INTERNATIONAL STANDARD

ISO/IEC 10373-5

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Identification cards — Test methods —

Part 5:
Optical memory cards

Cartes d'identification — Méthodes d'essai —

Partie 5: Cartes à mémoire optique

Reference number
ISO/IEC 10373-5:1998(E)

Contents

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.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 10373-5 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Identification cards and related devices*.

ISO/IEC 10373 consists of the following parts, under the general title *Identification cards — Test methods*:

— *Part 1: General characteristics tests*

— *Part 2: Cards with magnetic stripes*

— *Part 3: Integrated circuit(s) cards*

— *Part 5: Optical memory cards*

Identification cards — Test methods —

Part 5:
Optical memory cards

1 Scope

ISO/IEC 10373 defines test methods for characteristics of identification cards according to the definition given in ISO/IEC 7810. Each test method is cross-referenced to one or more base standards, which may be ISO/IEC 7810 or one or more of the supplementary standards that define the information storage technologies employed in identification cards applications.

NOTE 1 - Criteria for acceptability do not form part of ISO/IEC 10373 but will be found in the International Standards mentioned above.

NOTE 2 - Test methods described in ISO/IEC 10373 are intended to be performed separately. A given card is not required to pass through all the tests sequentially.

This part of ISO/IEC 10373 deals with test methods which are specific to optical memory card technology. ISO/IEC 10373-1, General characteristics, deals with test methods which are common to one or more card technologies and other parts deal with other technology-specific tests.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 10373. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 10373 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 7810:1995, *Identification cards - Physical characteristics.*

ISO/IEC 11693:1994, *Identification cards - Optical memory cards - General characteristics.*

ISO/IEC 11694-1:1994, *Identification cards - Optical memory cards - Linear recording method - Part 1: Physical characteristics.*

ISO/IEC 11694-2:1995, *Identification cards - Optical memory cards - Linear recording method - Part 2: Dimensions and location of the accessible optical area.*

ISO/IEC 11694-3:1995, *Identification cards - Optical memory cards - Linear recording method - Part 3: Optical properties and characteristics.*

ISO/IEC 11694-4:1996, *Identification cards - Optical memory cards - Linear recording method - Part 4: Logical data structures.*

3 Terms and Definitions

For the purposes of this part of ISO/IEC 10373, the following terms and definitions apply.

3.1
test method
method for testing characteristics of identification cards for the purpose of confirming their compliance with International Standards

3.2
testably functional
surviving the action of some potentially destructive influence to the extent that:

a) any magnetic stripe present on the card shows a relationship between signal amplitudes before and after exposure that is in accordance with the base standard

b) any integrated circuit(s) present in the card continues to show an Answer to Reset response[1] which conforms to the base standard

c) any contacts associated with any integrated circuit(s) present in the card continue to show electrical resistance and impedance which conform to the base standard

d) any optical memory present in the card continue to show optical characteristics which conform to the base standard

3.3
normal use
use as an Identification Card (see clause 4 of ISO/IEC 7810:1995), involving equipment processes appropriate to the card technology and storage as a personal document between equipment processes

4 Default items applicable to the test methods

4.1 Test environment

Unless otherwise specified, testing shall take place in an environment of temperature 23ºC ± 3ºC (73ºF ± 5ºF) and of relative humidity 40% to 60%.

4.2 Pre-conditioning

Where pre-conditioning is required by the test method, the identification cards to be tested shall be conditioned to the test environment for a period of 24h before testing.

4.3 Selection of test methods

Unless otherwise specified, the tests in this part of ISO/IEC 10373 shall be applied exclusively to optical memory cards defined in ISO/IEC 11693, ISO/IEC 11694

4.4 Default tolerance

Unless otherwise specified, a default tolerence of ± 5% shall be applied to the quantity values given to specify the characteristics of the test equipment (e.g. linear dimensions) and the test method procedures (e.g. test equipment adjustments).

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[1] This part of ISO/IEC 10373 does not define any test to establish the complete functioning of integrated circuit(s) cards. The test methods require only that the minimum functionality (testably functional) be verified. This may, in appropriate circumstances, be supplemented by further, application specific functionality criteria which are not available in the general case.

4.5 Total measurement uncertainty

The total measurement uncertainty for each quantity determined by these test methods shall be stated in the test report.

5 Test methods

5.1 Location of accessible optical area and reference track

The purpose of this test is to measure the location of the accessible optical area and the reference track in the card (see ISO/IEC 11694-2:1994).

5.1.1 Procedure

Construct two perpendicular axes of reference x and y intersecting at o. Mark three reference points on the axes, points P2 and P3, measured 11,25 mm and 71,25 mm from o are marked on the x axis and point P1, 27,00 mm from o, on the y axis. Place the card to be tested, accessible optical area side up, on a flat hard surface. The card shall be held down by a load of 2,2 N ± 0,2 N.

Apply force F_1 (1 N to 2 N) and F_2 (2 N to 4 N) so that the reference edge of the card touches points P2 and P3 and the left edge touches at P1 (see Figure 1).

