INTERNATIONAL STANDARD

ISO/IEC 22505

First edition
2019-12

Information technology — Method for the determination of ink cartridge yield for monochrome inkjet printers and multi-function devices that contain inkjet printer components

Reference number
ISO/IEC 22505:2019(E)

© ISO/IEC 2019



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2019

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Test parameters and conditions ... **3**
4.1 Set-up ... 3
4.2 Sample size ... 4
4.3 Print mode ... 4
4.4 Print environment ... 5
4.5 Paper ... 5
4.6 Maintenance ... 5
4.7 Test page ... 6
5 Test methodology ... **6**
5.1 Testing procedure ... 6
5.1.1 Flow chart ... 6
5.1.2 Preparation ... 6
5.1.3 Installation of test cartridges ... 6
5.1.4 Testing ... 7
5.1.5 End of cartridge life procedure ... 7
5.2 Procedure for handling streaks ... 7
5.2.1 Overview ... 7
5.2.2 Nozzle cleaning ... 7
5.3 Procedure for handling a defective cartridge, printhead or printer failure ... 8
5.3.1 General ... 8
5.3.2 Defective cartridge ... 8
5.3.3 Defective printhead ... 8
5.3.4 Defective printer ... 8
6 Determination of the declared yield value and declaration ... **9**
6.1 Yield of cartridges ... 9
6.2 Test data reporting ... 9
6.3 Declaration of the yield ... 9
Annex A (informative) **Examples of fade** ... **11**
Annex B (informative) **Example of streaks** ... **13**
Annex C (normative) **Testing reporting form** ... **14**
Annex D (informative) **Process flowchart** ... **17**
Bibliography ... **19**

© ISO/IEC 2019 – All rights reserved

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see http://patents.iec.ch).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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

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.

© ISO/IEC 2019 – All rights reserved

Introduction

The purpose of this document is to provide a process for determining the ink cartridge yield for a given monochrome inkjet print system (i.e. integrated ink cartridges and ink cartridges without integrated printheads) using a standard test page.

In the case where a cartridge set can be used in multiple printer models, only one yield test needs to be performed as long as the difference between printer models does not impact yield.

NOTE A cartridge supplier can choose to use more than one market identifier for a single physical cartridge. In this case, only one yield test is performed as long as there are no differences in the cartridges other than market identifiers.

This document prescribes the following:

— the test method that manufacturers, test labs, etc., use to determine ink cartridge yield;

— the method for determination of allowable declared yield value from the test results;

— the appropriate method of describing the yield of cartridges in documentation supplied to the consumer by the manufacturer.

The cartridge yield is determined by an end of life judgement, or signalled with either of two phenomena: *fade,* caused by depletion of ink in the cartridge or *automatic printing stop* caused by an ink out detection function.

It is envisioned that one of the uses of this document is for the calculation of cost per page (CPP). While this document measures a portion of this cost, it is not used as the sole component of CPP calculation. Additional factors are considered for CPP calculations.

© ISO/IEC 2019 – All rights reserved

Information technology — Method for the determination of ink cartridge yield for monochrome inkjet printers and multi-function devices that contain inkjet printer components

1 Scope

The scope of this document is limited to the evaluation of black ink cartridge page yield for ink-containing cartridges (i.e. integrated ink cartridges and ink cartridges without integrated printheads) for monochrome inkjet print systems. This document can also be applied to the printer component of any multifunctional device that has a digital input printing path, including multi-function devices that contain inkjet printer components. Both liquid and solid ink products can be tested using this document.

This document is only intended for the measurement of ink cartridge page yield when printing on plain paper. No other claims can be made from this testing regarding quality, reliability, etc.

This document can be used to measure the yield of any cartridge that is used in a significant amount during the printing of the test page defined in ISO/IEC 19752.

This document is not for use with printers whose minimum printable size is equal to or greater than A3 or for printers designed or configured to print photos (for example, maximum printable size less than A4 or a printer configuration intended for photo only printing). In addition, this document only applies to drop on demand printing systems.

NOTE Integrated ink cartridge is a cartridge that includes at least: an ink containment part, an ink deposition mechanism and an ink transport part (see ISO/IEC 29142-1).

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/IEC 19752, *Information technology — Office equipment — Method for the determination of toner cartridge yield for monochromatic electrophotographic printers and multi-function devices that contain printer components*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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 http://www.electropedia.org/

© ISO/IEC 2019 – All rights reserved