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Date: 20 August 2024

Origin: International

Latest date for receipt of comments: 13 October 2024

Project No. 2022/02331

Responsible committee: IST/3 IT Printers and Cartridges

Interested committees:

Title: Draft BS EN ISO/IEC 17629 BS EN ISO/IEC 17629 Information technology - Office equipment - Method for measuring first print out time for digital printing devices.

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Introduction

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



DRAFT International Standard

ISO/IEC DIS 17629

Information technology — Office equipment — Method for measuring first print out time for digital printing devices

*Technologies de l'information — Équipements de bureau —
Méthode de mesure de la première page hors délai d'un dispositif
d'impression numérique*

ICS: 37.100.10

ISO/IEC JTC 1/SC 28

Secretariat: JISC

Voting begins on:
2024-08-20

Voting terminates on:
2024-11-12

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Reference number
ISO/IEC DIS 17629:2024(en)

Full document details: 24/30463991 DC

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Published in Switzerland

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Test parameters and conditions	2
4.1 Test platform	2
4.2 Test platform test setup procedures	3
4.2.1 Initial platform setup	3
4.2.2 Creation of disk image of test platform (optional)	3
4.2.3 Initial test state	3
4.3 Printing device system setup	3
4.4 Printing device connection	4
4.5 Printing device condition	5
4.6 Sample size	5
4.7 Paper	5
4.8 Maintenance	5
4.9 Test files, test suites and software applications	5
4.10 Environment	6
4.11 Voltage	6
5 Test method	6
5.1 Overview	6
5.2 Test measurement procedure	6
5.2.1 Test setup	6
5.2.2 "FPOT from ready" test	7
5.2.3 "FPOT from sleep" test	8
5.2.4 "FPOT from off" test	10
5.3 Test method process	11
5.3.1 Suggested flow chart	11
5.3.2 ± 5 % consistency criteria	11
5.4 Required tests	11
5.4.1 Overview	11
5.4.2 "FPOT from ready" test	12
5.4.3 "FPOT from sleep 60 min" test	12
5.4.4 "FPOT from off" test	12
5.4.5 "FPOT from sleep 15 min" test	13
5.5 Optional special tests	13
6 Calculations and treatment of data	13
6.1 Overview	13
6.2 Required Tests	14
6.2.1 "FPOT from ready" test	14
6.2.2 "FPOT from sleep 60 min" test	14
6.3 Optional Tests	14
6.3.1 "FPOT from off" test	14
6.3.2 "FPOT from sleep 15 min" test	15
7 Presentation of results	15
Annex A (normative) Test platform system parameters that may affect digital printing productivity measurements	18
Annex B (normative) Test suite	22
Annex C (informative)	24

Annex D (informative) **An example of printing device and test settings to record**.....26

Annex E (informative) **Full detailed report example**.....27

Annex F (normative) **Procedure to establish FPOT from ready delay time** 30

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 17629 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 28, *Office equipment*.

This second/third/... edition cancels and replaces the first/second/... edition (), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

- *Part CD: Method for measuring first print out time for digital printing devices*
- *Part [n]:*
- *Part [n+1]:*

Introduction

Many digital printing devices produce the first printed page at a different rate from subsequent pages. Due to this behaviour, nominal print speeds specified in pages per minute do not generally reflect the time to produce the first page. The degree to which a change in productivity is experienced depends significantly on many parameters of the job stream. The most dominant of the parameters of the job stream are: image quality modes selected, job content, B&W and colour reproduction, host computer, and connection type.

This document provides a general method for measuring first print out time when the above mentioned job stream parameters for digital printing devices are taken into consideration. It allows manufacturers and buyers of digital printing devices to describe the first print out time of various digital printing devices with respect to representative office usage.