Measure dimensions X_a, X_b, Y, C and D, with equipment having an accuracy of 0,05 mm.

not to scale
dimensions in millimetres

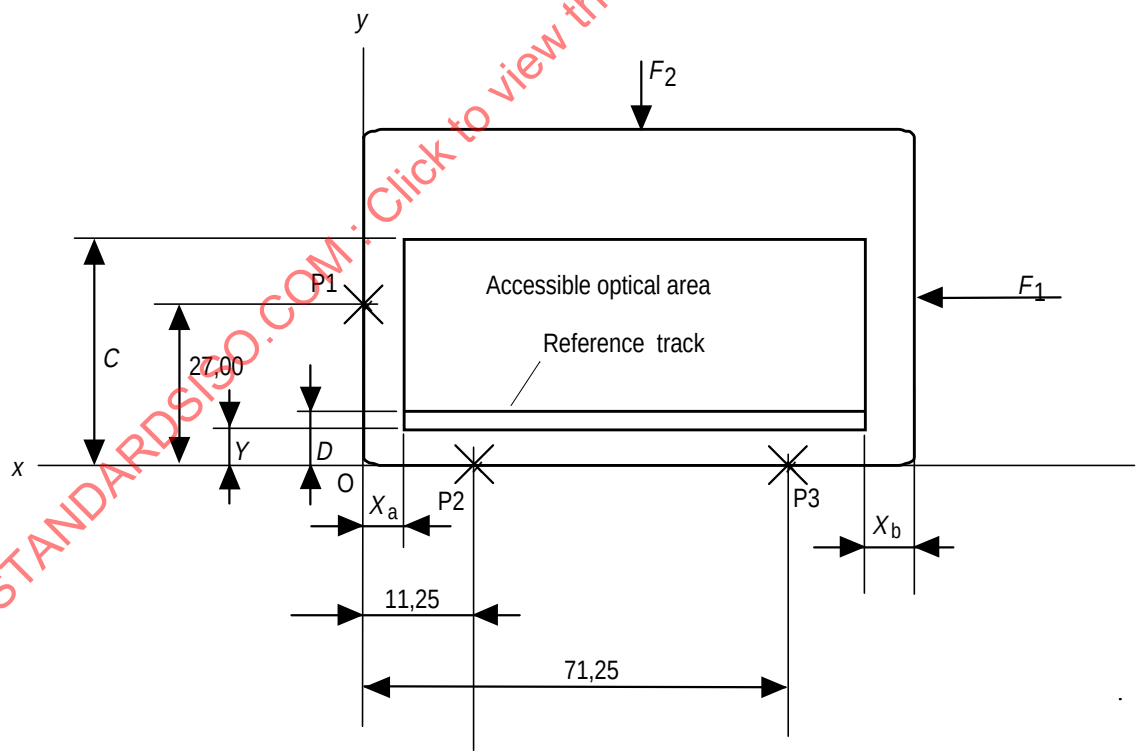

Figure 1 — Location of accessible optical area and reference track

5.1.2 Test report

The test report shall give the values of the dimensions measured.

5.2 Skew

The purposes of this test is to measure the skew of the reference track to the bottom edge of the optical memory card (see ISO/IEC 11694-2:1995)

5.2.1 Apparatus

The apparatus is shown in Figure 2. It comprises:

a) x-y stage with an xy position indicator.

b) an optical microscope

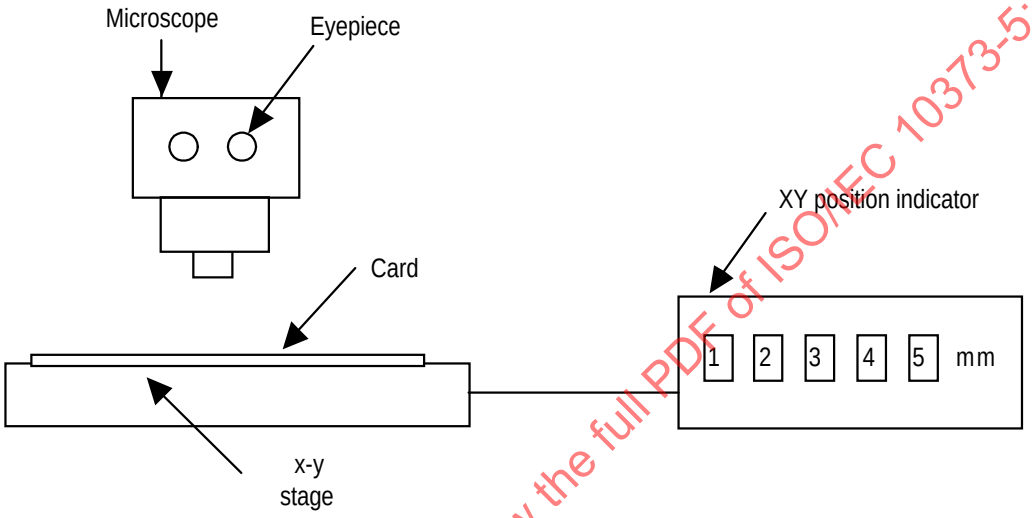

Figure 2 — Apparatus for the Skew measurement

5.2.2 Procedure

Place the sample card to be tested, accessible optical area side up, on x-y stage, in flat.

Look into the eyepiece of the microscope, move the x-y stage so that the reference track in the left part of the card can be seen. (see figure 3), and adjust the x-y stage so that the xy-cross-point in the eyepiece agree with the reference track. Then record the xy coordinate value(X_0, Y_0).

Next move the stage in the y-direction so that the bottom edge of the card can be seen, adjust the stage and record the value (X_0, Y_2) similarly.

And move the stage so that the reference track in the right part of the card can be seen, adjust the stage and record the coordinate value (X_1, Y_1). However the value of $|X_0-X_1|$ shall be not less than 60 mm.

Lastly move the stage in the y-direction so that the bottom edge of the card can be seen, and record the value (X_1, Y_3) in the same way.

The skew is calculated by the expression as:

$$\text{Skew} = \text{ABS}[\arctan\{(Y_1-Y_0)/(X_7-X_0)\}-\arctan\{(Y_3-Y_2)/(X_1-X_0)\}]$$