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**Videosnemanje - Digitalni videokasetni snemalni format z zapisovanjem s poševnimi sledmi na magnetnem traku, širokem 12,65 mm, in s komprimiranjem podatkov (format Digital-L) (IEC 61904:2000)**

Video recording - Helical-scan digital component video cassette recording format using 12,65 mm magnetic tape and incorporating data compression (Format digital-L)

Videoaufzeichnung - Videokassettenaufzeichnung mit Schrägspuraufzeichnung digitaler Komponenten-Signale auf Magnetband 12,65 mm, verbunden mit Datenkompression (Digital-L-Format)

Enregistrement vidéo - Format d'enregistrement numérique à composantes à cassette à balayage hélicoïdal utilisant la bande magnétique de 12,65 mm avec compression de données (Format numérique L)

**Ta slovenski standard je istoveten z: EN 61904:2000**

**ICS:**

33.160.40      Video sistemi                      Video systems

**SIST EN 61904:2005**                      **en**

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EUROPEAN STANDARD

EN 61904

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2000

ICS 33.160.40

English version

**Video recording**  
**Helical-scan digital component video cassette recording format using**  
**12,65 mm magnetic tape and incorporating data compression**  
**(Format digital-L)**  
**(IEC 61904:2000)**

Enregistrement vidéo  
Format d'enregistrement numérique à  
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(CEI 61904:2000)

Videoaufzeichnung  
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This European Standard was approved by CENELEC on 2000-06-01. 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.

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# 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 text of document 100B/248/FDIS, future edition 1 of IEC 61904, prepared by SC 100B, Audio, video and multimedia information storage systems, of IEC TC 100, Audio, video and multimedia systems and equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61904 on 2000-06-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2001-03-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2003-06-01

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

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## Endorsement notice

The text of the International Standard IEC 61904:2000 was approved by CENELEC as a European Standard without any modification.

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60735

NOTE: Harmonized as EN 60735:1991 (not modified).

IEC 60961

NOTE: Harmonized as EN 60961:1994 (not modified).

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**Annex ZA (normative)****Normative references to international publications  
with their corresponding 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 (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60461	1986	Time and control code for video tape recorders	HD 507 S1	1988
IEC 60958	1989	Digital audio interface	EN 60958	1990
IEC 61213	1993	Analogue audio recording on video tape - Polarity of magnetization	EN 61213	1994
IEC 61237-1	1994	Broadcast video tape recorders - Methods of measurement Part 1: Mechanical measurements	EN 61237-1	1994
ITU-R Recommendation BT.601-5	1995	Encoding parameters of digital television for studios <a href="https://standards.iteh.ai/catalog/standards/sist/e9b1011b-b8fd-4f28-bcbf-e4b16641a801/sist-en-61904-2005">https://standards.iteh.ai/catalog/standards/sist/e9b1011b-b8fd-4f28-bcbf-e4b16641a801/sist-en-61904-2005</a>	-	-
ITU-R Recommendation BS.647-2	1992	A digital audio interface for broadcasting studios	-	-
ITU-R Recommendation BT.656-4	1998	Interfaces for digital component video signals in 525-line and 625-line television systems operating at the 4:2:2 level of Recommendation ITU-R BT.601 (Part A)	-	-
EBU Technical Recommendation R68	1995	Alignment level in digital audio production equipment and in digital audio recorders	-	-

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**NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD**

**CEI  
IEC**

**61904**

Première édition  
First edition  
2000-04

**Enregistrement vidéo –**

**Format d'enregistrement numérique à composantes  
à cassette à balayage hélicoïdal utilisant la bande  
magnétique de 12,65 mm avec compression  
de données**

**(Format numérique L)**

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**Video recording –**

**Helical-scan digital component video cassette  
recording format using 12,65 mm magnetic  
tape and incorporating data compression**

**(Format digital-L)**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## VIDEO RECORDING -

**HELICAL-SCAN DIGITAL COMPONENT VIDEO CASSETTE RECORDING  
FORMAT USING 12,65 mm MAGNETIC TAPE AND  
INCORPORATING DATA COMPRESSION**

**(FORMAT DIGITAL-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 co-operation 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.
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International Standard IEC 61904 has been prepared by subcommittee 100B: Audio, video and multimedia information storage systems, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

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

FDIS	Report on voting
100B/248/FDIS	100B/264/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annexes A and B are for information only.

