



# Idealliance ISO/PAS 15339 Certification Program

Program Description v5

## 1. Introduction

### 1.1 Background

Idealliance ISO/PAS 15339 Certification is an expanded compliance program to the Digital Press Certification for digital printing press manufacturers. This program is for OEMs to demonstrate their products' capability of printing to the color spaces specified by the CRPCs of ISO/PAS15339. Idealliance Digital Press Certification is strongly recommended to the OEM who's applying for this program. [Idealliance Digital Press Certification available here.](#)

This document describes the certification procedures, Characterized Reference Printing Conditions, color measurement condition, and conformance tolerances.

### CRPC (Characterization Reference Printing Condition)

As stated in ISO/PAS 15339 Part 1, the relationship between CMYK input data and color measured on the printed sheet for a given set of printing conditions is defined as the characterization data. When these datasets are used as a reference, it is referred to as a characterized reference printing condition (CRPC).

ISO/PAS 15339 Part 2 specifies seven (7) CRPCs for six commonly used conventional printing conditions and one large color gamut printing condition of the wide format inkjet printer. The table below listed the CRPC numbers and the typical uses.

CRPC	Name	Typical use
1	Universal ColdsetNews	Small gamut printing (newsprint)
2	Universal HeatsetNews	Moderate gamut printing on improved newsprint type paper
3	Universal PremUncoated	Utility printing on a matt uncoated type paper
4	Universal SuperCal	General printing on super-calendared paper
5	Universal PubCoated	Typical publication printing
6	Universal PremCoated	Large gamut (typically commercial) printing
7	Universal Extra Large	Extra large gamut printing processes

## 1.2 Certification Category and Designation

### Category:

- **Idealliance ISO/PAS 15339 Certification**

There is only one category of certification offered by this program. The Digital Press submitted for this program has to demonstrate its conformance of printing to six (6) CRPCs, from CRPC1 to CRPC6. Printing Conformance to CRPC7 is optional.

### Designation:

#### 1. Idealliance ISO/PAS 15339 Conformed Digital Press (CRPC 1-6)

- **Level I            Master**
- **Level II          Advanced**
- **Level III        Intermediate**
- **Level IV         Satisfactory**

#### 2. Idealliance ISO/PAS 15339 Conformed Digital Press (CRPC 1-6 Plus CRPC 7)

- **Level I            Master Elite**
- **Level II          Advanced Elite**
- **Level III        Intermediate Elite**
- **Level IV         Satisfactory Elite**

This certification offers two (2) designations as stated above. This designation is for all the presses of one particular Model. A Model is defined as a unique combination of a digital press and a digital front-end (DFE). The same digital press equipped with a different DFE is treated as a different Model therefore, the certification would apply individually to the Model based on the DFE attached to it, even if the press is the same. As long as the DFE is different, it would be considered a different MODEL.

## 1.3 Overview of the Certification Program

- This program is for digital press manufacturers. It was designed to evaluate the printing technology as it relates to its ability of printing to ISO/PAS 15339 Characterized Reference Print Conditions.
- Any digital press manufacturer can submit applications for the Idealliance ISO/PAS 15339 Certification program and the application is Model (Press and DFE) specific.
- Idealliance Digital Press Certification program is strongly recommended to OEMs who are applying for this program.
- Printing conformance to CRPCs has to be demonstrated on CRPC1, CRPC2, CRPC3, CRPC4, CRPC5, and CRPC6.
- Printing conformance to CRPC 7 is optional.
- The successful achievement of conforming to CRPC 7 gains the “Elite” designation of the certification.
- The Idealliance TC1617 target should be used for this program.
- There are three versions of TC1617 target published by Idealliance for different printing needs and color measurement devices. The file names of published targets and

reference workflows are listed below. They are available for downloading at the Idealliance web site.

