

**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**

AMENDMENT NO. 1

August 2023

1. Page 7, Foreword

Insert the following statement before the last paragraph:

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.

2. Page 8, Normative references

- a) *Insert* "ISO 3334 Micrographics – ISO resolution test chart No. 2 – Description and use".
- b) *Delete* "ISO 18901 Imaging materials – Processed silver-gelatin-type black-and-white films – Specifications for stability".

3. Page 10, Figure 2 – Example of overhead-type scanner with book cradle

Delete Figure 2.

4. Page 11, 3.14 Resolution

Insert the following text in 3.14

- (c) Resolution test according to ISO 3334.

5. Page 11, 3.17 Universal test target (UTT)

Delete clause 3.17.

6. Page 13, 5.1 Choice of 16 mm or 35 mm microfilm

- a) *Replace* 'The choice shall be based on technical essentials and constraints specific to the application chosen as well as on organisational preferences.' with 'Refer to ISO 6199, ISO 6200 and ISO 18901 for choice of microfilm type. Typically, a 16 mm roll is used to store A3/A4 sized office documents, spreadsheets, newsletters, etc., while a 35 mm roll is used for large format records such as engineering drawings, newspapers, maps, technical drawings, magazines, etc.'
- b) *Replace* 'However, as most DAWs in the market today only accept a few digital file formats – typically TIFF and PDF, it is most important that sufficient time is devoted in the preparation to convert digital files that do not conform to the technical requirements of the DAW in used (refer to 6.1).' with 'If the DAW can accept only a few digital file formats, sufficient time shall be devoted to the preparation to convert digital files that do not conform to the technical requirements of the DAW in use (refer to 6.1)'.

- c) *Delete* the following text from 5.1:

The microfilm shall comply with the requirements of ISO 18901. The microfilm used may be limited by the type of DAW technology. The choice of microfilm type (16 mm or 35 mm) should be linked to the level of miniaturisation that it implies, so that the capacities to produce all the significant details within the file are real (see Table 1).

7. Page 13, Table 1 – Decision matrix based on font/character size and document type

Delete Table 1.

8. Page 13, 5.2 Orientation of microfilm

- a) *Replace* “There are two modes of orientation (see Figure 4) as follows:” with “There are various modes of orientation (see Figure 4), for example, the following:”

- b) *Insert* the following text in 5.2

(c) Combination rotation – A combination of cine and comic mode.

9. Page 14, Figure 4 – Cine and comic filming modes

Replace Figure 4 with the diagram below:

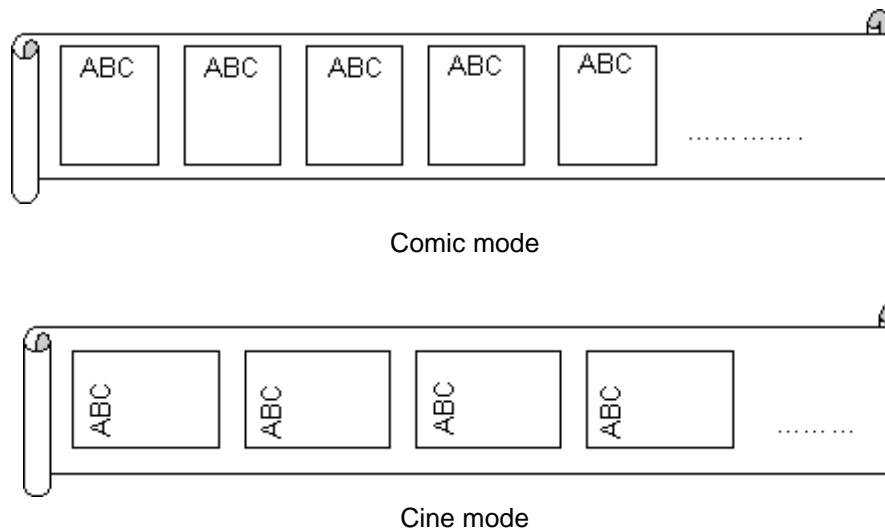


Figure 4 – Cine and comic filming modes

10. Page 14, 5.3 Reduction ratio

Replace the text of 5.3 with the following:

The reduction ratio expresses the relationship between the size of the digital image and the corresponding size of the microform image. It indicates the amount of magnification required to recreate the document's original size.

