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BPIF ISO 12647
COLOUR QUALITY MANAGEMENT
CERTIFICATION SCHEME

REQUIREMENTS FOR CERTIFICATION

BPIF

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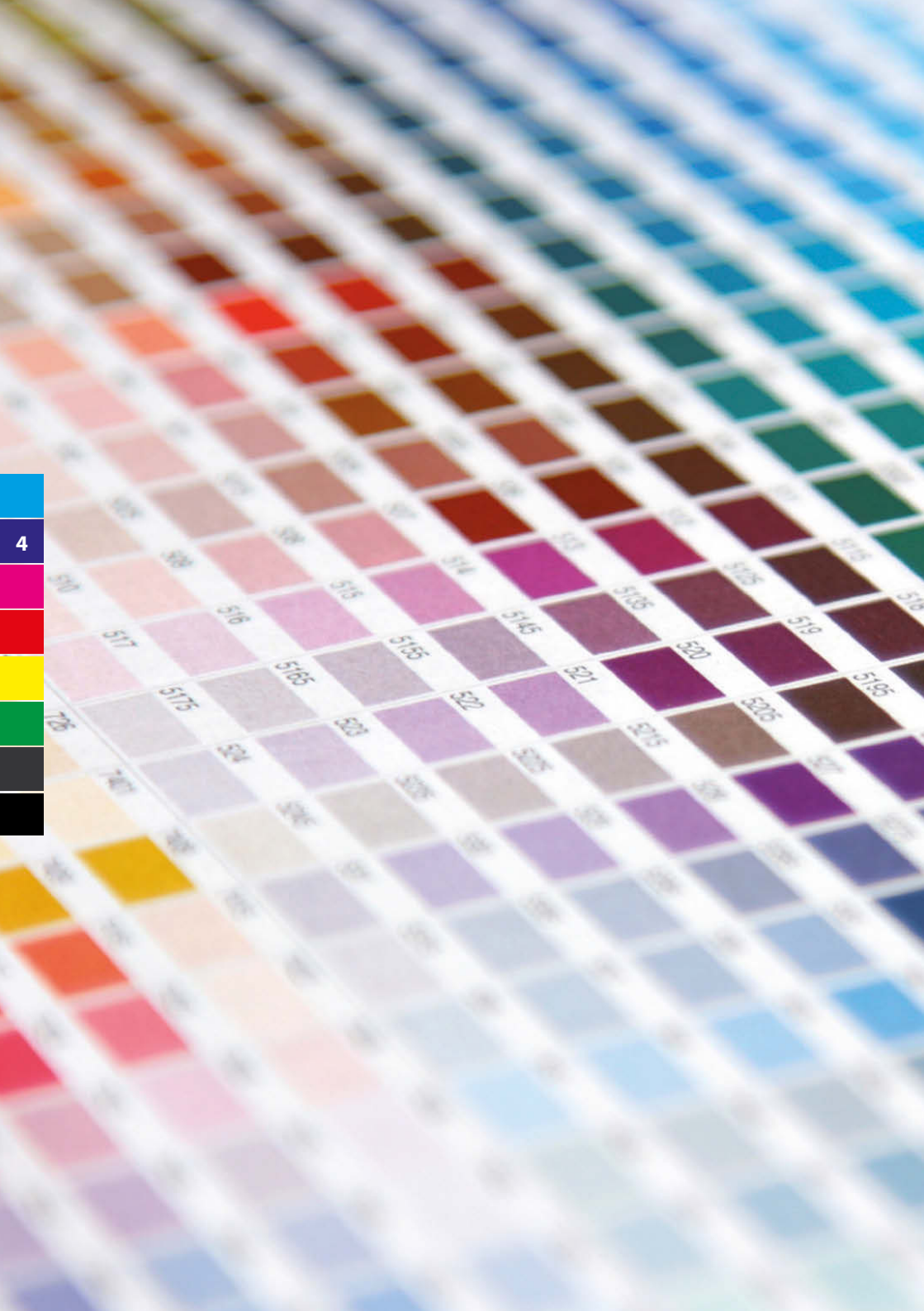
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Introduction

Version 2 of the BPIF ISO 12647 Colour Quality Management Certification Scheme allows certification to any ISO colour standard, and therefore incorporates all the relevant parts of ISO 12647, as well as potentially any further ISO colour standards. Also digital presses that can match an output condition of ISO 12647 are included.

The scheme is made up of the following documents:

Part 1: Guidelines for Colour Quality systems in the BPIF ISO 12647 Colour Quality Management Certification scheme (current issue v2.0)

- Introduction to colour quality management systems and their relationship with ISO 9001
- Guidelines for integrating the BPIF ISO 12647 colour quality management certification scheme requirements with ISO management system standards

Part 2. Certification scheme requirements and annexes (current issue v2.0)

1. General
2. Exclusions, References and Definitions
3. Colour Quality and Production Management System Requirements
4. Demonstration of Product Compliance
5. Annexes and Tables

Part 3. Exclusions Annex (current issue v2.0)

Part 4. Requirements for Certification Bodies (current issue v2.0)

Part 1- Guidelines for Colour Quality Systems in the BPIF ISO 12647 Colour Quality Management Certification Scheme

Introduction to Colour Quality Management Systems and their relationship with ISO 9001

One principle that dominates the spirit and thinking of ISO 9000 is the P-D-C-A cycle, advocated by W. Edwards Deming, and clearly credited to him in the standard. Plan, Do, Check (measure) and Act (analyse and take action) will, if properly applied, inevitably lead to continuous improvements.