- TC1617x\_H (i1iSis) cf.tif
  - TC1617x\_H (i1iSis).rwx
  - TC1617x\_V (i1iSis) cf.tif
  - TC1617x\_V (i1iSis).rwx
  - TC1617x (i1iO) cf.tif
  - TC1617x (i1iO).rwx
- No scaling is allowed when printing the above TC1617 targets.
  - M1 measurement condition is required for this program.
  - The online Application Form should be completed and submitted to Idealliance with fees. [Application Form available here.](#)
  - Idealliance sends confirmation email to the Applicant.
  - The fee is payable irrespective of the certification outcome.
  - The online form is communicated internally from Idealliance to RIT. RIT is acting on behalf of Idealliance as the independent evaluation contractor for receiving, processing, and measuring the submitted digital press sheets, data analysis, and report generation.
  - Printing conformance to CRPCs is assessed separately, one dataset at a time.
  - For each Applicant submission, RIT provides certification report(s) to Idealliance. Idealliance then send the report(s) to the Applicant by email. The report will include a compilation of results and status of PASS or FAILURE of the submission. A sample report is available for downloading at the Idealliance web site.
  - Applicants who have achieved successful certification will be provided with a logo and intellectual property rights for usage in their web sites and marketing materials.
  - Idealliance maintains a list of certified Models on an official web site and will update the site within seven (7) days of successful certification.
  - The status of “**Idealliance ISO/PAS 15339 Conformance Certified Digital Press**” is valid for all newly built presses of the same specific Model (press and DFE) within the OEM designed annual print volume of the press given the OEM maintenance procedures are followed and the parts life are within specifications.
  - The passed TC1617 targets will be retained at RIT for one month and the retention time is six months for failed TC1617 targets.

#### 1.4 Shipping Steps

- a) For each submitting Model, submit three (3) sheets printed to each of CRPCs listed below.
  1. ISO15339-CRPC1-TC1617
  2. ISO15339-CRPC2-TC1617
  3. ISO15339-CRPC3-TC1617
  4. ISO15339-CRPC4-TC1617
  5. ISO15339-CRPC5-TC1617
  6. ISO15339-CRPC6-TC1617
  7. ISO15339-CRPC7-TC1617 – Optional

- b) Label each sheet with the following:
1. Company Name
  2. Signature of product manager
  3. Submission ID # (the submission ID # is found on the confirmation email)
  4. Identify Model with information of press and DFE
  5. Identify the reference datasets (CRPC1 to CRPC6 with optional CRPC7)
  6. Include information of paper and ink used
- c) Include a copy of the Idealliance confirmation email.

### 1.5 Shipping Address

Ship the press sheets and/or proofs with the confirmation email to:

Rochester Institute of Technology  
 Printing Applications Lab  
 66 Lomb Memorial Drive  
 Building #78, Room #1425  
 Rochester, New York, 14623  
 Attn: ISO/PAS 15339 Certification Program  
 Phone: 585-475-6878

Sheets can be rolled and placed into a shipping tube with the address above. Rigid materials can be shipped flat.

## 2. Conditions

This section describes items and conditions that are preparations for submitting the application. The conditions include description of reference datasets, testing targets, CIELAB deltaE2000, color measurement devices, M1 measurement condition, and related ISO standards.

### 2.1 Characterized Reference Printing Condition (CRPC)

There are seven (7) Characterized Reference Printing Condition (CRPC) datasets specified in ISO/PAS 15339-2:2015 as listed in Table 1. below.