11. Page 14, 5.4 Image mark (blip)

Insert the following text as the last paragraph in 5.4.

Refer to ISO 11962 on image mark (blip) used with 16 mm and 35 mm roll microfilm.

12. Page 14, 5.5 Voltage stabilisation

Delete clause 5.5.

13. Page 15, 6.1.1.1

a) *Replace* the text of 6.1.1.1 with the following:

Before the start of a scan job, it is recommended for an operator to carry out scanner calibration using the digital resolution test chart which complies with ISO 3334 and test targets supplied by the manufacturer. Figure 5 shows a sample of a test target supplied by a manufacturer. Refer to ISO 14648-1 for specifications on the digitally generated test target of COM recorder that generates images using a single internal display system. There are different types of resolution test charts available. The appropriate test chart provided by the manufacturer shall be used.

b) *Replace* title of Figure 5 with "Sample of test target supplied by manufacturer"

14. Page 16, 6.1.2.2

a) *Delete* "as shown in Figure 6 below"

b) *Delete* Figure 6 – Operator wearing lint-free gloves to handle materials

15. Page 16, 6.1.2.3

Delete the references to Figure 6 and Figure 7.

16. Page 17, Figure 7 – Illustration on the use of book cradle to scan bound materials

Delete Figure 7.

17. Page 22, 6.3 Loading microfilm rolls

Replace the text of 6.3 with the following:

Load microfilm rolls under safety light condition if required to avoid film fogging in accordance with the instructions from the manufacturer of DAW.

18. Page 22, 6.5.1

Replace 'Configure the setting of the job for the DAW which typically includes (not all settings required repeated changing and depend on the needs)' with 'At the commencement of a microfilming project, the following technical specifications to be used in the project shall be determined:'.

19. Page 23, 6.5.3

Replace the text of 6.5.3 with the following:

Estimate the maximum number of images that can fit into one roll of 16 mm/35 mm microfilm roll without breaking the provenance of a complete file.

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For a 16 mm microfilm roll:

- All A4-sized documents in portrait mode, average of 2400 images
- All A4-sized documents in landscape mode, average of 1600 images
- All A3-sized documents in landscape mode, average of 1300 images

For a 35 mm microfilm roll:

- All A0-sized drawing documents in landscape mode average of 500 images
- All A0-sized drawing documents in portrait mode average of 1100 images

For mixed-sized documents, the number of images per roll may vary according to the mixed-ratio.

Refer to ISO 6199 which recommends image dimension and procedure for recording images using either in 16 mm or 35 mm film, in cine or comic mode. These parameters define the number of images which can be written on film type.

20. Page 23, 6.5.4

Replace 'When the writing process ended, remove the exposed microfilm from the cartridge under safety light' with 'When the writing process ends, remove the exposed microfilm under safety light'.

21. Page 23, 6.5.5

Replace the text of 6.5.5 with the following:

