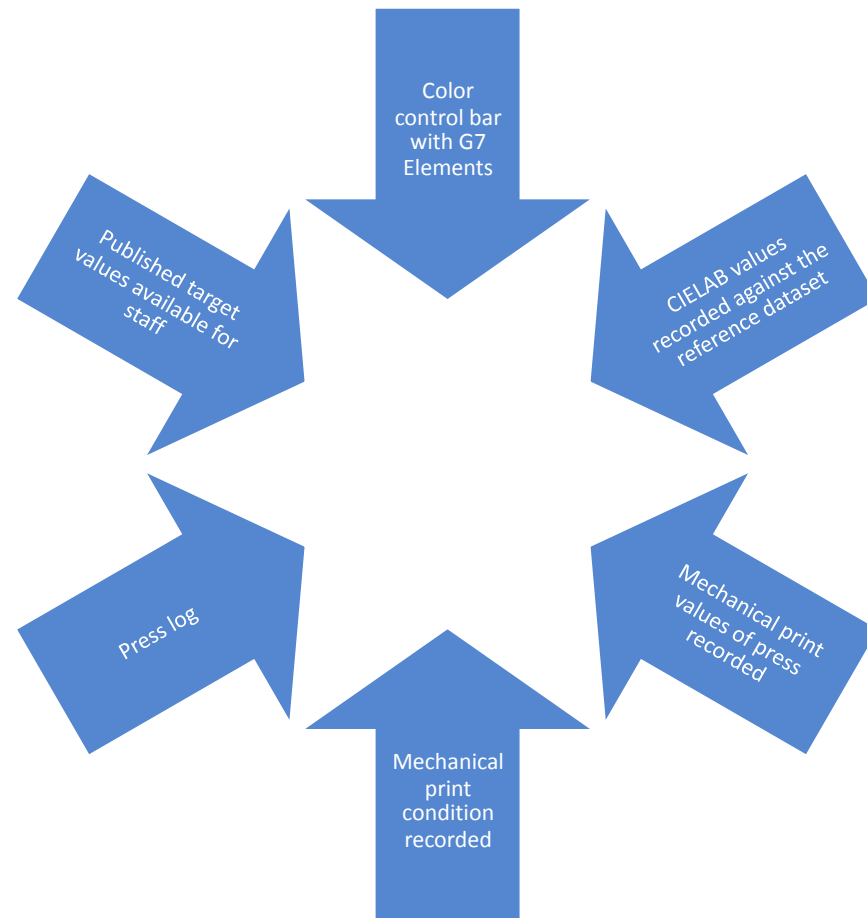
Black Luminance Tolerance



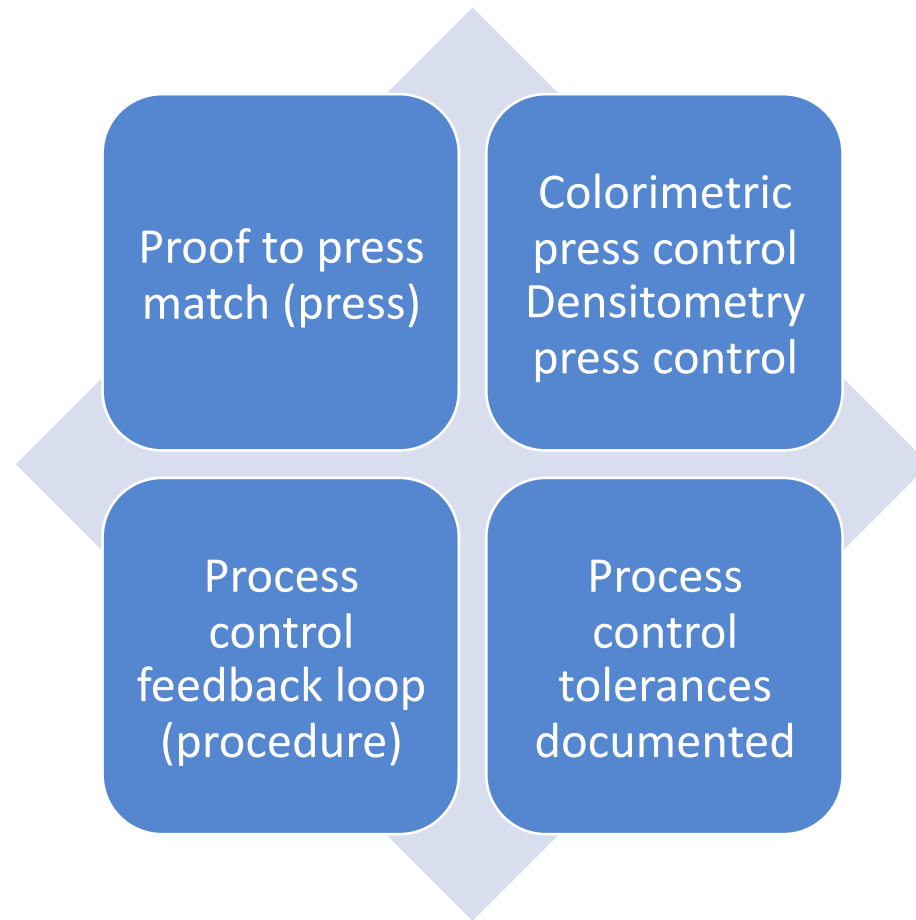
Process Control...