When setting up a Quality Management System focused on print quality, as required by this scheme, a written Colour Quality Policy is required to communicate to staff and customers. Complementing the Quality Policy with clear and understandable Colour Quality Objectives will help drive improvements within a stipulated time frame. When choosing and describing colour quality objectives, S.M.A.R.T. criteria should be applied. The colour quality objectives should be Specific, and they should be Measurable. They should also be Achievable and Relevant, and it's also very important they are Time limited.

Once colour quality objectives have been defined, along with the types of measurement to be conducted in the regular production process, this feeds into the analysis of non-conformities, which may occur in that process. Non-conformities should ideally be caught and reported internally to prevent non-conforming products from reaching the customer. Customer complaints are the worst form of non-conformity reports, since if repeated and not properly dealt with; they can harm an organisation's reputation.

When implementing ISO 9001 for colour quality management, the focus should be on customer satisfaction and reducing administrative work to a minimum. There are however, some requirements for written procedures in the ISO 9001 standard to enable and support the implementation of a colour quality system. Firstly, there must be a formal Colour Quality Manual, which should at least include a Colour Quality Policy, and there must be Colour Quality Objectives, set by senior management for the organisation.

There are six basic procedures which must be documented as follows:

1. Document structure, numbering and control;
2. Control of records;
3. Internal audits of the colour quality system;
4. Control of non-conforming products;
5. Corrective action to determine the root cause of, and to correct non-conformities;
6. Preventive action to determine the root cause of and to correct potential non- conformities.

While the ISO 9001 standard gives the framework for the Colour Quality Management System, it's mainly the ISO 12647 family of standards which provide details on tolerances in print production, including ISO 12647-7 providing tolerances for hardcopy proofs.

A key area for consideration is the control of measuring equipment and the processes for ensuring that measurements taken to determine product compliance are consistently accurate. Other ISO standards, which help in specifying parameters for the different colour management processes, are (among others):

ISO 2846	Colour and transparency of ink sets for four-colour printing
ISO 3664	Viewing conditions – Graphic technology and photography
ISO 12642	Input data for characterization of 4-colour process printing
ISO 12646	Displays for colour proofing
ISO 13655	Spectral measurements and colorimetric computation for graphic arts images
ISO 15076	Image technology colour management (ICC profiles)
ISO 15930	Prepress digital data exchange (PDF/X)

For print managers who wish to meet the requirements of the scheme, many of the requirements relating specifically to pre-press and press operations are not relevant and can be excluded from the colour quality management system. The focus of colour quality systems for print managers should be the customer related processes and meeting customer requirements, the accurate identification of certified printers for outsourcing, management of claims of product conformity from suppliers, and the process of continual improvement.

Guidelines for integrating the BPIF ISO 12647 Colour Quality Management Certification Scheme requirements with ISO Management System standards

The various ISO management system standards have long had common principles and elements; therefore integrating them has always been helpful to avoid duplicating effort when using more than one. However, differing structures have meant that doing so has not always been straightforward.

The new High Level Structure being gradually introduced by ISO as standards are revised, is planned to make this easier: standards such as ISO 9001, ISO 14001 and ISO 27001 will all, once their revision cycles are complete, have a common structure, as will all new management system standards being developed.

Structure of ISO Management Systems

The management system elements of this certification scheme fit into the high level structure of ISO Management Systems, and can be integrated with management systems currently being run or planned for introduction. Most of the elements will be familiar to those already running management systems, but may come under different headings or be in different places. There are seven elements within an ISO management system structure.

Context of the Organisation is the first element of the new structure, looking at the business, customers, staff and other interested parties and working out what is relevant to the management system and where it fits within the business: for ISO 12647 this should be fairly clear cut, enabling a focus on who and what is involved and why.

The Leadership element relates to the colour quality policy statement. It demonstrates management commitment through the appointment and support of the Colour Champion, and provides the resources and necessary levels of authority required, as well as directing the system.

The next section ensures that everything needed to make the system work as intended is taken into account, in order to produce compliant printed product as required. Planning requires the identification of improvements, the setting of objectives for improvements and planning the steps required, detailing important points such as who will do what, what resources they will need for success, what are the timescales and how the results will be assessed. These latter requirements apply whether the objectives are directly measurable, such as increased percentage of compliant work or improved measurement scores, or whether there are other, more indirect forms of performance

indicator, such as numbers of training days delivered or increases in positive responses to customer satisfaction interviews or surveys. This section and Leadership are part of the 'Plan' section of the P-D-C-A cycle mentioned in the introduction.

To run an effective system requires support, and this part of the structure ensures that there is an appropriate level of competence, making sure personnel are aware of what is required and underpinning this with the necessary documents. Control of system documents fits in here as well, to ensure they are managed so that people have the documents they need to follow the system, that those documents are fit for purpose and up to date.

Operation is the section related to deciding on and putting in place the means of controlling the organisation's processes, how measurement or calibration is carried out, how enquiries are responded to and orders taken or how record keeping or workflows are managed. Part of this section involves contingency planning and making sure that outsourced processes are properly controlled. These last two sections come under 'Do' in the P-D-C-A cycle.

Performance Evaluation is the 'Check' part of the cycle, and covers measuring and monitoring, carrying out internal audits and management review and using the information to manage the system.

And finally, Improvement – which involves not just acting on what is found to be wrong in the process or product, and taking action to prevent problems happening again, but also improving the system itself to make it more effective.

Part 2 - Certification Scheme Requirements

1. General

1.1 Scheme Copyright

The scheme has been developed by the British Printing Industries' Federation's (BPIF) Technical Committee. The ISO 12647 Certification Steering Group will periodically review the requirements of the scheme as a result of feedback from all interested parties and as a result of changes in the marketplace, processes, technologies available and standards referenced by this scheme. The scheme requirements are available to all, but are protected by copyright and are made publicly available for information only. Any party wishing to use or reproduce the scheme requirements for purposes other than for information must seek prior written permission from the BPIF.