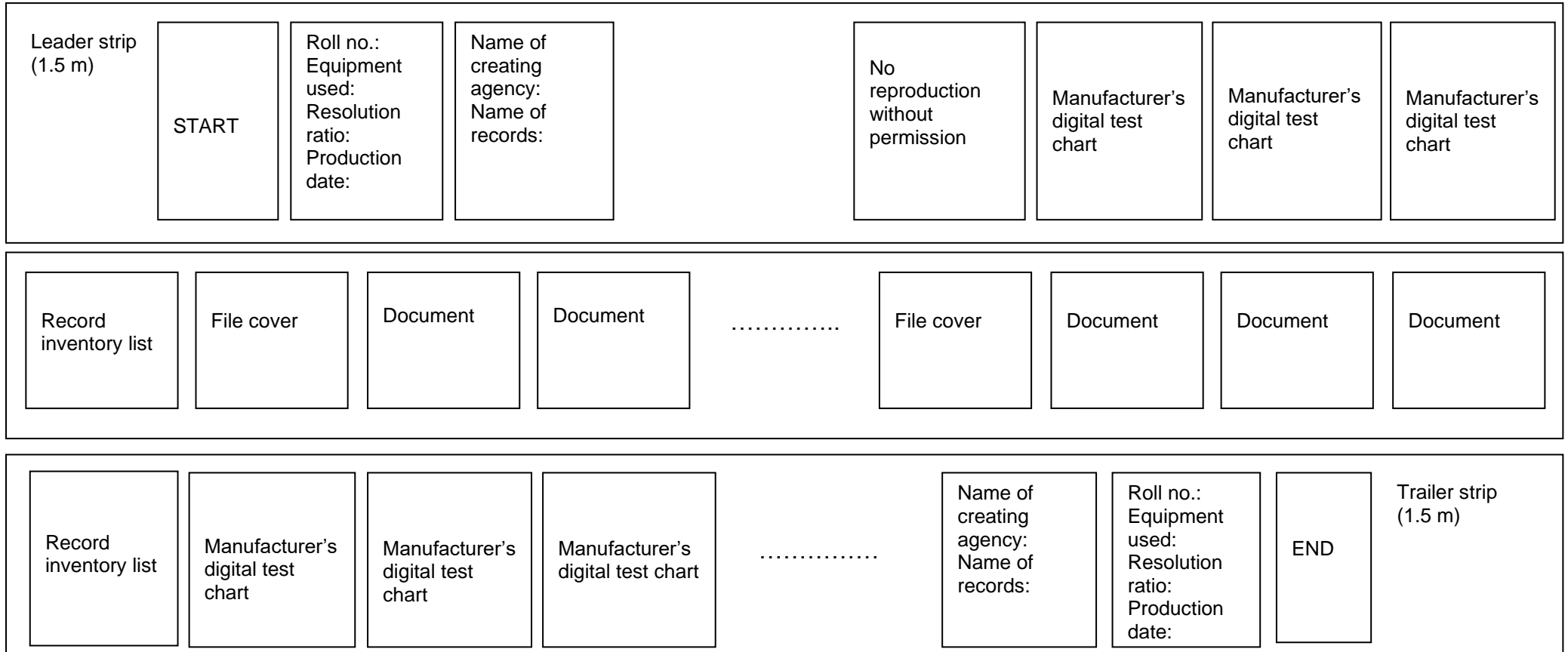
The completed roll of microfilm should be secured with the original wrapper (see Figures 13, 14 and 15) and placed in the original light-sealed microfilm container. Processing should take place as soon as possible so that the filming procedures can be verified and that any problems with the equipment or with the techniques employed can be identified and corrected. If the processing is not immediate, then the temporary holding area for the exposed microfilm should be secured, dark and cool.

22. Page 25, Annex A Recommended sequence of placement of targets and records to appear on microfilm

Replace Annex A with the following:

Annex A
(informative)

Recommended sequence of placement of targets and records to appear on microfilm



23. Bibliography (new)

Insert the following Bibliography after Annex A:

Bibliography

ISO 6200 Micrographics – First generation silver-gelatin microforms of source documents – Density specifications and method of measurement

ISO 11962 Micrographics – Image mark (blip) used with 16 mm and 35 mm roll microfilm

ISO 14648-1 Micrographics – Quality control of COM recorders that generate images using a single internal display system – Part 1: Characteristics of the software test target

ISO 18901 Imaging materials – Processed silver-gelatin-type black-and-white films – Specifications for stability