

# **SLOVENSKI STANDARD**

## **SIST EN 61120-3:1999**

**01-april-1999**

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**Digital audio tape recorder reel to reel system, using 6,3 mm magnetic tape, for professional use -- Part 3: Format B (IEC 61120-3:1993)**

Digital audio tape recorder reel to reel system, using 6,3 mm magnetic tape, for professional use -- Part 3: Format B

Digitales Tonbandgerät - Spulensystem mit Magnetband 6,3 mm für Studioanwendung -- Teil 3: Format B

Système d'enregistrement à bande audionumérique, bobine à bobine, utilisant une bande magnétique de 6,3 mm, à usage professionnel -- Partie 3: Format B

**Ta slovenski standard je istoveten z: EN 61120-3:1993**

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**ICS:**

33.160.30

Avdio sistemi

Audio systems

**SIST EN 61120-3:1999**

**en**

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UDC 621.396.7:681.84.083.84:681.327.636

Descriptors: Audio recording, digital recording, magnetic tape, code, format, recording characteristics, recording track

### ENGLISH VERSION

Digital audio tape recorder reel to reel system,  
using 6,3 mm magnetic tape, for professional use  
Part 3: Format B  
(IEC 1120-3:1991)

Système d'enregistrement à bande  
audionumérique, bobine à bobine,  
utilisant une bande magnétique  
de 6,3 mm, à usage professionnel  
Partie 3: Format B  
(CEI 1120-3:1991)

Digitales Tonbandgerät  
Spulensystem mit Magnetband 6,3 mm  
für Studioanwendungen  
Teil 3: Format B  
(IEC 1120-3:1991)

This European Standard was approved by CENELEC on 1993-09-22.

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

## FOREWORD

The CENELEC questionnaire procedure, performed for finding out whether or not the International Standard IEC 1120-3:1991 could be accepted without textual changes, has shown that no common modifications were necessary for the acceptance as European Standard.

The reference document was submitted to the CENELEC members for formal vote and was approved by CENELEC as EN 61120-3 on 22 September 1993.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1994-09-01
- latest date of withdrawal of conflicting national standards (dow) 1994-09-01

For products which have complied with the relevant national standard before 1994-09-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1999-09-01.

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 1120-3:1991 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

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
1120-1	1991	Digital audio tape recorder reel to reel system, using 6,3 mm magnetic tape, for professional use - Part 1: General requirements	EN 61120-1	1993
1120-2	1991	Part 2: Format A	EN 61120-2	1993
1120-4	1992	Part 4: Magnetic tape properties: Definitions and methods of measurement	EN 61120-4	1992

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NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC  
1120-3

Première édition  
First edition  
1991-11

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Système d'enregistrement à bande audio-  
numérique, bobine à bobine, utilisant une bande  
magnétique de 6,3 mm, à usage professionnel

iTeh **Partie 3:**  
Format B  
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**Digital audio tape recorder reel to reel system,  
using 6,3 mm magnetic tape, for professional use**

**Part 3:**  
Format B

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Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DIGITAL AUDIO TAPE RECORDER REEL TO REEL SYSTEM,  
USING 6,3 mm MAGNETIC TAPE,  
FOR PROFESSIONAL USE****Part 3: Format B**

## 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.

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This part of IEC 1120 has been prepared by Sub-Committee 60A: Sound recording, of IEC Technical Committee No. 60: Recording.

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This part should be used in conjunction with parts 1 and 2 of this standard.

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

Six Months' Rule	Report on Voting
60A(CO)126	60A(CO)133

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

*The following IEC publications are quoted in this standard:*

Publications Nos. 1120-1: Digital Audio Tape Recorder reel to reel system, using 6,3 mm magnetic tape, for professional use - Part 1: General requirements.

1120-3: Digital Audio Tape Recorder reel to reel system, using 6,3 mm magnetic tape, for professional use - Part 3: Format B.

1120-4: Digital Audio Tape Recorder reel-to-reel system, using 6,3 mm magnetic tape, for professional use - Part 4: Magnetic tape properties: Definitions and methods of measurement. (Under consideration.)

# DIGITAL AUDIO TAPE RECORDER REEL TO REEL SYSTEM, USING 6,3 mm MAGNETIC TAPE, FOR PROFESSIONAL USE

## Part 3: Format B

Electrical requirements for recording and reproducing equipment.

### 1 Main track recording

#### 1.1 Recording modulation method

In this subclause the modulation of a binary data sequence ("incoming data") into a record signal waveform ("output wave form") is specified. Next, a synchronization pattern violating the modulation rules is defined.

The data to be recorded onto the main tracks are first channel-coded. A non-D.C.-free, run-length-limited code called HDM-1 is used.

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The output waveform is defined by two cells for each input data bit. Only transitions in the output waveform are defined; the output waveform is polarity-free. Rules for generating a pair of output waveform cells for each input bit are defined in the following formulation and bit to waveform transitions are defined in rules 1 and 2.

\*\*\* Formulation for bit to waveform modulation.

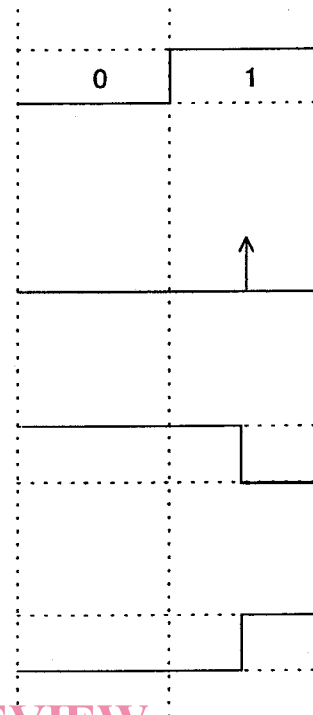
$$T = [\overline{\text{EDGE}} \cdot (\overline{X_2} \cdot X_1)] + [\text{EDGE} \cdot (X_2 \cdot \overline{X_1} \cdot \overline{T_1} + X_2 \cdot X_1 \cdot X_0 \cdot \overline{T_1} \cdot \overline{T_2} + \overline{X_1} \cdot \overline{X_2} \cdot X_3 \cdot X_4 \cdot \overline{T_2} \cdot \overline{T_4} \cdot \overline{T_6})]$$

$X_i$  = INPUT BIT DELAYED BY  $i$  BIT CLOCKS

$T_j$  = OUTPUT WAVEFORM CELL DELAYED BY  $j$  CELL CLOCK

EDGE: TIMING VARIABLE, 0 AT CENTER, 1 AT EDGE OF BIT INTERVAL

\*\*\* Rule 1 (center transitions): A data bit sequence of "01" always leads to a center transition in the middle of the "1" bit.

**Rule 1 in HDM-1 encoding: Center transitions****Data bit sequence****Transition sequence of HDM-1 cells  
caused by "01" bit sequence:****Resulting HDM-1 cells waveform:****Alternate HDM-1 cells waveform:**

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Thus, the presence in the data bit sequence of a bit pattern "01" always enforces a center transition in the cell sequence.

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\*\*\* Rule 2 (edge transitions): Under the three conditions defined and illustrated below and relating to specified bit sequences together with the absence of edge or center transitions in the HDM-1-coded sequence - as indicated by the symbol (\*) - an edge transition is imposed in the cell sequence. In all other cases, no transition is generated.