1.2 Objective

The scheme aims to ensure that a Colour Quality and Production Management System (referred to as Colour Quality System below) functions effectively within any organisation certified under this scheme to an international colour quality standard. Such standards include the ISO 12647 series of standards and other colour quality standards as may be published by ISO from time to time.

1.3 Methodology

The scheme is based on the requirements of ISO 9001 with a scope limited to "tone and colour reproduction", together with the requirements of colour quality standards as specified by ISO, subject to any exclusions as defined by this document. Further detailed technical requirements are outlined in this document, together with the requirements for on-going production compliance, and product compliance claims.

1.4 Scope of certification

The possible scopes of the certification are defined as the following:

Tone and colour reproduction to <ISO STANDARD(s)> : <PRODUCTION METHOD(s), (as applicable); <PROCESS>, (as applicable); <CUSTOMISED PRINTING CONDITION>, (as and if applicable).

Outsourced tone and colour reproduction to <ISO STANDARD(s)> : <PRODUCTION METHOD(s)>, (as applicable); <PROCESS>, (as applicable) <CUSTOMISED PRINTING CONDITION>, (as and if applicable).

The applicable method for determining product compliance must also be defined within the scope of the certification as follows:

Compliance method: <ISO STANDARD> and/or
Compliance method: <SCHEME SCORING SYSTEM>

Any proposed change to the scope of the certification must be notified to the certification body prior to the change being made.

Site locations of the certified organisation must be defined within the scope. Site locations may only be included if the colour quality system applies at a particular site to be included, and an audit product test has been successfully conducted at that site.

Processes which can be included in the scope of the certification are the following:

- Pre-press, proofing and PDF file submission to an agreed printing conditions
- Press* only, including plate calibration and TVI curves
- Proofing and press*, including plate calibration and TVI curves
- Pre-press, proofing and press*
- Outsourced printing in any of the above categories

Organisations are deemed to provide pre-press services when some or all of the following activities are undertaken by the organisation itself:

- Process and correct and or colour manage clients' application files.
- Process, colour manage and/or retouch images.
- Pre-flight and correct and/or colour manage PDF or other file formats.
- Scan analogue colour originals, if required.

If an organisation provides pre-press services, but these are not to be included within the scope of the certification, then the organisation must notify the certification body that these services are to be excluded prior to initial audit.

*A press for the purposes of this scheme is any conventional printing device or printing press covered by ISO 12647 and digital printing devices outputting to ISO 12647 conditions.

1.5 Compliant product claims

Certified organisations shall only make compliant claims relating to specific printed products, via invoices and delivery notes, and other product specific documents, to customers, where it is documented that those products meet the requirements of the certification scheme, and when the organisation has an existing valid accredited certification under this scheme at the time of production.

Organisations shall not claim compliance to ISO 12647, other than in relation to a specific printed product.

1.6 Customised printing

Customised printing conditions involving the use of non-ISO 12647 or amended ISO 12647 colour data sets and profiles including digital printing

It is recognised that there are cases of customer requirements, including non- standard papers, processes including digital printing, papers, boards and other substrates, inks etc. may require the use of printing conditions and ICC profiles which are not covered within the relevant ISO 12647 colour quality standards.

A customised printing condition is defined as: A CMYK printing condition that uses a combination of substrates, inks and printing methods that are not referenced by current ISO 12647 standard printing conditions.

In this case any printing company can be certified to these customised printing conditions by demonstrating that the same controls, systems, policies and measurement tolerances required by this scheme and the associated ISO standards are adhered to, where it is demonstrated that it is possible and appropriate to do so. Any proposed certification for a customised printing condition, and relevant aim values, shall be agreed by the printer seeking certification in advance with the BPIF Steering Group for this certification scheme.

2. References and Definitions

2.1 Exclusions, clarifications and amendments

Exclusions, clarifications and amendments to ISO standards are detailed in the Exclusions Annex to this scheme

2.2 Normative References

ISO 12647	series of standards
ISO 2846	Colour and transparency of ink sets for four-colour printing
ISO 3664	Viewing conditions – Graphic technology and photography
ISO 12642	Input data for characterization of 4-colour process printing
ISO 12646	Displays for colour proofing
ISO 13655	Spectral measurements and colorimetric computation for graphic arts images

ISO 15076	Image technology colour management (ICC profiles)
ISO 15930	Prepress digital data exchange (PDF/X)
ISO 9001	Quality Management Systems requirements
ISO 9000	Quality Managements systems – Fundamentals and vocabulary
BS EN 45011	(ISO/IEC Guide 65) General requirements for bodies operating product certification systems
ISO/IEC 17065	Requirements for bodies certifying products, processes and services
ISO/IEC 17021	Conformity assessment – Requirements for bodies providing audit and certification of management systems
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
IAF GD 5	Other relevant ISO standards

2.3 Terms and Definitions

As per the normative documents above.
For the certification scheme, the use of the term "product" refers to the final output supplied to the customer.

"Colour Quality and Production management system" (Colour Quality system) refers to the range of processes, including those of a quality management system, as outlined in this document, which are required to consistently produce printed products compliant with ISO colour quality standards.

Where the term "accreditation" or "accredited" is used, this refers to either UKAS or an equivalent member of the International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA).

Where the term "testing" is used, this is not intended to mean or imply product testing in accordance with ISO 17025.

Where the term "certification" or "certified" is used this refers to accredited certification.

