



**SLOVENSKI STANDARD**  
**SIST EN 60735:1999**

**01-julij-1999**

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**Measuring methods for video tape properties (IEC 60735:1991)**

Measuring methods for video tape properties

Meßverfahren für die Eigenschaften von Video-Magnetbändern

Méthodes de mesure des propriétés des bandes magnétiques pour magnétoscopes

**Ta slovenski standard je istoveten z: EN 60735:1991**

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**ICS:**

33.160.40      Video sistemi                      Video systems

**SIST EN 60735:1999**                      **en**

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EUROPEAN STANDARD

EN 60735

NORME EUROPEENNE

EUROPÄISCHE NORM

October 1991

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Supersedes HD 454 S1:1984

Descriptors: Video recording, magnetic recording, video recorder, magnetic tape, measurement method, mechanical properties, electromagnetic properties, electrical properties

ENGLISH VERSION

MEASURING METHODS FOR VIDEO TAPE PROPERTIES  
(IEC 735:1991)

Méthodes de mesure des  
propriétés des bandes  
magnétiques pour  
magnétoscopes  
(CEI 735:1991)

Meßverfahren für die  
Eigenschaften von  
Video-Magnetbändern  
(IEC 735:1991)

This European Standard was approved by CENELEC on 1991-09-23. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B-1050 Brussels

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FOREWORD

The text of document 60B(CO)124, as prepared by Sub-Committee 60B: Video recording, of IEC Technical Committee N° 60: Recording, was submitted to the IEC-CENELEC parallel vote in January 1991.

The reference document was approved by CENELEC as EN 60735 on 23 September 1991.

This European Standard supersedes HD 454 S1:1984.

The following dates were fixed:

- latest date of publication of  
an identical national standard (dop) 1992-10-15
- latest date of withdrawal of  
conflicting national standards (dow) 1992-10-15

For products which have complied with HD 454 S1:1984 before 1992-10-15, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1997-10-15.

Annexes designated "normative" are part of the body of the standard. In this standard, annex ZA is normative.

ENDORSEMENT NOTICE

The text of the International Standard IEC 735:1991 was approved by CENELEC as a European Standard without any modification.

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**ANNEX ZA (normative)**

**OTHER INTERNATIONAL PUBLICATIONS QUOTED IN THIS STANDARD  
WITH THE REFERENCES OF THE RELEVANT EUROPEAN PUBLICATIONS**

When the international publication has been modified by CENELEC common modifications, indicated by (mod), the relevant EN/HD applies.

<u>IEC</u> <u>Publication</u>	<u>Date</u>	<u>Title</u>	<u>EN/HD</u>	<u>Date</u>
698	1981	Measuring methods for television tape machines	HD 439 S1	1983
883	1987	Measuring method for chrominance signal-to-random noise ratio for video tape recorders	HD 527 S1	1989
1105	1991	Reference tapes for video tape recorder systems (being printed)	-	-

**Other publications**

- ISO 468      1982    Surface roughness - Parameters, their values and general rules for specifying requirements
- ISO/R 527    1966    Plastics, Determination of tensile properties
- CCIR Recommendation 567-2 - Recommendations and reports of the CCIR (1986)  
Volume XII - Transmission of sound broadcasting and television signals over long distances (CMTT)

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Second edition  
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International Electrotechnical Commission  
Международная Электротехническая Комиссия

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For price, see current catalogue*

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**MEASURING METHODS  
FOR VIDEO TAPE PROPERTIES**
**FOREWORD**

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

This International Standard has been prepared by Sub-Committee 60B: Video recording, of IEC Technical Committee No. 60: Recording.

This second edition of IEC 735 replaces the first edition, issued in 1982.

The text of this standard is based on the following documents:

DIS	Report on Voting
60B(CO)124	60B(CO)136

Full information on the voting for the approval of this standard can be found in the Voting Report indicated in the above table.

## MEASURING METHODS FOR VIDEO TAPE PROPERTIES

### 1 Scope

This standard describes the measuring methods for evaluation of the properties of magnetic tapes used for video recorders.

### 2 Normative references

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

IEC 698: 1981, *Measuring methods for television tape machines.*

IEC 883: 1987, *Measuring method for chrominance signal-to-random noise ratio for video tape recorders.*

IEC 1105: 1991, *Reference tapes for video tape recorder systems* (being printed).

ISO 468: 1982, *Surface roughness – Parameters, their values and general rules for specifying requirements.*

ISO/R 527: 1966, *Plastics, Determination of tensile properties.*

CCIR Recommendation 567-2 – *Recommendations and reports of the CCIR (1986) – Volume XII – Transmission of sound broadcasting and television signals over long distances (CMTT).*

### 3 Testing environment

All properties, if not otherwise specified, shall be measured at a temperature of  $20\text{ °C} \pm 1\text{ °C}$  at a humidity of 48 % to 52 % and an atmospheric pressure between 86 kPa and 106 kPa. The test sample to be measured shall be stored for 24 h in the above conditions to ensure correct testing results. This is defined as the standard environment for this standard.

### 4 Mechanical properties

#### 4.1 Tape width

The tape, covered with a glass plate, shall be measured without tension at a minimum of five different positions along the tape using a calibrated microscope or profile projector having an accuracy better than  $2\text{ }\mu\text{m}$ . The tape width shall be defined as the average of the five readings.

#### 4.2 *Tape thickness*

The tape thickness shall be obtained by using five samples from the beginning and five from the end of the tape, placing these ten sections on top of each other in a suitable manner, measuring with a micrometer gauge and dividing the reading by ten.

#### 4.3 *Tensile tests*

The measurements are made in accordance with ISO/R 527. The length of the test sample shall be 200 mm. The rate of elongation for all tensile tests shall be 100 mm/min (ISO/R 527, rate D).

##### 4.3.1 *Breaking strength*

The sample shall be loaded until the breaking point of the sample shall be reached. The force at that point shall be defined as the breaking strength of the tape.

##### 4.3.2 *Yield strength (F 5 %)*

The yield strength (F 5 %) shall be defined as the force necessary to produce 5 % elongation of the tape.

#### 4.4 *Residual elongation*

To measure the residual elongation, a test sample of approximately 1 m shall be subjected to a tension of 50 N/mm<sup>2</sup> total cross-section for a period of 3 min.

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The sample shall then be measured with negligible force (0,25 N) 3 min after the load has been removed.

The residual elongation shall be stated as a percentage of the original tape length.

#### 4.5 *Longitudinal shrinkage*

A test sample (approximately 1 m) shall be stored in the standard environment for 48 h. It shall then be vertically suspended and loaded with 0,25 N. The length of the test sample, 3 min after the load has been applied, shall be defined as the original tape length.

The environment shall be then changed to 50 °C and 13 % relative humidity for a period of 18 h. Three hours after restoring the standard environment, the shrinkage of the sample shall be measured and expressed as a percentage of the original tape length.

#### 4.6 *Coefficient of elongation in humidity*

A test sample (approximately 1 m) shall be stored in the standard environment for 48 h. It shall then be vertically suspended and loaded with 0,25 N. The length of the test sample, 3 min after the load has been applied, shall be defined as the original tape length.