

---

---

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

**iTeh STANDARD PREVIEW**  
*Technologies de l'information — Machines de bureau — Machines  
copiantes et dispositifs multifonctionnels — Information à inclure dans  
(standards.iteh.ai) les feuilles de spécifications et les méthodes relatives d'essai*

ISO/IEC 21117:2005

<https://standards.iteh.ai/catalog/standards/sist/89369ca6-5193-42b5-8539-28fa47f48234/iso-iec-21117-2005>

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[ISO/IEC 21117:2005](#)

<https://standards.iteh.ai/catalog/standards/sist/89369ca6-5193-42b5-8539-28fa47f48234/iso-iec-21117-2005>

© ISO/IEC 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## Contents

Page

Foreword.....	iv
<b>1 Scope .....</b>	<b>1</b>
<b>2 Normative references .....</b>	<b>1</b>
<b>3 Information to be included in specification sheets .....</b>	<b>1</b>
<b>4 Specification sheets .....</b>	<b>2</b>
<b>5 Test and measurement methods.....</b>	<b>2</b>
<b>Annex 1 (informative) Specification sheets for copying machines and multi-function devices (main units).....</b>	<b>17</b>
<b>Annex 2 (informative) Specification sheets for document feeders .....</b>	<b>19</b>
<b>Annex 3 (informative) Specification sheets for auxiliary paper-supply devices .....</b>	<b>20</b>
<b>Annex 4 (informative) Specification sheets for sorters .....</b>	<b>21</b>
<b>Annex 5 (informative) Specification sheets for finishers .....</b>	<b>22</b>
<b>Annex 6 (informative) Specification sheets for scanner functions .....</b>	<b>23</b>
<b>Annex 7 (informative) Specification sheets for printer functions .....</b>	<b>24</b>
<b>Annex 8 (informative) Specification sheets of facsimile functions.....</b>	<b>25</b>
<b>Annex 9 (informative) Specification sheets of Internet facsimile functions (including e-mail transmission functions) .....</b>	<b>26</b>

## 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*.

**TECH STANDARD PREVIEW**  
**(standards.iteh.ai)**

[ISO/IEC 21117:2005](https://standards.iteh.ai/catalog/standards/sist/89369ca6-5193-42b5-8539-28fa47f48234/iso-iec-21117-2005)

<https://standards.iteh.ai/catalog/standards/sist/89369ca6-5193-42b5-8539-28fa47f48234/iso-iec-21117-2005>

# 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 216:1975, *Writing paper and certain classes of printed matter — Trimmed sizes — A and B series*  
<https://standards.iteh.ai/catalog/standards/sist/89369ca6-5193-42b5-8539-216-17618234/iso-216-1975>

ISO/IEC 14545:1998, *Information technology -- Office equipment -- Method for measuring copying machine productivity*

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

ISO 7779:1999, *Acoustics — Measurement of airborne noise emitted by information technology and telecommunications equipment*

ISO 3740:2000, *Acoustics — Determination of sound power levels of noise sources — Guidelines for the use of basic standards*

## 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.

**4. Specification sheets**

- 4.1 Main Unit: refer to **Annex 1**.
- 4.2 Option devices
  - a) document feeder: refer to **Annex 2**.
  - b) auxiliary paper-supply devices: refer to **Annex 3**.
  - c) sorters: refer to **Annex 4**.
  - d) finishers: refer to **Annex 5**.
- 4.3 Extended functions
  - a) scanner function: refer to **Annex 6**.
  - b) printer function: refer to **Annex 7**.
  - c) facsimile function: refer to **Annex 8**.
  - d) e-mail / internet facsimile function: refer to **Annex 9**.

**5. Test and measurement methods**

**5.1 Test and measurement conditions**

Unless otherwise specified, all tests and measurements shall be conducted under the following conditions:

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/m <sup>2</sup> to 90 g/m <sup>2</sup>

If different paper size from A4 is used, the used paper sized should be given in the specification sheets. It is assumed that paper used in tests has been 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.

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 <b>Annex 1</b> .	
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. <b>Example:</b> indirect: mirror scanning type, reduction optical system direct: contact type line sensor device, CCD	
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/m <sup>2</sup> ). 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 resolution, expressed in "dpi" or "dpi (number of dots / 25.4 mm)". If the machine extends the optical resolution through an interpolation process, state the equivalent resolution. Indicate interpolated resolutions with the expression "equivalent". <b>Example:</b> main:1,200 equivalent dpi × sub:1,200 equivalent dpi	

**Table 1: Parameters to be included in specification sheets** (continued)

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
1.15 Writing resolution	States the main and sub write resolution, expressed in “dpi” or “dpi (number of dots / 25.4 mm)”. If the machine extends the optical resolution through an interpolation process, state the equivalent resolution. Indicate interpolated resolutions with the expression “equivalent”. <b>Example:</b> main: 1,200 equivalent dpi × sub: 1,200 equivalent dpi	
1.16 Number of tones / colours for printing	Single colours are colours that cannot be combined. State the number of single colours and their respective colour values. Normally, full colours are represented through a combination of yellow, magenta, cyan, and black. State the number of tones that can be represented for each of these colours, including black. The maximum (theoretical) number of colours that can be represented through combinations of these basic colours may also be indicated.	
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/m <sup>2</sup> .	
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.
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	



Table 1: Parameters to be included in specification sheets (continued)

