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Information technology — Office equipment — Information to be included in specification sheets and related test methods for copying machines and multi-function devices

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Foreword

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

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This third edition cancels and replaces the second edition (ISO/IEC 21117:2012), which has been technically revised.

The main changes are as follows:

— ISO/IEC 17629 and ISO/IEC 17991 added as normative references.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

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Information technology — Office equipment — Information to be included in specification sheets and related test methods for copying machines and multi-function devices

1 Scope

This document specifies the information to be included in specification sheets for electrophotographic digital copying machines and multi-function devices. This document is applicable to purchasers and users, enabling them to compare the characteristics of different models of copying machines and multi-function devices for easier selection of products that meet their requirements.

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 7779:2018, *Acoustics — Measurement of airborne noise emitted by information technology and telecommunications equipment*

ISO 9296, *Acoustics — Declared noise emission values of information technology and telecommunications equipment*

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

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ISO/IEC 24735, *Information technology — Office equipment — Method for measuring digital copying productivity*

ISO/IEC 29183, *Information technology — Office equipment — Method for measuring digital copying productivity for a single one-sided original*

ISO/IEC 17629, *Information technology — Office equipment — Method for measuring first print out time for digital printing devices*

ISO/IEC 17991:2021, *Information technology — Office equipment — Method for measuring scanning productivity of digital scanning devices*

IEC 62368-1:2023, *Audio/video, information and communication technology equipment - Part 1: Safety requirements*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org

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3.1
typical electricity consumption
TEC
electricity consumed by the device while in typical mode during a week period of time specified in ENERGY STAR®[1)] program

Note 1 to entry: This mode is specified in the ENERGY STAR®[1)] program.

3.2
operational mode
OM
method to quantify the power consumption of imaging products that do not utilize the TEC method specified in ENERGY STAR® program

Note 1 to entry: This mode is specified in the ENERGY STAR®[1)] program

Note 2 to entry: Examples of products that will be tested with this OM method include those that use marking technologies such as ink jet, dot matrix or impact, as well as scanners and all large-format and small-format devices. The key results of this test procedure are power values for ready, sleep and off modes.

4 Information to be included in specification sheets

Table 1 defines a name and a short description for each parameter entry. These constitute the information to be included in specification sheets. Furthermore, test and measurement methods are defined for parameters where applicable in the "Definitions and methods of measurement" column. Specification sheets shall use the parameter names listed in Table 1. Specification sheets shall include all applicable parameters in the given order. Parameters that do not function, however, may be omitted.

NOTE When extracting parameters and specification values from specification sheets for use in catalogues, there are no particular provisions on the parameter numbers or on the order in which the parameters are listed.

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5 Specification sheets

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5.1 Main unit

Refer to Annex A.

5.2 Option devices

a) Document feeder: refer to Annex B.

b) Auxiliary paper-supply devices: refer to Annex C.

c) Sorters: refer to Annex D.

d) Finishers: refer to Annex E.

5.3 Extended functions

a) Scanner function: refer to Annex F.

b) Printer function: refer to Annex G.

c) Facsimile function: refer to Annex H.

d) E-mail/Internet facsimile function: refer to Annex I.

1) "ENERGY STAR® is a trademarked certification program administrated by the United States Environmental Protection Agency (US EPA). This information is given for the convenience of users of this document and does not constitute an endorsement by ISO"

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6 Test and measurement methods

6.1 Test and measurement conditions

The test environment, including temperature and humidity, shall be within the ranges recommended by the manufacturer for operating the device. If no recommendation is available, the following ranges shall apply.

Temperature: 23 °C ± 5 °C;

Relative humidity: (50 ± 20) %;

Supply voltage: rated input voltage;

Supply frequency: rated frequency;

Paper size: A4;

Paper grammage: 60 g/m^2 to 90 g/m$^{2;}$

If a different paper size other than A4 is used, the size should be stated in the specification sheets. The paper used in the tests shall be conditioned under the environmental conditions given above.

6.2 Test and measurement methods

Test and measurement method for each parameter is specified in Table 1.

Table 1 — Parameters to be included in specification sheets

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
1 Main unit	Refer to Annex A.	
1.1 Name	Product name and model number.	
1.2 Type	States if the machine is a portable, desktop, or floor-standing (console) type and if the machine is an all-in-one or multi-component type.	
1.3 Copying method	Digital electrophotographic	
1.4 Colour	States if single-colour or full-colour copying is supported for machines that support colour copying.	
1.5 Type of photoreceptor	Organic material, a-Si or Selenium.	
1.6 Scanning light source	States the type of light source used for scanning and its rated power consumption in watts.	
1.7 Type of platen	Moving or stationary. If no platen is provided and the original is fed into the machine by hand or with a document carrier, indicate the platen as “feed-through”.	
1.8 Scanning method	States the method by which originals are scanned and the type of scanning device.	
1.9 Writing method	States the method by which the latent image is written to the photoreceptor.	
1.10 Developing method	Mono or dual components.	

