SLOVENSKI STANDARD
SIST EN 60961:1999

01-april-1999

Helical-scan video tape cassette system using 12,65 mm (0,5 in) magnetic tape on type L (IEC 60961:1993)

Helical-scan video tape cassette system using 12,65 mm (0,5 in) magnetic tape on type L

Video-Bandkassettensystem mit Schrägspuraufzeichnung auf Magnetband 12,65 mm (0,5 in) L-Format

Système de magnétoscope à cassette à balayage hélicoïdal utilisant la bande magnétique de 12,65 mm (0,5 in) de format L

Ta slovenski standard je istoveten z: **EN 60961:1994**

ICS:

33.160.40	Video sistemi	Video systems

SIST EN 60961:1999 **en**

EUROPEAN STANDARD

NORME EUROPEENNE

EUROPÄISCHE NORM

EN 60961

February 1994

UDC 621.397.454

Descriptors: Electroacoustics, electroacoustic equipment, video recording, magnetic recording, video tape recorders, magnetic tapes, cassette for magnetic tapes, recording characteristics, mechanical properties, electrical properties, dimensions

ENGLISH VERSION

Helical-scan video tape cassette system using 12,65 mm (0,5 in) magnetic tape on type L (IEC 961:1993)

Système de magnétoscope à cassette à balayage hélicoïdal utilisant la bande magnétique de 12,65 mm (0,5 in) de format L (CEI 961:1993)

Video-Bandkassettensystem mit Schrägspuraufzeichnung auf Magnetband 12,65 mm (0,5 in) L-Format (IEC 961:1993)

This European Standard was approved by CENELEC on 1993-12-08. 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

Ref. No. EN 60961:1994 E

FOREWORD

The text of document 60B(CO)152, as prepared by Sub-Committee 60B: Video recording of IEC Technical Committee 60: Recording, was submitted to the IEC-CENELEC parallel vote in April 1993.

The reference document was approved by CENELEC as EN 60961 on 8 December 1993.

The following dates were fixed:

- latest date of publication of an identical national standard	(dop)	1994-12-01
- latest date of withdrawal of conflicting national standards	(dow)	1994-12-01

Annexes designated "normative" are part of the body of the standard. Annexes designated "informative" are given only for information. In this standard, annexes A and B are informative and annex ZA is normative.

ENDORSEMENT NOTICE

The text of the International Standard IEC 961:1993 was approved by CENELEC as a European Standard without any modification.

ANNEX ZA (normative)

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

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

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

IEC Publication	Date	Title	EN/HD	Date
94-1	1981	Magnetic tape sound recording and reproducing systems - Part 1: General conditions and requirements	EN 60094-1	1993
268-17	1990	Sound system equipment - Part 17: Standard volume indicators (corrigendum September 1991)	HD 483.17 S1	1992
461	1986	Time and control code for video tape recorders	HD 507 S1	1988
767	1983	Helical-scan video tape cassette system using 12,65 mm (0,5 in) magnetic tape on type beta format	HD 461 S1	1987

Other publication:

CCIR Report 624-4: Characteristics of television systems

NORME INTERNATIONALE
INTERNATIONAL STANDARD

CEI
IEC
961

Deuxième édition
Second edition
1993-12

Système de magnétoscope à cassette à balayage hélicoïdal utilisant la bande magnétique de 12,65 mm (0,5 in) de format L

Helical-scan video tape cassette system using 12,65 mm (0,5 in) magnetic tape on type L

Bureau Central de la Commission Electrotechnique Internationale 3, rue de Varembé Genève, Suisse

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE XB

Pour prix, voir catalogue en vigueur
For price, see current catalogue

CONTENTS

Clause Page

Annexes

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HELICAL-SCAN VIDEO TAPE CASSETTE SYSTEM USING 12,65 mm (0,5 in) MAGNETIC TAPE ON TYPE L

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) 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.

3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

International Standard IEC 961 has been prepared by sub-committee 60B: Video recording, of IEC technical committee 60: Recording.

This second edition cancels and replaces the first edition published in 1989.

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

DIS	Report on Voting
60B(CO)152	60B(CO)168

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

Annexes A and B are for information only.

HELICAL-SCAN VIDEO TAPE CASSETTE SYSTEM USING 12,65 mm (0,5 in) MAGNETIC TAPE ON TYPE L

SECTION ONE: GENERAL

1 Scope

This International Standard applies to magnetic video recording and/or reproduction using 12,65 mm (0,5 in) tape cassettes on helical-scan video cassette recorders suitable for broadcast applications.

This standard specifies two recording modes. MODE I uses oxide particle tape, MODE II uses metal particle tape and permits frequency modulated (FM) audio signals to be recorded. The standard defines the electrical and mechanical characteristics of equipment which will provide for interchangeability of recorded cassettes. The requirements given are related to 525 line-60 field and/or 625 line-50 field systems.

2 Normative references

The following normative documents 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 normative documents 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 normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 94-1: 1981, *Magnetic tape sound recording and reproducing systems – Part 1: General conditions and requirements*

IEC 268-17: 1990, *Sound system equipment – Part 17: Standard volume indicators*

IEC 461: 1986, *Time and control code for video tape recorders*

IEC 767: 1983, *Helical-scan video tape cassette system using 12,65 mm (0,5 in) magnetic tape on type beta format*

CCIR Report 624-4: *Characteristics of television systems*

3 Environment and test conditions

3.1 *Environment*

Test and measurement made on the system to check the requirements of this standard shall be carried out under the following conditions.