Information technology — Office equipment — Method for measuring first print out time for digital printing devices

1 Scope

This document specifies a method for measuring first print out time of digital printing devices. The document is applicable to digital printing devices and multifunctional devices. The document is intended to be used for black and white (B&W) as well as colour digital printing devices and multifunctional devices of any underlying marking technology. The document includes instructions for test charts, test setup procedure, test procedure, and the reporting requirements for the digital printing measurements.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 536, *Paper and board — Determination of grammage*

ISO 2470-1, *Paper, board and pulps — Measurement of diffuse blue reflectance factor — Part 1: Indoor daylight conditions (ISO brightness)*

ISO/IEC 24734, *Information technology — Office equipment — Method for measuring digital printing productivity*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 24734, Information Technology – Office equipment – Method for measuring digital printing productivity, and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

FPOT

first print out time

number of seconds between the initiation of the job until the complete exit of the first sheet

Note 1 to entry: Other equivalent terms are "first page out time", "first print out", "time to first print", and "time to first page". Other similar terms have been used in industry as well.

3.2

full report

presentation of measured test results in detail

3.3**off state**

state from which a device is not capable of receiving and printing a print job without user intervention on the device

Note 1 to entry: A device could enter *Off state* (3.3) due to a user turning the device off, or a device could enter Off state automatically after a delay.

3.4**power management delay time**

time that a device waits between the last print job and going into a lower power state such as Sleep state or Off state

Note 1 to entry: The power management delay time corresponding to the setting as shipped is referred to as "default power management delay time" or "default delay time".

3.5**recovery time**

time required by a device to recover from Sleep state given by the difference in *FPOT* (3.1) between Sleep state (3.7) and Ready state

Note 1 to entry: Other related terms are "resume time" and "return time". Other similar terms have been used in industry as well.

3.6**sleep state**

low power state from which a device is capable of receiving and printing a print job without user intervention on the device

Note 1 to entry: Some devices may have multiple low power states.

Note 2 to entry: Other equivalent terms are "power save", "low power mode", and "energy save". Other similar terms have been used in industry as well.

3.7**test page**

first page or first two pages from a test file defined in ISO/IEC 24734

Note 1 to entry: Duplex testing requires using the first two pages from a test file to print on both sides of the first sheet. Simplex testing only requires using the first page from a test file to print on one side of the first sheet.

3.8**warm-up time**

time required by a device to recover from Off state given by the difference in *FPOT* between Off state and Ready state

Note 1 to entry: Other similar terms, such as "wait time", have been used in industry as well.

4 Test parameters and conditions**4.1 Test platform**

Due to the rapid change of computer technology, a common test platform (hardware and software) that can be used for *FPOT* (3.1) testing over time is considered to be not practical. Instead, when a test platform is used, the test platform system parameters that may affect digital printing productivity measurements (see [Annex A](#)) shall be recorded.

4.2 Test platform test setup procedures

4.2.1 Initial platform setup

The test platform hardware should be installed as per the manufacturer's instructions. The test platform hardware information shall be recorded as listed in [Annex A](#). The test platform operating system and applications should be installed as per the manufacturer's instructions. The test platform operating system and application information shall be recorded as per [Annex A](#). All settings or selections made during installation that differ from the application's default settings or operating system's default settings shall be recorded.

The test platform should be configured for the appropriate connection environment, such as direct USB connection or network Ethernet connection, and the information shall be recorded as per [Annex A](#) along with all settings and selections that differ from the installation default configuration.

It should be verified that the test platform is configured for optimal performance by evaluating system parameters such as hard disk fragmentation and compression, swap memory size, etc. Any settings, changes or optimizations made that differ from the installation default condition shall be recorded.

The test platform is now in the Initial Installation State. All recorded settings shall be included in the Full Detailed Test report.

4.2.2 Creation of disk image of test platform (optional)

Disk imaging software may be used to enable the system to be restored to the Initial Installation State. Create the disk image after the test platform has been configured and before the print driver for the printing device is installed. Record the disk imaging software used and all settings that differ from the imaging software's installation default condition.

4.2.3 Initial test state

The test platform shall be restored to the Initial Installation State before beginning the sequence of tests for each new printing device. Products that are of the same distinct print system can share testing and reports. Two or more products or bundles may be part of a distinct print system when they use the same print mechanism and operating points, and there are no differences that might be expected to affect performance. Devices with differences that could affect performance are not part of the same distinct print system, and are different print systems, even if they use the same print mechanism, and shall not share testing and reports. Record the method used to establish the Initial Installation State. Each printing device product bundle or printing device hardware configuration that might be expected to result in a difference in performance should be considered a 'different printing device'. Record the method used to establish the Initial Installation State.

