

Electrical Security Systems —

Part 2-6:

Access control systems: Access Cards

PUBLIC REVIEW DRAFT

TECHNICAL COMMITTEE REPRESENTATION

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KENYA BUREAU OF STANDARDS (KEBS)

Head Office: P.O. Box 54974, Nairobi-00200, Tel.: (+254 020) 605490, 602350, Fax: (+254 020) 604031
E-Mail: info@kebs.org, Web:<http://www.kebs.org>

Coast Region

P.O. Box 99376, Mombasa-80100
Tel.: (+254 041) 229563, 230939/40
Fax: (+254 041) 229448

Lake Region

P.O. Box 2949, Kisumu-40100
Tel.: (+254 057) 23549, 22396
Fax: (+254 057) 21814

Rift Valley Region

P.O. Box 2138, Nakuru-20100
Tel.: (+254 051) 210553, 210555

KS 2112-2-6: 2009

Foreword

This Kenya Standard was prepared by the Extra Low Voltage Equipment Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

During the preparation of this standard, reference was made to the following documents:

SANS 2220-2-6:2005 Part 2-6: Access control systems: Access Cards

Acknowledgement is hereby made for the assistance derived from these sources.

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Electrical security systems

Part 2-6: Access control systems: Access cards

1 Scope

1.1 This part of KS 2112 specifies the characteristics of access cards intended to be used in access control systems.

1.2 KS 2112-2-1 specifies the general characteristics of access control systems.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of KS 2112. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of that standard, parties to agreements based on this part of KS 2112 are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below. Information on currently valid national and international standards can be obtained from Kenya Bureau of Standards

IEC 60050-191, *International electrotechnical vocabulary – Chapter 191: Dependability and quality of service.*

IEC 60300 (all parts), *Dependability management.*

ISO/IEC 7810, *Identification cards – Physical characteristics.*

ISO/IEC 7813, *Identification cards – Financial transaction cards.*

SANS 2220-1-8 (SABS 2220-1.8), *Electrical security systems – Part 1-8: Environmental testing.*

KS 2112-2-1, *Electrical security systems – Part 2-1: Access control systems: General characteristics.*

KS 2112-2 *Electrical security installations – Part 2: Access control.*

3 Definitions

For the purposes of this part of KS 2112, the definitions given in KS 2112-2 apply.

4 Requirements

4.1 General

4.1.1 Construction

An access card shall be made of a durable material that can display the following information, as required

- a) an I.D. photograph;
- b) a serial number;
- c) a company logo;
- d) a name, signature and other information of bearer.

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4.1.2 Dimensions

The dimensions of an access card shall be as follows:

– thickness of data reading area:

magnetic cards : 0,76 mm ± 0,08 mm

inductive cards : 1,1 mm ± 0,1 mm

– height : : 53,98 mm $\begin{matrix} +0,05 \\ -0,06 \end{matrix}$ mm

– width : : 85,60 mm $\begin{matrix} +0,12 \\ -0,13 \end{matrix}$ mm

NOTE Thickness requirements are not applicable to special cards such as intelligent cards or proximity cards that are not presented to standard card readers. Dimensions of magnetic cards are in accordance with ISO/IEC 7810 and ISO/IEC 7813.

4.1.3 Coding

An access card shall have a unique code stored on the card itself. This code shall be readable by a card reader. In class 4 and class 5 access control systems, attempting to change the code shall destroy the card.

4.1.4 Lamination and hole

It shall be possible to laminate an access card by means of a hot or cold lamination process. It shall be possible to punch a hole in the card to allow a carrying clip to be fitted. The appropriate laminating process and the punch location shall be identified in the manufacturer's documentation.

4.1.5 Reliability

4.1.5.1 The card shall be water resistant and resistant to wear and tear caused by extended use.

4.1.5.2 When an access card (other than an intelligent card or proximity card) is tested in accordance with 6.5, the card shall show no sign of damage and shall continue to function as intended.

4.1.5.3 When an access card (other than an intelligent card or proximity card) is tested in accordance with 6.7, the card shall continue to function satisfactorily.

4.1.5.4 A card shall show no sign of damage after submersion in water for a period of 15 s.

4.1.6 Radiation

When relevant, a card shall comply with the applicable national regulations for operating frequency and power level.

4.1.7 Resistance to corrosion

The material of a card shall be inherently corrosion resistant or so treated as to afford adequate protection against corrosion.

4.1.8 Card presentation

When an access card is tested in accordance with 6.6, the card shall (when presented to the appropriate card reader at the intended angle) function as intended. Transaction failures shall not exceed 0.5 % at the intended angle of presentation and 1 % at 5° away from the intended angle of presentation.

4.1.9 Intelligent card technology

4.1.9.1 Contacts

The location of the contacts and the microchip shall not cause surface irregularities on the back of the card or in the magnetic stripe area.

4.1.9.2 Heat

The energy dissipated by the integrated circuit shall not exceed 0.8 W.

4.2 Environmental requirements

When a card is tested in accordance with 6.4, it shall not be adversely affected, shall not be damaged and, when presented to a reader, shall continue to function as intended.

5 Marking

5.1 Access cards shall be legibly and permanently marked with the following information:

- a) serial number;
- b) insertion or swipe direction (when applicable).

5.2 Access cards shall be supplied together with the following information:

- a) technology used;
- b) number of bits used (where applicable);
- c) lamination process and punch location
- d) the manufacturer's name or symbol and model number;
- e) operating instructions.

6 Inspection and methods of test

6.1 Inspection

Visually examine each card in the sample for compliance with all the relevant requirements of this part of SANS 2220 for which tests to assess compliance are not given in 6.4 to 6.7 (inclusive).

6.2 Conditions of test

Carry out the tests given under the following standardized atmospheric conditions:

- temperature : 15 °C to 35 °C;
- humidity : 25 % to 75 %;
- atmospheric pressure : 86 kPa to 106 kPa.

6.3 Sequence of testing

Carry out the tests in the order given.

6.4 Environmental tests

Carry out the environmental tests given in table.

Table 1 — Environmental tests and severities

1	2
Test	Severity
Dry heat*	4
Cold	4
Shock	2
Sinusoidal vibration	4
Random vibration	2
Damp heat, steady state	1
Electrostatic discharge ⁺	1
Electromagnetic fields	4
Impact	1
Free fall. The card shall be dropped 500 times	3
Enclose protection (liquids)	7
*Optionally, the test may be done at 100 °C for a period of 8 h. +Excluding intelligent card technologies with direct data transfer.	

6.5 Reliability test

6.5.1 Select any side of the access card at random, insert it by not more than 5 mm into a suitable clamping device with rounded jaws and clamp the card along its entire width.

6.5.2 Bend the card 200 times through plus and minus 10 mm (measured at the opposite side).

6.5.3 Twist the card 200 times through plus and minus 15° (measured at the opposite side).

6.5.4 Remove the card from the vice and check for compliance with 4.1.5.2.

6.6 Presentation failure test

6.6.1 Present the card to an appropriate card reader that is switched on and is functioning.

6.6.2 Use appropriate apparatus to present the card to the reader first at the intended angle and then at that angle +5° and -5°.

6.6.3 Present the card to the reader 200 times at each of the above angles (a total of 600 presentations) and record the number of failures.

6.6.4 Check for compliance with 4.1.8.

6.7 Wear test

Present the card 5 000 times to the appropriate card reader, applying a downwards or sideways (as appropriate) force of 15 N. Check for compliance with 4.1.5.3.