Temperature (drum diameter):	20 °C ± 0,5 °C
Temperature (all other tests):	20 °C ± 1 °C
Relative humidity:	48 % to 52 %
Barometric pressure:	86 kPa to 106 kPa
Conditioning before testing:	24 h

3.2 *Reference tape*

Blank tape to be used for reference recordings may be purchased from the manufacturers listed in annex B. The electromagnetic compatibility parameters and their specifications should be specified by the manufacturers and controlled accordingly.

Model name:

a) IEC L-format reference tape for MODE I;

b) IEC L-format reference tape for MODE II.

Electromagnetic compatibility parameters and their specifications are indicated in annex B.

3.3 *Calibration tape*

Calibration tapes which have satisfied the following requirements will be available from manufacturers of video tape recorders and players in accordance with this format specification.

3.3.1 *Record locations and dimensions*

For calibration tapes intended for the purpose of calibrating the mechanical accuracy of the recorder or player, in accordance with this format specification, a 50 % reduction in the tolerances shown in table 7 should, in general, be applied. If necessary, the record locations and dimensions can be specially modified for certain calibration tapes in order to avoid calibration error or to aid calibration.

3.3.2 *Calibration signals*

Two classes of signals should be recorded on the calibration tapes:

a) a series of conventional test signals for analogue component video tape recorders

Video	*Longitudinal audio*
– Colour bars (75 % or 100 %)	– 1 kHz 0 VU
– Multi-burst	– 15 kHz or 10 kHz 0 VU
– Bow-tie (50 %)	– 40 Hz –20 VU
– Pulse and bar	– 1 kHz –20 VU
FM audio	– 7 kHz –20 VU
– 400 Hz, 25 kHz deviation	– 10 kHz –20 VU
– 400 Hz, 75 kHz deviation	– 15 kHz –20 VU

b) special test signals developed by each manufacturer for product alignment. These signals are not universally applicable to all manufacturers' products, and will not be specified.

SECTION TWO: VIDEO TAPE AND VIDEO TAPE CASSETTE

This video tape recording system specifies the use of video tape and video tape cassette in the BETA-format as delineated in sections two and four of IEC 767 or the use of video tape and video tape cassette in the type-L format as delineated in section five of this standard, which is newly specified to provide all-inclusive specifications of video tape and video tape cassette for MODE II recordings and/or long-playing operations including current video tape and video tape cassette (see 16.1 through 18.4 of this standard).

SECTION THREE: VIDEO CASSETTE RECORDERS

4 Definitions of terms

The following definitions are given to assist in the correct understanding of this International Standard.

4.1 *Scanner*

The mechanical assembly containing a drum, rotating pole-tips and tape-guiding elements. It is used to record and reproduce video tape recordings.

4.2 *Drum*

The circular cylinder around which tape is at least partially wrapped in order to form the head-to-tape interface of a video tape recording system.

4.3 *Upper drum*

That part of the drum in a helical-scan video recording system which does not come into contact with the reference edge of the tape.

4.4 *Lower drum*

That part of the drum in a helical-scan video recording system which comes into contact with the reference edge of the tape and usually contains tape-guiding elements.

4.5 *Effective drum diameter*

The value of drum diameter which, when used in theoretical calculations, will correspond to the actual video record produced in a helical-scan video tape recording system. The effective value is equal to or greater than the actual diameter.

4.6 *Helix angle*

The angle formed between the path of the rotating pole-tips and the tape-reference-edge guiding system on the scanner of a helical-scan video tape recording system.

4.7 *Track angle*

The angle of the recorded video track with respect to the reference edge of the tape in a helical video tape recording.

4.8 *Centre span tension*

The calculated value of tape tension at a point midway between tape entrance and exit guides of the scanner in a video tape recording system.

4.9 *Wrap angle*

The angle at the centre of the drum rotation subtended by the line of contact between the drum and the reference edge of the tape.

4.10 *Lead signal overlap*

That portion of the helical record which is required to provide a duplicate (overlap) recording.

5 Scanner pole-tips

There shall be four circumferential pole-tip locations as shown in figure 1 (top view).

5.1 *Pole-tip projection*

Each pole-tip projection shall be radially 0,04 $^{+0,010}_{-0,025}$ mm, measured from the outer surface of the upper drum to the end of the pole-tip.

5.2 *Luminance pole-tips*

Two pole-tips circumferentially spaced at 180° ± 0,003° shall be provided for recording the luminance signal.

5.3 *Colour-recording pole-tips*

Each luminance pole-tip shall have associated with it a pole-tip for recording the time-multiplexed colour signals and, when applicable, the FM audio signals.

A colour-recording pole-tip shall be located at a chordal distance of 4,396 mm ± 0,010 mm in a counter-rotational direction from its associated luminance pole-tip, as shown in fgure 2, and shall be axially displaced from its associated luminance pole-tip by 0,0745 mm ± 0,003 mm, in a direction away from the reference edge of the tape as shown in figure 2.