"Certification" means that:

- the certified organisation is capable of consistently printing to meet the requirements of the relevant international colour quality standard, as defined by ISO,
- the certified organisation operates a colour quality and production management system, to ensure that, where required, products are compliant with that standard, and
- the certified organisation is able to make product compliant claims to its customers.

To achieve and maintain certification, the organisation shall meet all the Colour Quality system and Product Compliance requirements of this scheme.

3. Colour Quality and Production Management System requirements

3.1 Requirements

Requirements for the Colour Quality and Production Management system requirements are as specified in ISO 9001, but with a scope for the Quality System limited to the specified scopes shown in Clause 1.4:

3.2 Additional requirements

In addition to the requirements of 3.1, the organisation shall:

a) Maintain records needed to provide evidence that individual products meet the referenced ISO colour quality standard requirements;

b) Where appropriate, ensure adequate control over outsourced printing processes through identification and use of suppliers with valid certification through this scheme, when printing products intended to be compliant with the requirements of this scheme and the relevant ISO standard;

c) Determine if the customer requires a product to be printed in compliance with the relevant ISO standard and that the organisation is capable of producing a complaint product according to that standard, and where product requirements are such that the organisation cannot meet the requirements of the relevant ISO standard, this shall be communicated to the customer prior to order acceptance;

d) Determine and implement effective methods for communicating with customers and suppliers in relation to:

- Acceptability or otherwise of artwork or proofs supplied, and
- Product compliance claims on delivery notes, invoices and other customer related documentation.

e) Ensure that only authorised and competent personnel have access to systems and files, and that only authorised users are able to access and manipulate data files. All changes to data files should be documented and fully attributed to those making the changes;

f) Ensure the provision and maintenance of necessary and appropriate controlled lighting conditions, and access to and use of appropriate colour measuring equipment and software.

3.3 Product compliance and certification claims

3.3.1 Product compliance claims

Where a product is in compliance with the relevant ISO standard as defined by this scheme, the organisation shall make a claim to the relevant customer, and shall use only the following wording:

"product is <ISO STANDARD> compliant (accredited certification: certification body name; certificate number)"

The wording shall be legible and shall be used on invoices, delivery notes, quotations, and other customer related documentation, and will distinguish between compliant products and others identified on the documentation.

3.3.2 Certification claims

The organisation may make use of the relevant marks and logos supplied by the certification body with respect to certification only in the way specified by that body.

Claims regarding certification shall only be made in terms that state that:

- the certified organisation is capable of consistently printing to meet the requirements of the relevant ISO Standard(s).
- the certified organisation operates a colour quality and production management system, to ensure that, where required, products are compliant with the relevant ISO standard(s).

3.4 Outsourced printing

For organisations which outsource the printing of a product(s) and intend to claim compliance for that product(s), there must be assurance of compliance for that product. The organisation shall ensure that:

- a procedure for ensuring the accurate identification of the validity of the certification of the outsourced supplier is documented and implemented;
- the organisation providing the printed product has a valid, accredited and current certification to the relevant ISO standard under this scheme and for the relevant product at the time of production;
- records are kept of the validation of the certification of the relevant outsourced suppliers;
- other relevant scheme requirements are met.

3.5 Colour Quality Policy

The Colour Quality policy represents the Quality Policy as far as the Colour Quality System is concerned. Senior Management shall ensure that the Colour Quality policy covers, where applicable:

- the ISO standards, and methods of production, within the scope of the certification and the method of demonstrating compliance;
- the development and maintenance of the competence of all personnel within the scope of the Colour Quality and Production Management System;
- the provision of the necessary infrastructure and equipment necessary for the production of compliant products and the review of the capabilities of such infrastructure and equipment in the light of technological and other changes.
- the method for external publication of the Colour Quality policy to interested parties.

3.6 Colour Champion

The organisation shall ensure that there is a Colour Champion, or equivalent, who fulfils the role of Management Representative in relation to the Colour Quality System, appointed with authority to manage, monitor, evaluate and coordinate the colour quality and production management system. The Colour Champion may also be the organisation's Management Representative, but must have responsibility and authority which includes:

- ensuring that processes needed for the colour quality system are established, implemented and maintained,
- periodic reporting to Senior Management on the performance of the colour quality system and any need for improvement or additional resources,
- ensuring the promotion of awareness of the requirements of the relevant ISO standard through the organisation,
- ensuring that necessary training is provided and adequately resourced,
- keeping up to date with technology and market developments which may impact upon the effectiveness or currency of the organisation's compliance methodologies,
- advising Senior Management of developments relevant to compliance, or to improving working methods,
- maintaining contact with production and customer services (or equivalent) staff in order to monitor customer relations, and
- making recommendations for customer communications to help customers improve the quality of data files delivered for compliant production workflows

3.7 Press and digital output device maintenance

The organisation shall ensure maintenance and servicing in accordance with the manufacturer's recommendations, records of maintenance are kept, and appropriate checks are carried out for colour quality control.

Products utilised and batch numbers shall be recorded, including information relevant to the fulfilment of the relevant ISO standard, for:

- ink;
- toners;
- ink jet cartridges
- other manufacturer specific digital printing consumable items
- fountain solution,
- blanket type and construction,
- rollers,
- plates, and
- press chemicals;

Records of lithographic press fountain solution shall include:

- conductivity,
- PH readings,
- tank maintenance,

- IPA levels (if used), and
- temperatures.

(Frequency of measurement, targets and tolerances);

Records of Offset blankets shall include:

- blanket changes (dates and times),
- blanket age,
- impression count, and
- torque wrench settings;

Records of printing rollers shall include:

- roller setting,
- roller maintenance.

