

# Optics and optical instruments — Test methods for telescopic systems —

## Part 1: Test methods for basic characteristics

ICS 37.020

# National foreword

This British Standard reproduces verbatim ISO 14490-1:2005 and implements it as the UK national standard.

The UK participation in its preparation was entrusted to Technical Committee CPW/172, Optics and optical instruments, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

## Cross-references

The British Standards which implement international publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its 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, the ISO title page, pages ii to v, a blank page, pages 1 to 14, an inside back cover and a back cover.

The BSI copyright notice displayed in this document indicates when the document was last issued.

## Amendments issued since publication

| Amd. No. | Date | Comments |
|----------|------|----------|
|          |      |          |
|          |      |          |
|          |      |          |
|          |      |          |
|          |      |          |

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 12 January 2006

© BSI 12 January 2006

# INTERNATIONAL STANDARD

**ISO**  
**14490-1**

First edition  
2005-10-15

---

---

## Optics and optical instruments — Test methods for telescopic systems —

### Part 1: Test methods for basic characteristics

*Optique et instruments d'optique — Méthodes d'essai pour systèmes  
télescopiques —*

*Partie 1: Méthodes d'essai des caractéristiques fondamentales*



Reference number  
ISO 14490-1:2005(E)

**AVA** Documents  
Document Sharing Hub



# Contents

Page

|                                                                                                      |    |
|------------------------------------------------------------------------------------------------------|----|
| Foreword.....                                                                                        | v  |
| 1 Scope .....                                                                                        | 1  |
| 2 Normative references .....                                                                         | 1  |
| 3 Terms and definitions .....                                                                        | 1  |
| 4 Method of measurement of the angular magnification .....                                           | 2  |
| 4.1 General.....                                                                                     | 2  |
| 4.2 Test arrangement.....                                                                            | 2  |
| 4.3 Procedure .....                                                                                  | 3  |
| 4.4 Determination of results .....                                                                   | 3  |
| 4.5 Test report .....                                                                                | 3  |
| 5 Method of measurement of the entrance pupil diameter.....                                          | 3  |
| 5.1 General.....                                                                                     | 3  |
| 5.2 Test arrangement.....                                                                            | 3  |
| 5.3 Procedure .....                                                                                  | 4  |
| 5.4 Determination of results .....                                                                   | 4  |
| 5.5 Test report .....                                                                                | 4  |
| 6 Method of measurement of the exit pupil diameter and eye relief .....                              | 4  |
| 6.1 General.....                                                                                     | 4  |
| 6.2 Test arrangement.....                                                                            | 5  |
| 6.3 Procedure .....                                                                                  | 5  |
| 6.4 Determination of results .....                                                                   | 5  |
| 6.5 Test report .....                                                                                | 6  |
| 7 Method of measurement of the angular field of view in the object space .....                       | 6  |
| 7.1 General.....                                                                                     | 6  |
| 7.2 Test arrangement.....                                                                            | 6  |
| 7.3 Procedure .....                                                                                  | 6  |
| 7.4 Determination of results .....                                                                   | 7  |
| 7.5 Test report .....                                                                                | 7  |
| 8 Method of measurement of the angular field of view in the image space .....                        | 7  |
| 8.1 General.....                                                                                     | 7  |
| 8.2 Test arrangement.....                                                                            | 7  |
| 8.3 Procedure .....                                                                                  | 8  |
| 8.4 Determination of results .....                                                                   | 9  |
| 8.5 Test report .....                                                                                | 9  |
| 9 Method of measurement of the angular field of view in the object space for spectacle wearers ..... | 9  |
| 9.1 General.....                                                                                     | 9  |
| 9.2 Test arrangement.....                                                                            | 9  |
| 9.3 Procedure .....                                                                                  | 9  |
| 9.4 Determination of results .....                                                                   | 11 |
| 9.5 Test report .....                                                                                | 11 |
| 10 Method of measurement of the collimation of rays emergent from the eyepiece .....                 | 11 |
| 10.1 General.....                                                                                    | 11 |
| 10.2 Test arrangement.....                                                                           | 11 |
| 10.3 Procedure .....                                                                                 | 12 |
| 10.4 Determination of results .....                                                                  | 12 |
| 10.5 Test report .....                                                                               | 12 |

11 Method of measurement of the image rotation ..... 12

11.1 General ..... 12

11.2 Test arrangement ..... 12

11.3 Procedure..... 13

11.4 Determination of results..... 13

11.5 Test report..... 13

12 Method of determination of the closest distance of observation ..... 14

12.1 General ..... 14

12.2 Test arrangement ..... 14

12.3 Procedure..... 14

12.4 Determination of results..... 14

12.5 Test report..... 14

13 General test report ..... 14

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 14490-1 was prepared by Technical Committee ISO/TC 172, *Optics and photonics*, Subcommittee SC 4, *Telescopic systems*.

ISO 14490 consists of the following parts, under the general title *Optics and optical instruments — Test methods for telescopic systems*:

- *Part 1: Test methods for basic characteristics*
- *Part 2: Test methods for binocular systems*
- *Part 3: Test methods for telescopic sights*
- *Part 4: Test methods for astronomical telescopes*
- *Part 5: Test methods for transmittance*
- *Part 6: Test methods for veiling glare index*
- *Part 7: Test methods for limit of resolution*

The following part is under preparation:

- *Part 8: Test methods for night-vision devices*

*blank*