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
	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	<p>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.</p> <p>For colour copying machines, specify the copying speeds for both colour copying and monochrome (black and white) copying.</p> <p>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.</p> <p>a) Less than 10 CPM: Round off to two decimal places and express as two significant figures: X.X</p> <p>b) 10 CPM to 99 CPM: Express with either of the methods below:</p> <ol style="list-style-type: none"> <li>1) Round off to one decimal place and express as two significant figures: XX</li> <li>2) Round off to two decimal places and express as three significant figures: XX.X</li> </ol> <p>c) 100 CPM or more: Round off to one decimal place and express as three significant figures: XXX</p>	<p>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 <math>t</math> 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: <math>60 \div (t/10) =</math> the number of copies per minute</p> <p>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".</p>
1.25 First-copy-out time	<p>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).</p> <p>(It is recommended to indicate in the specification sheet 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 or depending on the use and modes of options, such as automatic copy-density adjustment, original-size detection, and automatic duplex copying. And these different FCOT values are recommended to indicate in the specification sheet.)</p>	<p>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.</p>

**Table 1: Parameters to be included in specification sheets (continued)**

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
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).	
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	States the power-saving efficiency for machines that are subject to the Law Concerning the Rational Use of Energy. Express the power-savings efficiency as an integer in watt-hours/hour.	
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). Examples: 256 MB standard, 512 MB maximum, 120 GB hard-disk drive	
1.32 Optional copying functions	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	

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO/IEC 21117:2005  
https://standards.iteh.ai/catalog/standards/siv/89369ca6-5193-42b5-8539-286478123115/iso-21117-2005

Table 1: Parameters to be included in specification sheets (continued)

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
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)	
1.36 Acoustical noise	States the sound power levels and sound pressure levels of noise during standby and while copying. Express the noise values in accordance with <b>ISO 9296</b> .	<p>Sound power levels and sound pressure levels shall be measured in accordance with <b>ISO 7779</b>. Noise shall be measured both during standby and while copying.</p> <p>a) Method of measuring sound power levels</p> <p>1) Many types of measurement points can be selected when measuring sound power according to <b>7</b> in <b>ISO 7779</b>. In this Standard, the measurement points shown in <b>Figure C.2</b> in <b>ISO 3744</b> (a nine-point measurement on a parallelepiped measurement surface) are recommended.</p> <p>When measuring sound power in a reverberation room according to <b>6</b> in <b>ISO 7779</b>, use the measurement points described in <b>6</b>.</p> <p>2) The distance criteria is assumed to be to each plane of the hypothetical surface (the reference box) which is the smallest rectangular parallelepiped that just encloses the copying machine. Protruding sections of the copying machine (such as cassettes and trays) that do not appear to contribute to noise are assumed not to be included in the reference box mentioned above because they are considered not to affect measurement values.</p> <p>3) Measurements are expressed in bels (B).</p> <p>b) Method of measuring sound pressure levels</p> <p>1) Measurement points are defined in <b>ISO 7779</b>.</p> <p>2) The distance between the machine under measurement and the measurement points is defined as follows:</p> <p>2.1) Operator distance: 0.25 m ± 0.03 m</p> <p>2.2) Bystander distance: 1.00 m ± 0.03 m</p> <p>Measurements are taken at four bystander positions at the</p>

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

[ISO/IEC 21117:2005](https://standards.iteh.ai/catalog/standards/sist/89369ca6-5193-42b5-8539-28fa47f48234/iso-iec-21117-2005)

<https://standards.iteh.ai/catalog/standards/sist/89369ca6-5193-42b5-8539-28fa47f48234/iso-iec-21117-2005>

**Table 1: Parameters to be included in specification sheets** (continued)

Parameter	Description of the entry Remarks and examples	Definitions and methods of measurement
		front, back, left, and right of the machine. 3) The height of the measurement points from the floor is 1.50 m ± 0.03 m. The height of 1.50 m ± 0.03 m assumes a standing operator. If the operator is seated, choose the most appropriate operator position from (b), (c), or (d) in <b>Figure 1</b> of <b>ISO 7779</b> . If the operator position cannot be determined, measurements from the operator position may be omitted. 4) Measurements are expressed in decibels (dB).
1.37 Additional units	States any extended features that can be installed on the copying machine. <b>Example:</b> ADF(standard), Finisher(option)	
1.38 Operating environment	Specifies the minimum and maximum ambient temperatures, and related range of relative humidity.	
1.39 Dimensions	States the dimensions of the main unit in either centimeters or millimeters in the order: width × depth × height.	
1.40 Weight	States the weight of the main unit in kilograms.	
1.41 Space required	States the maximum dimensions in either centimeters or millimeters of the main unit when the largest cassette, tray, and delivery unit are installed in the order: width × depth. For machines with moving platens, include the dimensions when the platen is at its maximum extension point. The specification sheet should also list the space required when accessories and options are installed, such as automatic document feeders, sorters, or large-capacity paper-supply devices.	
1.42 Other parameters	Lists required parameters not covered between 1.1 and 1.41.	
2 Accessories (options)		
2.1 Document feeders	Refer to <b>Annex 2</b> .	
2.1.1 Name	Lists the product name or model number.	
2.1.2 Type	States the feeder class, such as document feeder, automatic document feeder, or automatic duplex document feeder. If the feeder has a sheet-through feeding function, this is indicated.	
2.1.3 Acceptable originals	States the maximum and minimum original sizes in millimeters that the feeder can accept. If special originals can be used, their size is indicated.	