- Spectrophotometer
- Densitometer
- Last instrument calibration date
- Scanning press control
- Color control bar with CMYK per ink key
- Color control bar with tints/overprints

Process Control...

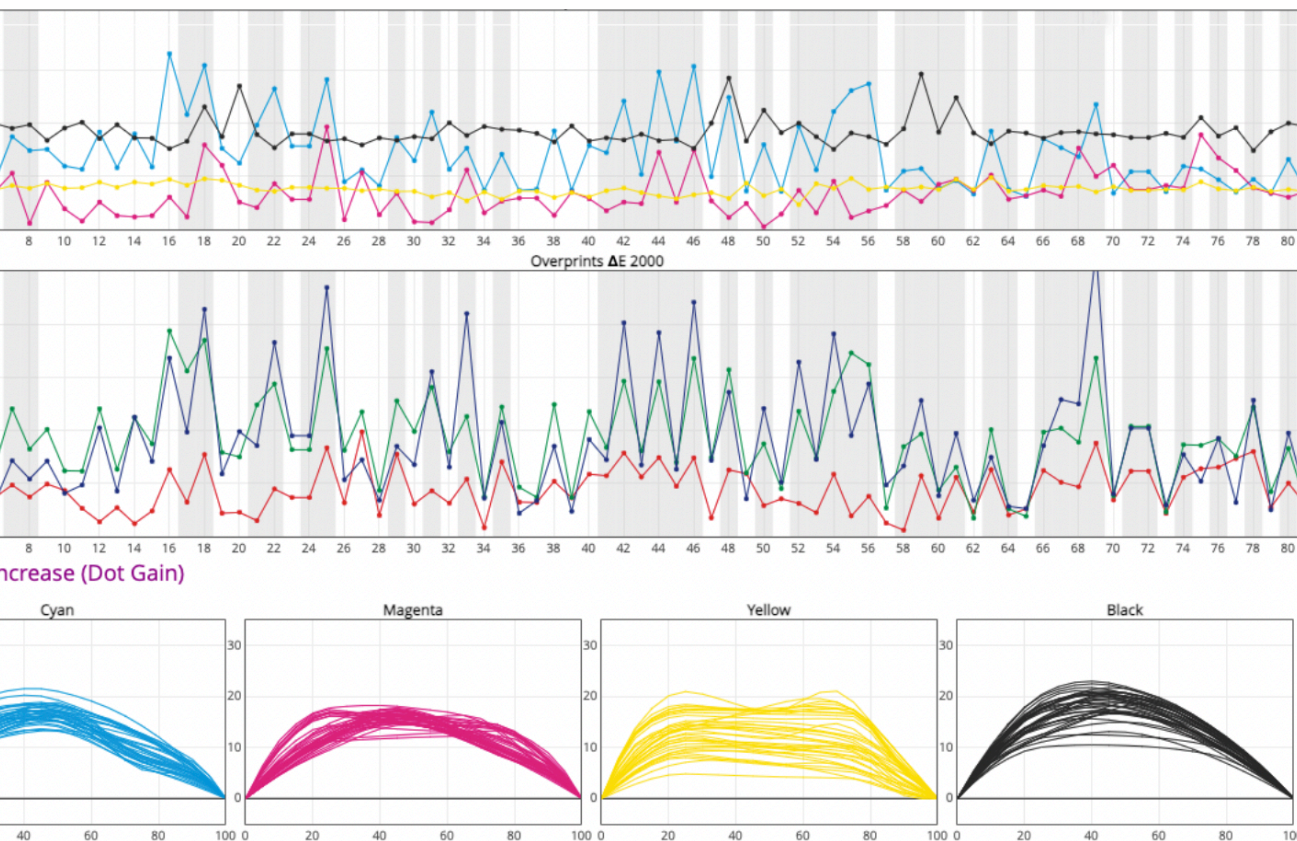


Process Control



Trending and Analysis

- Trending reports (electronic or physical)
- Target characterization dataset identified
- Trend tolerances documented
- Trend intervals documented