The committee has decided that the contents of this publication will remain unchanged until 2005. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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**VIDEO RECORDING –**  
**HELICAL-SCAN DIGITAL COMPONENT VIDEO CASSETTE RECORDING**  
**FORMAT USING 12,65 mm MAGNETIC TAPE AND**  
**INCORPORATING DATA COMPRESSION**  
**(FORMAT DIGITAL-L)**

## **1 General**

### **1.1 Scope**

This International Standard applies to the format for video cassette recording of digital component video signals and associated digital audio signals and related control signals, using 12,65 mm magnetic tape. The video data are recorded using data compression.

This standard specifies characteristics of the cassettes, the tape, the recording patterns on the tape, the processes of digital audio and video coding, data compression, error protection and channel coding which are the essential requirements for interchangeability of recordings.

### **1.2 Normative references**

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, 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. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60461:1986, *Time and control code for video tape recorders*

IEC 60958:1989, *Digital audio interface*

IEC 61213:1993, *Analogue audio recording on video tape – Polarity of magnetization*

IEC 61237-1:1994, *Broadcast video tape recorders – Methods of measurement – Part 1: Mechanical measurements*

ITU-R Recommendation BT.601-5:1995, *Studio encoding parameters of digital television for standard 4:3 and wide-screen 16:9 aspect ratios*

ITU-R Recommendation BS.647-2:1992, *A digital audio interface for broadcasting studios*

ITU-R Recommendation BT.656-4:1998, *Interfaces for digital component video signals in 525-line and 625-line television systems operating at the 4:2:2 level of Recommendation ITU-R BT.601 (Part A)*

EBU Technical Recommendation R68:1995, *Alignment level in digital audio production equipment and in digital audio recorders*

### 1.3 Abbreviations

For the purposes of this International Standard, the following abbreviations apply.

DCT: Discrete cosine transform

ECC: Error correcting code

TPS: Tracking pilot signal

TTS: Tracking timing signal

VLC: Variable length coding

### 1.4 Environment and test conditions

Tests and measurements made on the system to check the requirements of this standard shall be carried out under the following conditions:

- temperature: 20 °C ± 1 °C;
- relative humidity: 50 % ± 2 %;
- barometric pressure: from 86 kPa to 106 kPa;
- tape tension: 0,3 N ± 0,05 N;
- tape conditioning: not less than 24 h.

### 1.5 Reference tape

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Two kinds of blank tape may be purchased from the following manufacturer:

Sony Corporation

6-7-35 Kitashinagawa, [standards.iteh.ai/catalog/standards/sist/e9b1011b-b8fd-4f28-bcbf-e4b16641a801/sist-en-61904-2005](https://standards.iteh.ai/catalog/standards/sist/e9b1011b-b8fd-4f28-bcbf-e4b16641a801/sist-en-61904-2005)  
SIST EN 61904:2005  
Shinagawa-ku, Tokyo, Japan

<u>Product name</u>	<u>Purpose</u>
C2B-DB	mechanical alignment
C2A-DB	electrical alignment

### 1.6 Calibration tape

Manufacturers of video tape recorders designed for this format specification may sell calibration tapes meeting the following requirements. This information is given for convenience of users of this International Standard and does not constitute an endorsement by the IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

#### 1.6.1 Record locations and dimensions

Tolerance shown in table 2 should be reduced by 50 %.

### 1.6.2 Calibration tape for mechanical alignment

This tape is used for the purpose of aligning positions of stationary heads and rotary heads.

#### Test signals

Video/audio	ch A/C ---	4 MHz/16 MHz/50 % flat field
	ch B/D ---	8 MHz/16 MHz/50 % flat field
Cue track	1 kHz	0 VU
	12 kHz	0 VU
Time code track	25 Hz (7:3 duty rectangle)	
Control track	50 Hz	

### 1.6.3 Calibration tape for electrical alignment of recorders

This tape is used for RF, digital video, digital audio and cue alignment.

#### Test signals

Video	100 % saturation colour bars	
	ramp	
Audio	1 kHz	-20 dBFS/0 dBFS
	20 kHz	-20 dBFS
	-	-∞ dBFS
Cue	1 kHz	0 VU/-20 VU
	3 kHz	-20 VU
	7 kHz	-20 VU
	10 kHz	-20 VU
	12 kHz	-20 VU
	90 Hz	-20 VU

### 1.6.4 Purchase

The calibration tapes may be purchased from the following manufacturer:

Sony Corporation  
6-7-35 Kitashinagawa,  
Shinagawa-ku, Tokyo, Japan

Calibration tape for mechanical alignment:

<u>Product name</u>	<u>Part number</u>
ZR2-1	8-960073-11 for 525/60 system
ZR2-1P	8-960073-61 for 625/50 system

Calibration tape for electrical alignment:

<u>Product name</u>	<u>Part number</u>
ZR5-1	8-960073-01 for 525/60 system
ZR5-1P	8-960073-51 for 625/50 system