
Information technology — Office equipment — Method for measuring digital printing productivity

*Technologies de l'information — Équipements de bureau — Méthode
de mesure de la productivité d'impression numérique*





COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2021

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
Email: copyright@iso.org
Website: www.iso.org

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	5
4.1 Test platform	5
4.2 Test platform test setup procedures	6
4.2.1 Initial platform setup	6
4.2.2 Creation of disk image of test platform (optional)	6
4.2.3 Initial test state	6
4.3 Printing device system setup	6
4.4 Printing device connection	8
4.5 Printing device condition	8
4.6 Sample size	8
4.7 Paper	8
4.8 Maintenance	8
4.9 Test files, test suites and software applications	8
4.10 Environment	9
4.11 Voltage	9
5 Test method	9
5.1 Overview	9
5.2 Test measurement procedure	10
5.2.1 Test setup	10
5.2.2 "1 set" test from ready	11
5.2.3 "1 set + 30 seconds" test from ready	11
5.2.4 "1 set + 4 minutes" test from ready	12
5.3 Test method process	13
5.3.1 Suggested flow chart	13
5.3.2 ± 5 % consistency criteria	14
5.3.3 Estimating the set count	15
5.4 Category tests	16
5.4.1 Overview	16
5.4.2 Office test	16
5.4.3 Advertising and graphics test	18
5.5 Feature performance test	20
5.5.1 Overview	20
5.5.2 Feature performance test procedure	21
5.6 Optional special tests	22
6 Calculations and treatment of data	22
6.1 Overview	22
6.2 Category tests	22
6.2.1 "1 set" test from ready	22
6.2.2 "1 set + 30 seconds" test from ready	23
6.2.3 "1 set + 4 minutes" test from ready	23
6.3 Feature performance test	24
6.3.1 "1 set" test from ready	24
6.3.2 "1 set + 30 seconds" test from ready	24
7 Presentation of results	25
7.1 Sharing testing and reports	25
7.2 Category tests	26
7.2.1 Overview	26

7.2.2	Minimum declaration	26
7.2.3	Summary report.....	26
7.2.4	Full report.....	27
7.3	Advertising and graphics tests	29
7.3.1	Overview.....	29
7.3.2	Summary report.....	30
7.3.3	Full report.....	31
7.4	Feature performance tests.....	34
7.4.1	Overview.....	34
7.4.2	Summary report.....	34
7.4.3	Full report.....	35
Annex A (informative) Report presentation.....		36
Annex B (informative) Full detailed report example.....		44
Annex C (normative) Test suites		48
Annex D (normative) Procedure to establish ready delay time		54
Annex E (normative) Test platform parameters		57
Bibliography		61

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 or www.iec.ch/members_experts/refdocs).

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 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. In the IEC, see www.iec.ch/understanding-standards.

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

This third edition cancels and replaces the second edition (ISO/IEC 24734:2014), which has been technically revised. It also incorporates the Corrigenda ISO/IEC 24734:2014/Cor 1:2016.

The main changes compared to the previous edition are as follows:

- added a “Normative references” clause;
- annex structure was changed to be consistent with other productivity standards;
- “Terms and definitions” clause has been modified to add new definitions and removed definitions of terms not used in the text;
- added a requirement that single copy output shall use the default “output order” setting and the alternate “order output” is an optional test;
- added reporting of the “output order” setting as part of the summary and detailed reports since it has a direct impact on the ability for results to be repeatable;
- added “ready delay time” requirement to “test measurement” procedures;
- added [Annex D](#) for the procedure to determine the “ready delay time”;
- changed paper weight to paper grammage in body and reporting.

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.

Introduction

Many digital printing devices produce printed pages at a different rate than their nominal speed when running with different modes (simplex, duplex, print quality modes), different substrate grammage, system environments, applications and file content, and finishing options. The degree to which a reduction in productivity is experienced depends significantly on multiple parameters of the job workflow. The most dominant of the parameters of the job workflow are: system environment, application, and job characteristics such as the number of pages in a set to be printed, single-sided or double-sided output pages, quality mode, number of print sets to be produced, substrate grammage/size used, and finishing options, and job content complexities such as monochrome vs. colour, text/vector vs. raster, page scaling and colour conversion. The existing International Standard (ISO/IEC 10561) only addresses printing throughput for Class 1 and Class 2 printers and, therefore is not suitable for comparing colour printing devices or high-speed page-oriented printing devices with many finishing options and connectivity configurations.

This document provides a general method for measuring the productivity when the above-mentioned job workflow parameters for digital printing devices are taken into consideration. This document also includes a suite of test files, test-platform (hardware and software) setup guidelines, and a procedure to be used for measuring digital printing productivity. It allows manufacturers and buyers of digital printing devices to describe the productivity of various digital printing devices with respect to representative office usage patterns.

Information technology — Office equipment — Method for measuring digital printing productivity

1 Scope

This document specifies a method for measuring the digital printing productivity of digital printing devices with various office applications and print job characteristics. This document is applicable to digital printing devices, including single-function and multi-function devices, regardless of print technology (e.g. inkjet, laser). Devices can be equipped with a range of paper feed and finishing options either directly connected to the computer system or via a network. It is intended to be used for black and white (B&W) as well as colour digital printing devices. It allows for the comparison of the productivity of machines operating in various available modes (simplex, duplex, size of substrates, etc.) and office applications when the test system environment, operating modes, and job mix for each machine are held identical. This document includes test files, test setup procedure, test runtime procedure, and the reporting requirements for the digital printing productivity measurements.

This document is not intended to be used for devices which are not able to print on a media size of A4/8,5" × 11" or for devices which are not able to collate multiple copies of a print.

This document is not intended to replace manufacturer's rated speeds.

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*