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Specification for

Microform readers

UDC 778.148

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Co-operating organizations

The Photographic Industry Standards Committee, under whose supervision these recommendations were prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

- Aslib*
- Association of Manufacturers and Suppliers for the Graphic Arts
- Association of Photographic Laboratories
- British Kinematograph, Sound and Television Society
- British Photographic Manufacturers' Association*
- British Printing Industry Federation
- Drawing Office Material Manufacturers' and Dealers' Association*
- Graphic Reproduction Federation
- Her Majesty's Stationery Office*
- Illuminating Engineering Society
- Institute of Incorporated Photographers
- Institute of Reprographic Technology*
- Lighting Industry Federation
- Ministry of Defence*
- Photographic Dealers' Association
- Post Office*
- Royal Photographic Society of Great Britain
- Scientific Instrument Manufacturers' Association*

The Government departments and scientific and industrial organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of these recommendations:

- Association of Medical Records Officers
- Association of Photographic Technicians
- British Bankers' Association
- British Broadcasting Corporation
- British Airways (European Division)
- British Airways (Overseas Division)
- Business Equipment Trade Association
- Civil Service Department
- Department of Industry, Warren Spring Laboratory
- Electricity Supply Industry in England and Wales
- Electronic Engineering Association
- Greater London Council
- Library Association
- Microfilm Association of Great Britain
- National Reprographic Centre for documentation
- National Coal Board
- Public Record Office
- Public Services Microfilm Liaison Group
- Society of British Aerospace Companies
- Society of Motor Manufacturers and Traders

This British Standard, having been prepared under the direction of the Photographic Industry Standards Committee, was published under the authority of the Executive Board on 30 June 1976

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Foreword

This British Standard was prepared under the authority of the Photographic Industry Standards Committee. It is a revision of the 1967 edition and extends the scope of BS 4191 to include readers for 16 mm microfilm, previously in the 1956 edition of BS 1371 "*Microfilm, readers and reels*", and microfiche, not previously included. Certain additional performance characteristics such as resolution and screen luminance are now included.

The requirements of this standard are limited to those characteristics of microform readers which are essential and can be precisely specified. Appendix A deals with characteristics which are important but cannot be precisely specified without unnecessarily restricting the design of readers, and with characteristics which are desirable but not essential.

It was found necessary for the Microform Reader Resolution Test Film¹⁾ to contain as many test images as possible in order to ensure that one fell on, or very close to, the corner measuring position. This could be achieved only by a regular arrangement of test images all square with the sides of the film. The patterns used to measure corner resolution are not, therefore, square to a diagonal, but square to the screen, and, because of their orientation, may not indicate the extent of certain optical aberrations as well as do diagonally oriented corner test images. The figures given for corner resolution allow for this and are based on actual measurement on a number of readers.

Certification. Attention is drawn to the certification facilities described on the inside back cover of this standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

¹⁾ One Microform Reader Resolution Test Film (BS 4191C) is supplied with this standard. Additional Test Films (price Gr 5 + VAT each) may be obtained from BSI Sales Department, 101 Pentonville Road, London N1 9ND.

1 Scope

This British Standard specifies the essential characteristics of reading apparatus for microfiche and for microfilm in roll form, filmstrips, aperture cards and jackets. Appendix A gives recommendations for characteristics which are desirable but not essential. The standard applies only to rear-projection readers. It does not apply to readers having a magnification of more than 50 : 1, readers designed for 70 mm or larger roll films, or readers designed for opaque microforms.

2 References

The titles of the British Standards and the International Standard referred to in this standard are listed on page 8.

3 Definitions

For the purposes of this British Standard the following definitions apply.

3.1

frame

that area of the film which is exposed in a camera or other device

3.2

gate

that part of a reader which holds the frame being displayed, including, for example, the glass flats normally used in a microfiche reader to hold the microfiche flat

3.3

line pair

a spatial unit within the test pattern consisting of one line in such a pattern together with one space separating it from the next adjacent line within that pattern, the line and space being of equal widths. The width of a line pair is the distance between one long edge of such a line and the corresponding edge of an adjacent line

3.4

luminance

an objective measure of the luminous intensity of a reader screen when no film is in the gate

3.5

magnification

the length of the screen image divided by the length of the corresponding film image and expressed as, for example, 18 : 1

3.6

microfiche

a transparent flexible material in sheet form carrying microimages

3.7

microfilm

a transparent flexible material in roll form carrying microimages

3.8

microform

the generic term for all media used to record microimages

3.9

reader

a projection device for showing a readable image of a microcopy viewed remotely, as distinct from equipment which is held to the eye. See also 3.16

3.10

rear-projection reader

a reader in which the image is projected on to one side of a translucent screen and read from the other side

3.11

resolution

the spatial frequency of the smallest pattern of the British Standard Microform Reader Resolution Test Film in which the separate lines within the pattern can be identified on the reader screen

3.12

spatial frequency

the number of identical line pairs that can be contained within an overall width of 1 mm

3.13

test chart

an array of test patterns as shown in Figure 3

3.14

test image

a copy of the test chart on film, filmed with a reduction ratio of 1 : 100

3.15

test pattern

one of the numbered groups of two sets of parallel lines at right angles shown in Figure 3

3.16

user

a person using the reader

4 Essential characteristics

To comply with this standard a reader shall conform to all the requirements of this clause.

4.1 Essential physical characteristics

4.1.1 Avoidance of damage to film. The changing of a microform or a frame during normal operation shall not result in scratching or otherwise damaging the film.