(Frequency of measurement, targets and tolerances);

Records for digital presses shall include:

- Manufacturer recommended monthly duty cycle or print volume periods for replaceable parts
- proof of adherence to manufacturer recommended duty cycle or print volume periods
- manufacturer specific maintenance areas and items
- colour calibration and the target output standards.

3.8 Purchasing

3.8.1 Where product compliance is required and intended

For products, where product compliance is required and intended, the organisation shall ensure and verify that inks/toners used comply with the relevant ISO standard, if applicable, for those inks/toners, and shall monitor and evaluate the continuing capability of inks/toners to enable the production of compliant products.

3.8.2 Demonstrate fitness for purpose

The organisation shall determine and record the criteria and justification for the selection and purchase of measuring equipment, to demonstrate fitness for purpose of such equipment.

3.9 Identification and traceability

3.9.1 Identification and records

The organisation shall identify and record each product intended to comply with the relevant ISO standard by suitable means throughout the production process, and shall identify its status with regards to conformity following production.

3.9.2 Recording the method

The organisation shall record the method used to demonstrate product compliance for each job where a compliant claim is made, and this method must only be as defined within the certification scope.

3.9.3 Proof verification

All work proofed to customers shall have proof verification or full report on compliance to ISO 12647-7 and the relevant printing condition attached.

3.10 Control of measuring equipment

The organisation shall have available at all times the instrumentation required to fulfil the requirements of this certification scheme, subject to periodic maintenance and calibration activities which may occur offsite.

3.10.1 All measuring equipment shall be:

- calibrated or verified, or both, annually;
- adjusted or re-adjusted as necessary;
- have identification in order to determine its calibration status;
- safeguarded from adjustments that would invalidate the measurement results;
- protected from damage or deterioration during handling, maintenance and storage;
- in compliance with ISO 13655 for colorimetry;
- maintained according to manufacturer's recommendations.

3.10.2 Maintenance activity
Any maintenance activity which may affect the measurement performance of the measuring equipment in determining product compliance (including servicing, re-calibration and certification) shall be conducted by an accredited testing laboratory (ISO 17025), whose accreditation scope shall cover the equipment concerned and all aspects of spectral and density measurement relevant to that equipment.

Where it is physically impractical to return instrumentation to an ISO 17025 accredited testing laboratory, such as in the case of in-line devices on presses, the devices shall maintained according to manufacturer's recommendations and in accordance with 3.10.4 a) below.

3.10.3 Compliance of measuring equipment
A copy of the certificate demonstrating compliance for the organisation's measuring equipment shall be sent to the certification body within one month of the date of issue of that certificate.

Records of the results of calibration and verification, and in-house accuracy and repeatability (frequency of measurement, targets and tolerances) shall be maintained for all measuring instruments.

3.10.4 Monitoring accuracy of equipment
The organisation shall implement a process for monitoring the accuracy of its measuring equipment, which shall include:

a) the use of a master or reference equipment or set of measured data;
b) a definition of the tolerance of error against the reference equipment or data
c) appropriate periodic checks of the accuracy of instrumentation;
d) a process for maintaining the accuracy of measurements taken in the event of the failure of any of the organisation's measuring equipment.
e) an immediate withdrawal and quarantine of any measuring equipment found to be out of the defined tolerance.

In addition, the organisation shall assess and record the validity of the previous measuring results if the equipment is found not to conform to requirements. The organisation shall take appropriate action with the equipment and any product affected.

3.10.5 Fitness for purpose of computer software
When used in the monitoring and measurement of specified requirements, fitness for purpose of computer software for the intended application shall be confirmed. This shall be undertaken prior to initial use and reconfirmed as necessary.

3.11 Customer Complaints
Where a product compliant claim for a product has been made, records of customer complaints relating to that product shall be available and provided to the certification body upon request.

3.12 Internal Audit
The organisation shall conduct internal audits performing sufficiently regular checks of product conformity to the relevant ISO standard, to all the requirements of this scheme and to the organisation's own colour quality and production management system. Internal auditors shall be competent to perform effective audits.

3.13 Monitoring and measurement of the product

3.13.1 Evidence of product conformity
Where a product compliant claim is made, the organisation shall provide evidence of product conformity, to the certification body on a quarterly basis, or according to the period specified by the certification body.

3.13.2 Dry back
Where appropriate, the organisation shall provide evidence of an appropriate dry back calculation for relevant printing conditions and shall review the calculations as appropriate.

Where measurement of samples cannot be conducted after the product is dry, an appropriate dry back calculation shall be applied in the determination of product compliance.

The method used to calculate the wet ink measurements and their relationship to the dry measurements needed to determine product compliance shall be clearly defined, documented and demonstrated to the satisfaction of the certification body.

3.14 Provision of Infrastructure
The organisation shall ensure the appropriate provision of:

a) colour viewing lighting conditions to ISO 3664 standard in the relevant areas, where visual colour judgements are made;
b) colour accurate computer monitors to ISO 12646, where colour judgements are made on the basis of computer generated images; monitors must be able to display at least 90% of a FOGRA 39L dataset based gamut, and the monitor profile should be validated on a regular basis, with this validation recorded (frequency of measurement, target and tolerances). For other ISO printing conditions using smaller CMYK gamuts (such as used within part 3 of ISO 12647) the relevant dataset or ICC profile can be used and the monitor must be able to display 90% of the gamut of this chosen profile.