CRPC	Name	Typical use	Industry Name
1	Universal ColdsetNews	Small gamut printing (newsprint)	Coldset News
2	Universal HeatsetNews	Moderate gamut printing on improved newsprint type paper	Heatset News
3	Universal PremUncoated	Utility printing on a matt uncoated type paper	GRACoL2013 Uncoated
4	Universal SuperCal	General printing on super-calendared paper	SuperCal
5	Universal PubCoated	Typical publication printing	SWOP2013 Coated#3
6	Universal PremCoated	Large gamut (typically commercial) printing	GRACoL2013 Coated#1
7	Universal Extra Large	Extra large gamut printing processes	Extended Gamut

Table 1. CPRCs listed in ISO/PAS 15339-2:2015 and industry common names

The use of six (6) CRPCs, from CRPC1 to CRPC6, are required for this certification program. CRPC7 is optional. Certification based on other characterized reference printing conditions may be permissible subject to approval by Idealliance and RIT with the possibility of additional fees.

## **2.2 CMYK Test Target**

The CMYK test target, TC1617, developed by Idealliance should be used for this program. Please select the files from the list below and download them from the Idealliance web site.

- TC1617x\_H (i1iSis) cf.tif
- TC1617x\_H (i1iSis).rwx
- TC1617x\_V (i1iSis) cf.tif
- TC1617x\_V (i1iSis).rwx
- TC1617x (i1iO) cf.tif
- TC1617x (i1iO).rwx

## **2.3 Measurement Device**

RIT maintains two types of spectrophotometer for this program. They are the X-Rite i1iSis2 XL and i1iO2+i1Pro2 for measuring submitted sheets. These instruments are periodically verified and calibrated by the manufacturer, X-Rite.

## **2.4 M1 measurement condition**

M1 color measurement condition according to ISO 13655:2017 shall be used on all measurements. This measurement condition captures the effect of Optical Brightening Agents (OBA) in printing paper.

## **2.5 Colorimetric Calculations and the use of CIEDE2000**

CIE XYZ tristimulus values and other colorimetric quantities are calculated according to ISO 13655:2017. Colorimetric tolerances, unless otherwise stated, are based on the CIEDE2000 color difference formula, abbreviated as  $\Delta E_{00}$ . This weighted color difference equation provides good correlation to perceived color differences and is specified in ISO 13655:2017.

## **2.6 Related ISO Standards**

Color measurement and data analysis will be derived from specifications, either wholly or in part, found in the following standards.

CGATS 21:2013 Graphic Technology – Printing digital data across multiple technologies

ISO 3664:2009 Graphic technology and photography – Viewing conditions

ISO 12642-2:2015 Graphic Technology (IT8.7/4) – Input data for characterization of 4-colour process printing – Part 2: Expanded data set

ISO 12647-7:2016 Graphic Technology – Process control for the production of halftone color separations, proof and production prints – Part 7: Proofing processes working directly from digital data

ISO 13655:2017 Graphic Technology – Spectral measurement and colorimetric computation for graphic arts images

ISO/PAS 15339 Graphic technology — Printing from digital data across multiple technologies:

— Part 1: Principles

— Part 2: Characterized reference printing conditions, CRPC1–CRPC7

\*PAS stands for Publicly Available Specification

### **3. Evaluation Procedures**

The following sections describe the measurement procedures and tolerances that are used to certify the submission.

#### **3.1 Color Measurement and Data Analysis Procedure**

The steps below describe one application containing one Model (press and DFE) printing to the six (6) reference printing conditions of ISO/PAS 15339 CRPC1, CRPC2, CRPC3, CRPC4, CRPC5, and CRPC6.

- a) Select two (2) out of the three (3) submitted sheets for measurement.
- b) Cut one TC1617 target from each of the two (2) CRPC1 sheets submitted.
- c) One CRPC1 TC1617 target will be measured using the X-Rite i1iSis2XL or i1iO2+i1Pro2 and the measurement data is to be processed using the Idealliance data analysis tool.
- d) If the analysis results failed, the second CRPC1 TC1617 target will be measured using the same instrument and data analysis tool.
- e) The conformance to CRPC1 fails if the second TC1617 target measurement data did not pass.
- f) Repeat steps b), c), d), and e) for the rest of the CRPCs (CRPC2, CRPC3, CRPC4, CRPC5, and CRPC6).
- g) Generate Certification reports for this Model.
- h) Printing conformance to CRPC7 is assessed with the same approach outlined above.

