

SS 606:2015(2023)+A1(2023)
(ICS 37.080)

SINGAPORE STANDARD

**Code of practice for digital conversion of 16
mm/35 mm microfilm and 105 mm microfiche –
Operating procedures**

Incorporating Amendment No. 1

Confirmed and classified as a mature standard 2023

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Code of practice for digital conversion of 16 mm/35 mm microfilm and 105 mm microfiche – Operating procedures

Published by Enterprise Singapore

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ISBN 978-981-5163-31-5

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Foreword

This Singapore Standard was prepared by the Technical Committee on Microfilming under the direction of the Chemical Standards Committee.

Microfilms produced between 1950s and 1980s are made of acetate film which is not as durable as polyester film of the 1990s and beyond [for details, see 3.1 on Cellulose diacetate/triacetate (acetate-based) microfilm]. Scanning of acetate-based microfilm and writing back to polyester-based microfilm that has a longer media life expectancy is part of the media refreshment strategy for archival information. Furthermore, digitised microfilm images are more readily accessible than the conventional microfilm reel.

As there is no ISO standard on microfilm scanning and the concept of digitising microfilm and the associated technology are relatively new, this standard is developed based on the expertise of the Technical Committee members.

Preservation of digital data (text, graphics etc) for long term access depends on two factors: durability of the information/record file format and durability of the record storage media, i.e. the physical carrier. Even as cloud computing/storage is being explored, there is still a need to address recordkeeping issues particularly relating to 3rd-party reliability and trustworthiness. Furthermore the choice of digital file format continues to impact on the long term accessibility of the recorded information.

For this SS, the recommendations would focus on the selection of open access standards already available in the ISO – such as PDF/A-1 for text based documents, PDF-E for technical drawing documents, TIFF & JPEG 2000 for photographic images etc. For the selection of digital storage media, it is more to protect the data from being altered without detection, i.e. media that allows “write-once-read many” which would stand a better chance in meeting short to mid-term information storage and protection needs.

In preparing this standard, reference was also made to the following publications:

1. American National Standard for Imaging media/association for information and image management – Inspection of stored silver gelatin microforms for evidence of deterioration. ANSI/AIIM MS 45–1990.
2. Recommendations for the evaluation of digital images produced from photographic, microphotographic, and various paper formats (<http://lcweb2.loc.gov/ammem/lpireprt.pdf>)
3. Technical guidelines for digitizing cultural heritage materials: Creation of raster image master files (http://www.digitizationguidelines.gov/guidelines/FADGI_Still_Image-Tech_Guidelines_2010-08-24.pdf)
4. A project on preservation of digital data (<http://worldcat.org/arcviewer/1/OCC/2007/08/08/0000070513/viewer/file2118.html#faq>)
5. McCamy, C.S. et al and R.I.T College of Imaging Arts and Sciences https://www.imagepermanenceinstitute.org/webfm_send/519
6. A survey of blemishes on processed microfilm (Vol. 73A) – McCamy, C.S; Wiley, S.R.; Speckman, J.A (<https://archive.org/details/jresv73An1p79>)

Acknowledgement is made for the use of information/materials from the above sources.

As amended
Aug 2023

Acknowledgement is also made to the following organisations for their contributions:

- National Library Board for reviewing this standard which resulted in confirming the standard with amendment and classifying it as a mature standard.
- Micrographics Data Pte Ltd for assisting in this review.
- CD Imaging Pte Ltd and ISEAS Library, ISEAS-Yusof Ishak Institute for their kind permission to reproduce their figures in this standard.

The figures are included as examples in this Singapore Standard for the sole purpose of illustration. It does not connote any endorsement whatsoever of any product, service and/or design concept by the Working Group and Enterprise Singapore.

At the time of publication, this standard is expected to be used by agencies who have microfilm collection with the intention to digitise for online access as well as migration from older generation of microfilm.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all such patent rights.

NOTE

1. *Singapore Standards (SSs) and Technical References (TRs) are reviewed periodically to keep abreast of technical changes, technological developments and industry practices. The changes are documented through the issue of either amendments or revisions. Where SSs are deemed to be stable, i.e. no foreseeable changes in them, they will be classified as "mature standards". Mature standards will not be subject to further review unless there are requests to review such standards.*
2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore and the Singapore Standards Council shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR. Although care has been taken to draft this standard, users are also advised to ensure that they apply the information after due diligence.*
3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

Code of practice for digital conversion of 16 mm/35 mm microfilm and 105 mm microfiche – Operating procedures

1 Scope

This Singapore Standard specifies the operating procedures for digital conversion of 16 mm/35 mm microfilm and 105 mm microfiche (camera and COM).

This Singapore Standard does not cover the following:

- 105 mm microfiche in roll format;
- Aperture card (35 mm);
- Colour microfilm (16 mm/35 mm);
- X-ray film; and
- Photographic film (positive and negative).

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

SS 520	Code of practice for microfilming of documents on 16 mm black and white, silver-gelatin type microfilm/planetary and rotary camera filming – Operating procedures
SS 522	Code of practice for quality control inspection of 16 mm and 35 mm black and white, silver-gelatin type microfilm
SS 596	Code of practice for imaging and writing of digital text and drawing documents on 16 mm and 35 mm black and white, silver-gelatin type microfilm for long term preservation – Operating procedures
ISO 9923	Micrographics – Transparent A6 microfiche – Image arrangements
ISO 11506	Document management applications – Archiving of electronic data – Computer output microform (COM)/Computer output laser disc (COLD)
ISO 12653-1	Electronic imaging – Test target for the black-and-white scanning of office documents – Part 1: Characteristics
ISO 12653-2	Electronic imaging – Test target for the black-and-white scanning of office documents – Part 2: Methods of use
ISO/TR 13028 : 2010	Information and documentation – Implementation guidelines for digitization of records
ISO 18901 : 2010	Imaging materials – Processed silver-gelatin-type black-and-white films – Specifications for stability
ISO 29861 : 2009	Documentation management applications – Quality control for scanning office documents in colour