Hardcopy Proofing

Proof Validation Tool

Proof Validation Traceability

Proof tolerances documented





Proof adjust method

ISO Compliant paper

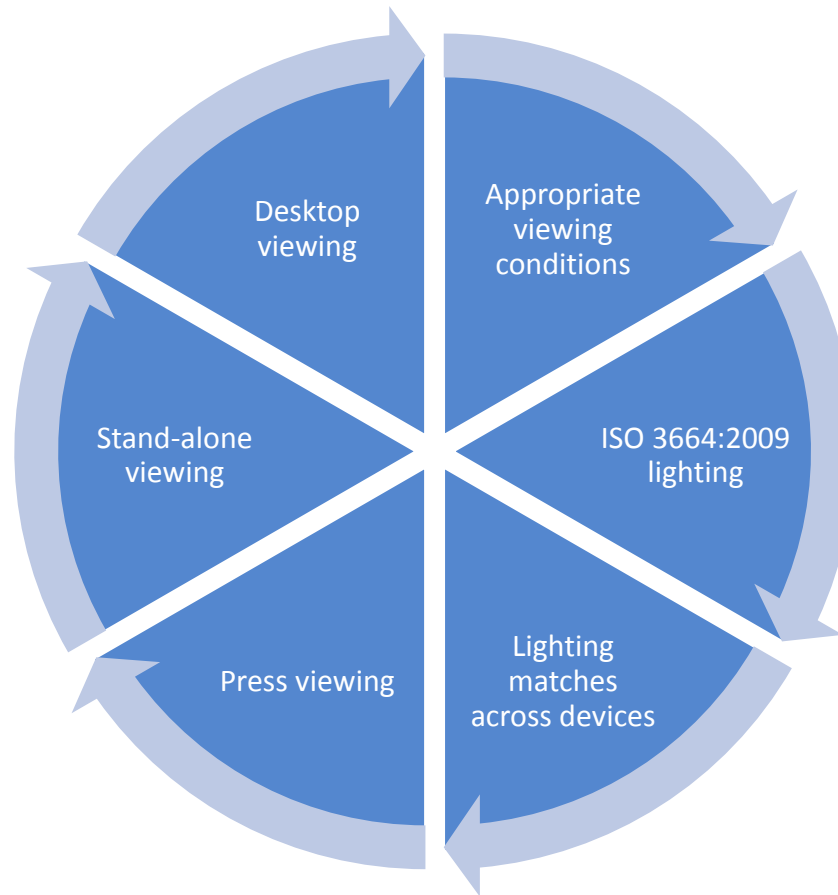
Spectrophotometer

Accurate RIP

Viewing condition

▼ Proofer					
Track Name	Files			Reference Printing Conditions	
<input type="checkbox"/> Coated	0 3.0			GRACoL2013_CRPC6 V2	
<input type="checkbox"/> Uncoated	0 3.0			GRACoL2013UNC_CRPC3 V2	

Viewing Conditions



Client Training

Sales personnel trained

CSR Trained

Management Trained

ISO

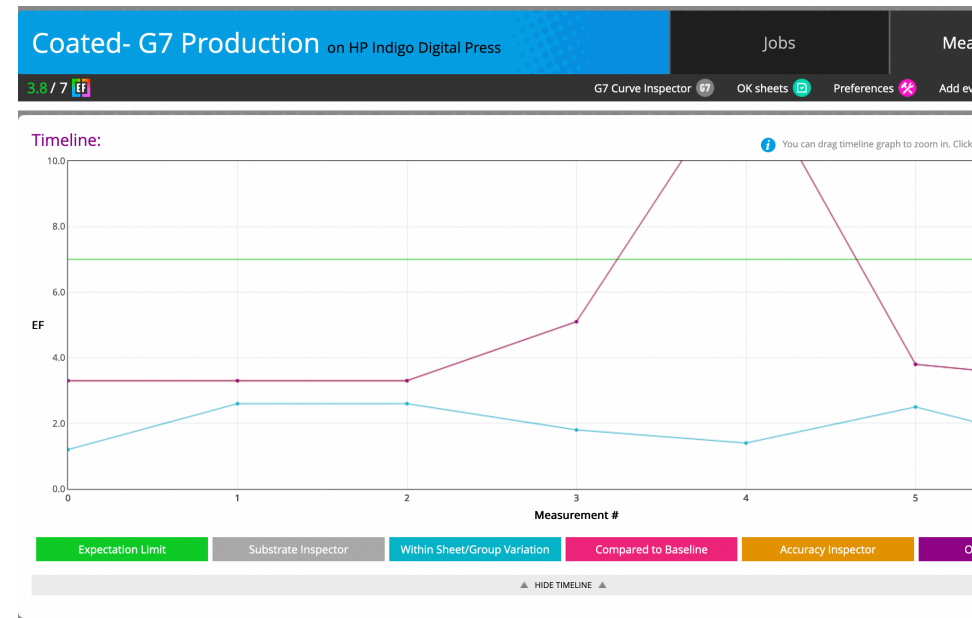
ISO Docs on-site

Knowledge of fundamental standards related to G7



Digital Calibration

OP
QC Procedure in place
QC interval in place
Calibration procedure in place
Digital Control Strip