#### **3.2 TC1617 Digital Press Tolerances**

The tolerances stated below apply to the aim CIELAB values of ISO/PAS 15339 – Part 2 CRPC1, CRPC2, CRPC3, CRPC4, CRPC5, CRPC6, and CRPC7.

Testing Targets	CRPC 1-6, Levels and Tolerances (CIEDE2000)			
	Level I Master	Level II Advanced	Level III Intermediate	Level IV Satisfactory
Substrate	2.0	3.0	4.5	6.0
100C	2.0	3.0	4.5	6.0
100M	2.0	3.0	4.5	6.0
100Y	2.0	3.0	4.5	6.0
100K	2.0	3.0	4.5	6.0
50C	2.0	3.0	4.5	6.0
50M	2.0	3.0	4.5	6.0
50Y	2.0	3.0	4.5	6.0
50K	2.0	3.0	4.5	6.0
50/40/40	2.0	3.0	4.5	6.0
100R	2.0	3.0	4.5	6.0
100G	2.0	3.0	4.5	6.0
100B	2.0	3.0	4.5	6.0
Average	2.0	3.0	4.5	6.0
95th	2.0	3.0	4.5	6.0

Testing Targets	CRPC 1-6 Plus 7, Levels and Tolerances (CIEDE2000)			
	Level I Master Elite	Level II Advanced Elite	Level III Intermediate Elite	Level IV Satisfactory Elite
Substrate	2.0	3.0	4.5	6.0
100C	2.0	3.0	4.5	6.0
100M	2.0	3.0	4.5	6.0
100Y	2.0	3.0	4.5	6.0
100K	2.0	3.0	4.5	6.0
50C	2.0	3.0	4.5	6.0
50M	2.0	3.0	4.5	6.0
50Y	2.0	3.0	4.5	6.0
50K	2.0	3.0	4.5	6.0
50/40/40	2.0	3.0	4.5	6.0
100R	2.0	3.0	4.5	6.0
100G	2.0	3.0	4.5	6.0
100B	2.0	3.0	4.5	6.0
Average	2.0	3.0	4.5	6.0
95th	2.0	3.0	4.5	6.0

### 3.3 Fee(s)

#### Total Submission Fee:

The submission fee is \$5,500 USD including receipt, processing, measurement, data analysis, verification, and certification of one Digital Press Model printing to reference datasets of CRPC1, CRPC2, CRPC3, CRPC4, CRPC5, CRPC6, and CRPC7 (optional). This is considered one (1) submission.

Additional Fee:

Additional fee of \$500 is applied for each CRPC dataset if the applicant is not pleased with the certification results due to failure or wanting to upgrade the Level and resubmitting under the same submission number.

Discounted Pricing for Previously Certified Digital Press Systems:

For those devices that have already completed Idealliance Digital Press System Certification, Inkjet or Electrophotographic, a reduced submission fee of \$3,000 is available including receipt, processing, measurement, data analysis, verification, and certification of one Digital Press Model printing to reference datasets of CRPC1, CRPC2, CRPC3, CRPC4, CRPC5, CRPC6, and CRPC7 (optional). This is considered one (1) submission.

Discounted Combination Pricing for both Idealliance ISO/PAS 15339 System Certification and Digital Press System Certification:

For a device seeking both Idealliance ISO/PAS 15339 System Certification and Idealliance Digital Press System Certification, Inkjet or Electrophotographic, a combined reduced submission fee of \$7,000 is available including receipt, processing, measurement, data analysis, verification, and certification of one Digital Press Model printing to reference datasets of CRPC1, CRPC2, CRPC3, CRPC4, CRPC5, CRPC6, and CRPC7 (optional). This is considered one (1) submission.

Please contact Tim Baechle at Idealliance for further details.