4.3 Printing device system setup

Place the printing device on a horizontal surface and setup the printing device according to the manufacturer's recommendation. Install the software (driver, port, etc.) recommended by the manufacturer. Use the most recent print driver available from the manufacturer. The driver and driver version shall be recorded on the test report.

The standard test shall be conducted using the manufacturer's default driver for the given printing device. If a default driver is not installed/selected automatically by the manufacturer's installation procedure, consult the manufacturer's documentation and use the recommended driver. All image, print quality, mode and speed modifiers shall be at their factory pre-set configuration for the printing device and default installed condition for the driver. If the printing device and driver differ, then the driver defaults shall be used. Disabling manufacturer default installed features, routines or applications, is not allowed.

EXAMPLE 1 Example routines that may not be disabled include, but are not limited to the following:

- automatic cleaning;

- or calibration cycles;
- energy save settings.

Testing shall be carried out in the specified modes, regardless of whether they are default settings or not. Modes that may require modification for specific tests include B&W mode on colour devices, duplex or simplex printing, paper size, paper scaling, and collation. If the system has automatic media detect it may be disabled and the paper used in the test shall be selected. All changes to the default settings shall be recorded in the Full Detailed Report.

EXAMPLE 2 If the default driver setting is duplex, the setting shall be changed to simplex for the simplex tests.

The file shall be rendered on the page in a size corresponding to the dimensions in the test page (3.8) description.

EXAMPLE 3 When testing an A4 sized document, the media settings shall be set to A4, and when testing a 8,5"x11" (215,9 mm x 279x4 mm) size document, set to 8,5"x11", and so forth.

Verify the printing device and print driver default page margin settings are not larger than 12,7 mm (0,5 inches). Adjust the settings as necessary to ensure the test page printable area is rendered correctly. Adjust the settings as necessary to ensure the test pages printable area is rendered to cover the paper page area as shown in the softcopy display of the test file. Any modifications to the printing device or print driver settings shall be recorded. Page placement modifiers such as page centering and auto-rotation can be used to place the image properly on the page. Any change from the printing device defaults shall be recorded in the Full Detailed Report.

Adjust the settings such as turning off "page scaling" setting to ensure the test page printable area is rendered correctly.

For colour and B&W printing devices, printing the three files in the office suite, using default settings is required. The output of the three files on a colour device shall be in colour, whereas the output of the three files on a B&W device shall be B&W. For colour printing devices, an optional B&W result may be reported by using the same three colour files, changing the printing device or driver to produce B&W output, but maintaining the default quality or resolution setting.

Procedurally, the optional B&W output on a colour device test shall be done as follows: Select the printing device or driver options which are intended to produce B&W only output. Follow the manufacturer's instructions on how to change the printing device or driver for the result of producing B&W output utilizing only the black toner or ink. If other settings change automatically as a result of changing to B&W mode, such as quality mode, this shall be noted on the test report. If B/W printing is performed by composite black, it shall be reported

NOTE Common means of setting a printing device in B&W include, but are not limited to, selecting a B&W option in the driver. In the driver, it is possible this appears as: "print in B&W", "print in grayscale" or "print in black only". The selection of B&W printing can occur in several places in the driver and printing device. When the best method to set the printing device to print in B&W only is in question, it is best to contact the manufacturer regarding the best method to change this setting.

Additional tests may be conducted using other, non-default, drivers or printing device description languages provided by the manufacturer for the printing device. Additional tests may also be conducted using other settings available with the device. Such settings may be, but are not limited to, print quality and speed modifier choices available in the driver. The results of such additional tests will be documented as having system parameters that differ from the factory defaults and shown in comparison to the default system parameter results.

4.4 Printing device connection

Connection to the test platform should be determined by the manufacturer's targeted usage. A printing device intended to be shared by several users should be connected via the network connection with which the printing device is equipped from the manufacturer. A printing device intended to be personal or desktop should be connected direct to the test computer (such as USB). The connection type, version shall be