3.15 Monitoring and measurement of process

3.15.1 The organisation shall establish and maintain
A documented digital colour management workflow (to avoid confusion, this is not to be referred to as the Colour Quality Policy or Colour Quality Manual), covering all production software;

digital proofing control, calibration and recording to comply with ISO 12647-7 and records kept of calibration showing compliance and validation (frequency of measurement, targets and tolerances);

regular calibration of the plate making process and records kept of the calibration and validation results (frequency of measurement, targets and tolerances);

press process control methods for both conventional and digital presses, calibration and recording shall comply with the relevant ISO Standard for the production method;

Pre-press personnel shall ensure that the use of colour profiles in all software and workflows is controlled and not subject to corruption or unintended replacement;

3.16 Competence, training and awareness

3.16.1 Knowledge of ICC profiles
Pre-press personnel shall have sufficient knowledge of ICC profiles and their use with images and within software, in relation to the organisation's Colour Quality Policy. This shall also apply to the use of colour management checks within all forms of pre-flighting software, PDF creation, computer to plate workflows and digital printing devises that are within the scope of certification.

3.16.2 The colour champion
The Colour Champion shall demonstrate specific competence in the following areas:

- Standard requirements
- Colour Theory
- Technical pre-press activities
- Technical press activities
- Measurement and product compliance

Competence shall be demonstrated by training, skills, knowledge and experience or through an appropriate personnel certification scheme for colour management competence.

4. Demonstration of Product compliance

4.1 Certification Body product test

The organisation must pass an audit product test carried out by the certification body in order to be certified. Tests will be carried out prior to certification and on an annual basis thereafter, unless otherwise specified by the certification body. The certification must comply with the requirements for certification bodies as specified by this scheme. For the certification body's product test, the organisation shall ensure that the product being tested achieves compliance with the relevant ISO standard.

A test form, or acceptable production job, must be used and must include the elements as required by the relevant ISO standard, and as defined by the certification body. (See Annex 3 for details of sampling, measurement and compliance requirements.)

4.2 Product compliance in day-to-day production

In day-to-day production, where a product compliant claim is made to the customers, compliance shall be demonstrated by:
compliance with the relevant ISO Standard or,

Appropriate on-press closed-loop system reports, or appropriate validation percentage scoring systems where 68% of work sampled must score over 80% using an appropriate validation system. The remaining 32% of the sampled sheets must not score below 70%. "Day to day" production is defined as those products for which a compliant claim has been made to the customer (as per clause 3.2.4). See Annex 1 for percentage scoring system weightings and scoring system calculation method

Because these validation systems check areas outside of the standard the following areas are mandatory:

CMYK primaries must score over 75%.
TVI (dot gain) must score over 80%.

All measurements should normally be taken in a dry state, however, where this is not possible; an appropriate dry back calculation should be applied. The sheet/impression sampling requirement is based on sheets printed from a set of plates and is as shown in Annex 1, Table 1.

Note: It is recognised that some on-press closed loop ink control systems are capable of reporting on ISO standard compliance. Printers using these systems should ensure that the figures and data captured from them record the CMYK primaries, RGB secondaries, Grey balance and TVI. Such reports should comply with scheme requirements and be comprehensible for audit purposes.

4.3 Declaration of product compliance method

Where applicable, the method to be used for demonstrating on-going product compliance for day to day production shall be declared by the organisation to the certification body prior to the initial certification, and the organisation shall notify the certification body in advance of any change in the method used.

4.4 Sampling requirements: day-to-day production

4.4.1 Defining the sampling regime

The organisation shall define a sampling regime for products where a compliant claim is intended to be made in accordance with Annex 1, as a minimum, or

where defined in the relevant ISO Standard.

Note: With the inclusion of the new printing conditions to the scheme, ISO 12647 parts 3 to 6, and the inclusion of customised printing conditions, this results in the need for 'reel to reel' printing to be certified.

However, product certification for this type of production can be difficult. If the printing machine has 'inline measurement' or if 'offline' post production measurements are used in accordance with sheetfed sampling requirements, then the product can potentially carry a compliant product claim. However, if this is not possible, the certifying body and the Steering Group will, on a case by case basis, have to assess the number of impressions per reel, running speed of the press and stability of the process, to determine whether measurement at the beginning and end of a reel produces a sufficiently robust sample to enable a compliant product claim to be made.

This area will be under review by the BPIF ISO 12647 Certification Steering Group.

4.4.2 Sampling

Sampling shall also be conducted according to customer requirements, where defined by the customer, and where this produces a sample in excess of the minimum requirements as defined above.

Annex 1

Identify and define the printing condition as follows:

Printing according to : Standard (eg ISO 12647-2)

Description of the process:

Platemaking modes:

Substrate/paper type:

Identify target ISO TVI curve:

C :

M :

Y :

K:

CMYK				
Solid colours	**Target**	**Points score**	**Weighting**	**Actual Score**
C	5	8		
M	5	8		
Y	5	8		
K	5	8		
Total		**32**	**32%**	

RGB				
RGB	**Target**	**Points score**	**Weighting**	**Actual Score**
R	6	4		
G	6	4		
B	6	4		
3colour	6	4		
Total		**16**	**16%**	

Type of Curve

	Target				Points			Total	Weighting	Score	Score	Score	Actual Score
TVI	25%	50%	75%		25%	50%	75%			25%	50%	75%	
C	+/-3%	+/-4%	+/-3%		2	4	2	8					
M	+/-3%	+/-4%	+/-3%		2	4	2	8					
Y	+/-3%	+/-4%	+/-3%		2	4	2	8					
K	+/-3%	+/-4%	+/-3%		2	4	2	8					
Total								**32**	**32%**				

Grey Balance	Target	Points	Weighting	Actual Score
Light Grey	2	4		
Mid Grey	2	6		
Dark Grey	2	10		
Total		**20**	**20%**	

Overall Total		**100**	**100%**	

Notes:

To determine compliance, at least 68% of the sampled sheets must score over 80%, and the remaining sheets (32% or less) must not score under 70%

To calculate scores for each sheet sampled, use measurement data to determine whether the sample falls within tolerance for each of the target values for each of the colour parameters shown above.

