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

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National foreword

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INTERNATIONAL STANDARD

ISO/IEC 21117

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

Technologies de l'information — Machines de bureau — Machines copiantes et dispositifs multifonctionnels — Information à inclure dans les feuilles de spécifications et les méthodes relatives d'essai

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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 the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national 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 and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 21117 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 28, *Office equipment.*

This second edition cancels and replaces the first edition (ISO/IEC 21117:2005), which has been technically revised.

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INTERNATIONAL STANDARD ISO/IEC 21117:2012(E)

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

1 Scope

This International Standard specifies the information to be listed in specification sheets for electrophotographic digital copying machines and multi-function devices. The intention of this International Standard is to allow purchasers and users to compare the characteristics of different models of copying machines and multi-function devices so that they can more easily select copying machines and multi-function devices that meet their requirements.

2 Normative references

The following referenced documents are indispensable for the application 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 7779:2010, *Acoustics — Measurement of airborne noise emitted by information technology and telecommunications equipment*

ISO 9296:1988, *Acoustics — Declared noise emission values of computer and business equipment*

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

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 of a single one-sided original*

3 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 must 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 catalogs, there are no particular provisions on the parameter numbers or on the order in which the parameters are listed.

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4 Specification sheets

4.1 Main unit

Refer to Annex A.

4.2 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.

4.3 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.

5 Test and measurement methods

5.1 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 weight: 60 g/m2 to 90 g/m2

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 should be conditioned under the environmental conditions given above.

5.2 Test and measurement methods

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

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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	Analog or digital	
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.	
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 weight (in g/m2). 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.	

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Table 1 (*continued*)

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
1.14 Scanning resolution	States the main and sub scanning resolutions as needed, expressed in “dpi” or “dpi (number of dots/25.4 mm)”. **Example**: Optical resolution:1,200 x 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**: 1,200 x 1200 dpi	
1.16 Scan colours	The tones may be specified if they vary when the machine operates in copying mode. **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 weight that can be transported in the machine. The recommended unit is g/m2.	
1.19 Original sizes	States the maximum size in millimeters. 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 millimeters. If the copying size varies by the paper-supply method (manual or automatic), this is indicated.	
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 millimeters 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.

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Table 1 (*continued*)

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
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 shall 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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Table 1 (*continued*)

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
1.25 First-copy-out time	States in seconds the time from pressing the Print button to completing the delivery of the first copy with the setting that produces the fastest result under normal usage conditions (A4 paper, 1:1 magnification, and standard feed direction). The specification sheet should also indicate if the first-copy-out time varies depending on certain conditions, such as the basic configuration of the copying machine or the mode of or attachments to the document feeder. The specification sheet should also indicate if the first-copy-out time varies depending on the use and modes of options, such as automatic copy-density adjustment, original-size detection, and automatic duplex copying. It should also note these different values. ISO/IEC 29183 shall be used to describe the copying productivity for single originals. (See parameter 1.43 Copying Productivity for a single one sided original)	The first-copy-out time shall be measured in seconds from the moment the Print button is pressed to the time the first copy is fully ejected with the setting that produces the fastest result under normal usage conditions.
1.26 Warm-up time	States the time in minutes or seconds from power on to a ready state. If the machine is pre-heated, this is indicated along with the time to pre-heat. The temperature and relative humidity during the warm-up-time measurement shall also be reported with the measured value. If the machine is pre-heated, this shall be indicated along with the time to pre-heat.	Tests shall be performed on a machine that has been turned off until its internal temperature can be assumed the same as the ambient temperature. The time from turning on the power switch to a copy-ready state shall be measured. The warm-up time should be tested at a temperature of 20 ° C.
1.27 Power source	Lists the voltage (in volts), frequency (in hertz), and current (in amperes) for AC-powered machines. If the machine can operate at both 50 Hz and 60 Hz, this is indicated. For DC-powered machines, list the voltage (in volts) and current (in amperes).	

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Table 1 (*continued*)

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
1.28 Maximum power consumption	States the maximum power consumed in kilowatts when the machine is in use.	The maximum power consumption shall be measured in kilowatts while copying under normal usage conditions from the time the power is turned on. Transient power fluctuations, however, are excluded. Options that can be adjusted, such as the copy ratio and copy density, shall be set so the maximum amount of power is consumed.
1.29 Power-savings efficiency	State the power-saving efficiency value with unit of measurement for machines that is subject to regulations such as EPA Energy Star TEC and OM. Example: 9.75 kWh/week (TEC)	
1.30 Extended functions	States any extended functions that can be installed, such as facsimile, printer, scanner, and network functions.	
1.31 Memory capacity	States the standard-equipped memory capacity and the maximum extendable memory capacity, expressed in megabytes (MB) or gigabytes (GB). **Example**: 256 MB standard, 512 MB maximum, 120 GB hard-disk drive	
1.32 Primary options	Lists any options not covered above, such as duplex copying functions, automatic colour functions, image processing, magnification functions, margin functions, and editing functions. When listing options, specify the test parameters, test methods, and test results.	The copying machine unit shall be tested with the options in place while being operated in accordance with the operating procedure given in catalogs, specification sheets, or operating manuals. The existence or absence of malfunctions and other required parameters shall be examined.
1.33 Safety regulations	States applicable standards. Indicates the applicable national deviations.	
1.34 Safety data sheets	Available/not available	
1.35 Electromagnetic compatibility (EMC)	States electromagnetic compatibility in accordance with IEC 60950-1 : Information technology equipment - Safety - Part 1: General requirements and CISPL 22:CISPR (The International Special Committee on Radio Interference)	

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