Digital Test

- Have digital test form
- Capable of testing color
- Capable of testing rendition of file
- Capable of testing RGB to CMYK conversions

Spot Colors



- SCCA Quality/Evaluation
- SCCA Calibration
- Solids Spot Capabilities CXF capable

Module 5 Additional Testing

Additional Brand Tests...

Certificate of Analysis (CoA) and/or Certificate of Conformance (CoC) per brand requirements - document and delivery - testing and reporting protocols

Rub resistance, abrasion testing and documentation

Solvent rub testing and documentation

Additional Brand Tests

Lightfast testing and documentation

COF testing and documentation

Brand Testing Protocol – Defined by brand

Additional product specific testing as require and documented by brand

SOP for all procedures and documentation

Other topics

Correction for Observer Metamerism

The Observer Metamerism issue

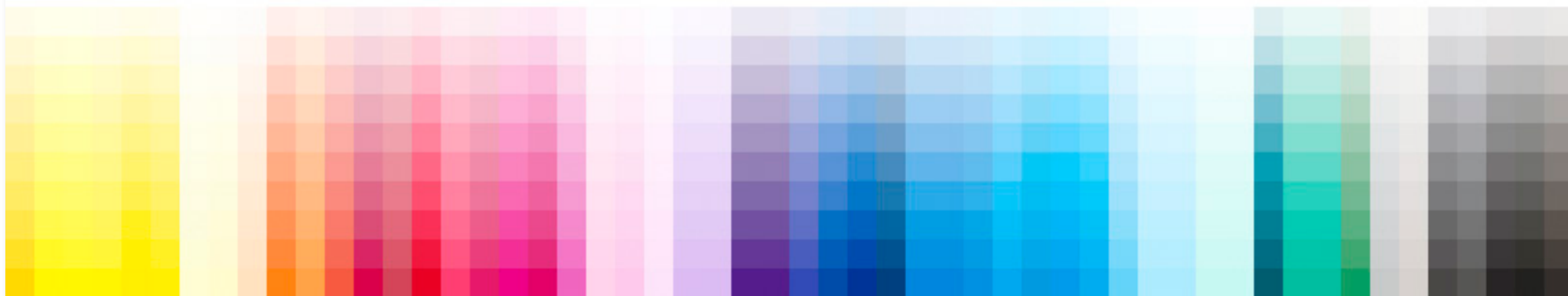
Non-perfect Standard Observer definition

Various issues related to display backlight

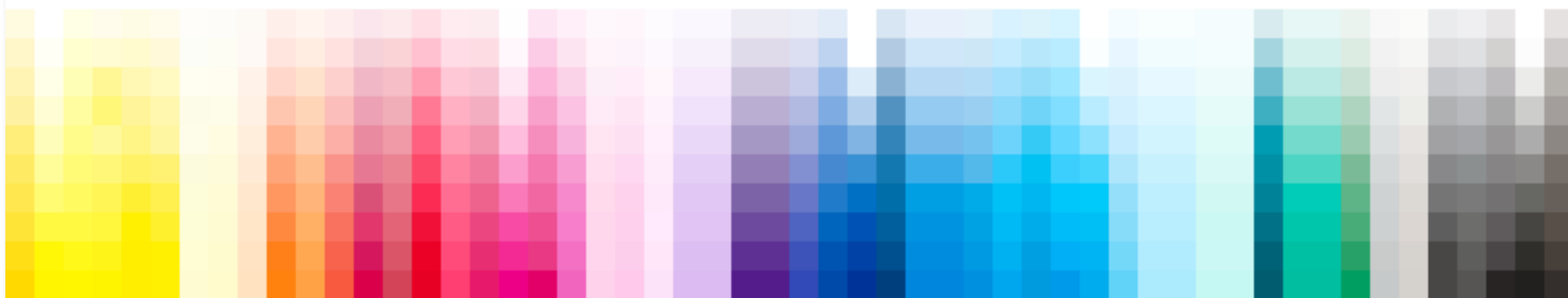
Personal color diseases

SCTV Calibration

SCTV



TVI





Optimize!

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