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Table 1 *(continued)*

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
1.11 Copy density adjustment	Manual or automatic. If manual, indicate the adjustment method, such as continuous or discrete.	
1.12 Fixing method	Heat-roller, flash, oven, or pressure fixing.	
1.13 Paper-supply device/paper-supply capacity	States the paper-supply method (automatic or manual) and the number of cassettes, decks, and trays (attached to the main unit). Also, indicate the loading capacity in sheets for each cassette, deck, and tray for a defined paper grammage (in g/m^2). If there are multiple pickup trays, indicate the loading capacity for each pickup tray. For machines that use roll sheets, list the width and length of roll sheets.	
1.14 Scanning resolution	States the main and sub scanning resolutions as needed, expressed in “dpi” or “dpi (number of dots/25,4 mm)”. If it has resolution enhancement, should be indicated. EXAMPLE Optical resolution: 1200 dpi × 1200 dpi	
1.15 Writing resolution	States the main and sub write resolution, expressed in “dpi” or “dpi (number of dots / 25,4 mm)”. Writing resolution equals to the print engine's native addressability. EXAMPLE 1200 dpi × 1200 dpi	
1.16 Scan colours	The tones can be specified EXAMPLE 24-bit colour (8-bits per colour plane)	
1.17 Acceptable originals	Lists sheets, books, computer forms, and other acceptable originals.	
1.18 Copy paper	Indicates any specially processed copy paper that is used. Also, states the paper grammage that can be transported in the machine. The recommended unit is g/m^2.	
1.19 Original sizes	States the maximum size in millimetres. ISO size such as A3, B4 can be stated. The specification sheet should indicate any limitations on the thickness of originals as well as the maximum weight that can be placed on the platen.	
1.20 Copying dimensions	States the maximum and minimum dimensions that can be copied in millimetres. ISO size such as A3, B4 can be stated. If the copying size varies by the paper-supply method (manual or automatic), this is indicated.	

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Table 1 *(continued)*

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
1.21 Non-image area	Non-image area is the area that cannot be copied on when copying an original without margins on a given paper size. States in millimetres the width of the non-copy area at the top, bottom, and side of the page.	The non-image areas at each edge shall be indicated. The non-image areas shall be measured from the top, bottom, and sides of the copy paper to the image, copied under normal usage conditions.
1.22 Possible enlargement and reduction	Indicates the possible enlargement and reduction expressed as a normalized ratio to the length of the original. The ratio is stated for enlarged copies, reduced copies, and direct (1:1) copies to two decimal places. Express the error deviation of direct (1:1) copying as a percent. The deviation percentage (%) shall be the maximum deviation, including variations between machines of the same model.	
1.23 Number of continuous copies	Indicates in pages the maximum number of copies that can be set for continuous copying when the machine operates as a copying machine.	
1.24 Continuous copying speed	States the number in pages/minute that can be made under normal usage conditions (A4 paper, 1:1 magnification, and standard feed direction) in continuous copying mode. Specify if copying speeds vary by paper size. For colour copying machines, specify the copying speeds for both colour copying and monochrome (black and white) copying. Specify if copying speeds vary by copying process. Each respective copying speed should be indicated. The number of copies is expressed in copies per minute (CPM) in the following formats. a) Less than 10 CPM: Round off to two decimal places and express as two significant figures: X.X b) 10 CPM to 99 CPM: Express with either of the methods below: 1) Round off to one decimal place and express as two significant figures: XX 2) Round off to two decimal places and express as three significant figures: XX.X c) 100 CPM or more: Round off to one decimal place and express as three significant figures: XXX ISO/IEC 24735 can be used to describe the copying productivity of copier and MFP devices. (See parameter 1.42 Copying Productivity)	The machine shall be set to copy 11 copies under normal usage conditions (A4 paper, 1:1 magnification, and standard feed direction). Measure the time (that is, obtain the value t in seconds) from when the first copy is fully ejected to when the 11th copy is fully ejected. This value shall be converted into the number of copies per minute with the following equation: 60 ÷ (t/10) = the number of copies per minute For continuous passed pages, a number of pages equivalent to the number of copies per minute + 1 may be passed. In this case, “10” in the equation above is replaced with “number of passed pages – 1”.

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