For any failures, the points recorded are 0. For passes, the points recorded for each element are shown above.

The total score for each sheet is the overall total of all the points scored.

Measurements are taken when the product is dry or an appropriate dry back calculation is applied

Table 1

Short run offset litho and digital printing small format and digital wide format up to 30,000 impressions

Length of Run	Number of Sampled sheets
1 to 50 sheets/impressions*	1 sheet
51 to 1000 sheets/impressions*	2 sheets – pass sheet and one at 50% of run
1001 to 2000 sheets/impressions*	3 sheets – pass sheet and one at 750 and one at 1500
Next 5000 sheets/impressions*	2 further sheets – 3000 and 4500
Next 10000 sheets/impressions*	2 further sheets
For every extra 10000 sheets/impressions*	1 further sheet

* For sheets that are perfected inline, both sides must be sampled and recorded

Long run sheet fed and web over 30,000 impressions:

- The pass sheet and then one sheet every 15 minutes through the press run
- For sheets that are perfected inline, both sides must be sampled and recorded

Annex 2

Grey Balance (informative only)

Grey balance should be based on the grey balance of the printing condition or CMYK profile used.
The tolerance should be a maximum 2ΔH.

Annex 3

Certification print test

Section 1

1. The test print shall consist of a test run (see part 4 clause 6.5)
2. The initial 'pass sheet' must adhere to the ISO Standard tolerances, with two TVI measurement patches to be agreed with the certification body.
3. See below for the number of measurement areas for differing press* sizes and types.
4. A minimum of 10 sheets will be sampled from the test run in addition to the pass sheet, as agreed with the certification body. Using the 'pass sheet' as normative, these will be measured using the tolerances in the ISO Standard.

Section 2

Press size requirements for measurement areas:

1. Up to and including B3 size presses. These require 2 areas where measurements can be taken.
2. From B3 up to B2 size presses. These require 4 areas where measurement can be taken.
3. From B2 up to B1 size presses. These require 6 areas where measurements can be taken.
4. From B1 up to B0 size presses. These require 8 areas where measurement can be taken.
5. For presses over B0 size, the measurement areas shall be agreed with the certification body.

Section 3

Press size requirements for compliance

1. Up to B3 presses. 100% of all readings shall be within the tolerances referenced in 1.4.
2. From B3 up to B2 presses. 98% of all readings shall be within the tolerances referenced in 1.4.
3. From B2 up to B1 presses. 95% of all readings shall be within the tolerances referenced in 1.4.
4. From B1 up to B0 presses. 93% of all readings shall be within the tolerances referenced in 1.4.
5. Over B0 presses. 90% of all readings shall be within the tolerances referenced in 1.4.

In all other cases, or where the above is not possible, the number of measurement areas and sample size shall be agreed with the certification body in conjunction with the BPIF scheme steering group. Where not covered by the compliance requirements stipulated above or in the relevant ISO standard, compliance required shall be determined by the certification body in conjunction with the BPIF scheme steering group.

*A press for the purposes of this appendix can be a printing device covered by ISO 12647, parts 2-6 and digital printing devices capable of achieving tolerances as defined by ISO 12647.

Part 3 - Exclusions Annex

Due to the rapid development of technologies, substrates and other consumables in the print process, this Exclusions Annex defines those clauses of existing standards which are excluded from the requirements of the scheme or from the certification scope.

It will be updated and maintained on an on-going basis by the BPIF Technical Standards committee and available at any time from BPIF upon request

1. Exclusions: ISO 12647-2: 2004 and Amendment 1 2007

1.1 Exclusions, Clarifications and amendments

Exclusions, clarifications and amendments to ISO 12647-2 Amendment 1
The certification scheme makes a number of exclusions, clarifications and amendments to ISO 12647-2 as follows:

1.1.1 Screen rulings

The ISO 12647-2 standard (clause 4.2.3 c) states that "preferred nominal screen rulings are….c) 60cm-1 and higher for commercial/speciality printing" As a result, higher screen rulings and non-periodic screen ruling (FM and XM) can be accepted as within the requirements of the standard.

1.1.2 Papers

Paper specifications within ISO 12647-2 (Table 1) are out-dated, because it is recognised that in the Lab readings in the "b" channel for most commonly used papers will now be a higher -b figure than those shown in Table 1 of the standard.

1.1.3 ISO12647-2 Annex B

ISO 12647-2 Annex B (informative) is excluded from the scope of the certification scheme. The use of differing dot gain curves for differing screen frequencies is now invalid due to the use of standard colour management datasets and profiles, which mandate a common dot gain curve for any screen frequency.

1.1.4 ISO 12647-2 Clause 4.3.5.2 Table 5.

What percentage (%) TVI areas to measure to standard compliance is unclear within the standard. The chart gives four patches, of which two seem necessary, together with a deviation and mid tone spread figure.

The purpose of this exclusion is to set the following TVI measurement criteria for this scheme:

ISO STANDARD:

Use 40% and 75% or 50% and 80% as measurement points, with the tolerances and mid tone spread from Clause 4.3.5.2 Table 5.

SCHEME SCORING SYSTEM:

Three TVI measurements are needed, these shall be either:

25%, 50% and 75% or 10%, 40% and 80%

as measurement points, with the tolerances and mid-tone spread calculated from Clause 4.3.5.2 Table 5.

If other measurement points are used, these shall be agreed with the certification body prior to the audit.

Part 4 - Certification body requirements

Only accredited certification bodies may perform certification for the scheme, and under the conditions shown in this section.

1. All certification bodies shall be accredited

Specifically for this scheme by a national accreditation body against the relevant accreditation standard for this scheme. The accreditation body shall be a member of the International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA).

2. Publicly accessible information about certificates

Certification bodies shall make publicly accessible, information about certifications granted, suspended or withdrawn, and the means to confirm the validity of a given certification, its scope and expiry date.

2.1 Maintaining information

Certification bodies shall maintain information relating to their certified customers under this scheme on their websites and other appropriate media. A publicly available list of organisations certified by them shall be maintained, including the scope of each certified organisation's certification, any relevant exclusions, the method of determining compliance in day to day production, and the certificate number.

3. Certification Body competences

Certification bodies shall employ audit teams ensuring that auditors, technical experts and reviewers are suitably competent and qualified to work in this area.

3.1 Auditor competence

Minimum competence for qualified auditors shall be as follows:

- demonstrable work experience in the print and/or graphic arts sector for a period of 3 years within the last 10 years;
- colour management experience or appropriate colour management training;
- good knowledge of the relevant ISO standard;
- ISO 9001 Lead Auditor qualification;
- third or second party auditing experience of at least 10 days within a print and/or graphic arts environment;
- appropriate spectrophotometer training.

Trainee auditors shall only be accepted by the certification body if the above criteria are met and after successful review of performance by a qualified auditor.

3.2 Technical Expert competence

Technical experts must demonstrate:

- A minimum of 5 years recent work experience in a colour management environment;
- Detailed knowledge of the relevant ISO standard;
- Knowledge of ISO 9001;
- Detailed knowledge of spectrophotometers and/or appropriate spectrophotometer training.

3.3 Reviewer competence

All certification body personnel involved in the review of audit reports shall meet the requirements of 3.1.

All certification body personnel involved in the review of product compliance shall meet the requirements of 3.2.

4. Impartiality

Neither certification body auditors, technical experts and reviewers, nor the certification body itself, shall have any commercial or other relationship, with audited organisations or personnel, which may affect their impartiality.

5. Audit time and frequency

The frequency of audit shall be determined by the certification body to allow sufficient time for audit and product testing as appropriate to the specific organisation and scope.
On site audits and testing shall occur at a minimum frequency of once every 12 months.

Initial audits shall take the form of first and second stage audits and shall be conducted according to the relevant requirements of ISO/IEC 17021. The Stage 1 and Stage 2 audits shall always take place on the customer's premises. In addition, the Stage 2 audit shall include testing of the product according to the requirements of the certification scheme, unless the customer has demonstrated compliance through an audit product test, carried out by the accredited certification body prior to the initial audit, which meets the requirement of this scheme in relation to product tests.

6. Audit Product test

6.1 Suitable test forme

The certification body shall ensure, prior to an audit product test run, that the test forme used by the customer is suitable for taking the required sample of measurements to demonstrate product conformity. Whole sheets shall be sampled for testing, not just a colour bar on an edge of the sheet, and the ink coverage of the sheet shall be a minimum of 60%

6.2 Auditor must be present

The certification body's auditor must always be present for the entire duration of the product test run. The certification body must ensure that the test product is not tampered with and the appropriate sample is taken from the run.

6.3 Retention of the test samples

The certification body shall retain test samples for a minimum period of one year after the test run.

6.4 Compliance with the relevant ISO Standard

The certification body's product testing shall ensure that compliance with the relevant ISO Standard can be determined.

6.5 Requirements of the sample

The sample taken for the test run shall normally conform to the following requirements at minimum:

- A minimum of the OK/pass sheet and 10 other sheets;
- The 10 sheets taken shall be spread evenly throughout the test run;
- Each sheet shall include a number of measurement zones sufficient to demonstrate conformity is being achieved across the whole sheet;
- Measurements for all relevant parameters, necessary to demonstrate conformance, shall be taken from within each measurement zone on each sheet;
- The length of the test run shall be determined for each customer on a non discriminatory basis, taking into account the nature of different production methods and customer requirements.

See BPIF ISO 12647 Colour Quality Management Certification Scheme Requirements Annex 3 for details of sampling, measurement and compliance requirements.

6.6 Approval of the proposed sampling scheme
The certification body's proposed sampling scheme for testing shall be submitted to the BPIF ISO 12647 Colour Quality Management Certification Scheme Steering Group for approval, prior to use, to ensure consistency of testing among certification bodies.

7. Requirements for the provision of information to customers

Certification bodies shall provide the following information to customers prior to audit, in addition to, and including other relevant information, as required:

- That an audit product test run will take place at the audit, and the proposed timing of that test;
- The nature of the test form, if appropriate, to be printed for the audit product test run;
- The number of sheets forming the audit product test run and the sampling process;
- If requested by the customer, and prior to an audit product test run, the customer may make available to the certification body a printed test sample for solid CMYK patches and their associated Lab measurements to enable instrument correlation between the customer and the certification body to be determined. Measurement deviations shall be reported to the customer by the certification body prior to the audit product test run.

8. Certificates

A certificate shall only be issued for a customer if a test product has passed an audit product test according to the requirements of this scheme, and the customer has satisfied all other requirements of the scheme. For multi-site organisations, a successful product test is required at each individual site in order for that site location to be included within the scope of the certificate.

Certificates issued under the scheme shall be issued using the relevant ISO Standard as follows:

BPIF <ISO STANDARD> certification scheme.

Certificates expire three years from the date of certification or re-certification.

9. Other requirements

All the other requirements of the relevant accreditation standard also apply.

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IS0 12647 is becoming a requirement for your clients. The BPIF can help you implement the scheme in the most effective and efficient way.

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- Boost staff morale and performance
- Gain competitive advantage
- Adopt best practice

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