IEC 61883-3

Edition 2.0 2004-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Consumer audio/video equipment – Digital interface –
Part 3: HD-DVCR data transmission

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Matériel audio/vidéo grand public – Interface numérique –
Partie 3: Transmission de données HD-DVCR

IEC 61883-3:2004
https://standards.iteh.ai/catalog/standards/sist/a5b80c1e-7457-4b1b-8a13-958a5c4ff2a3/iec-61883-3-2004

IEC 61883-3:2004-08(en-fr)

THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2004 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue
The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org
The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 14 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
More than 55 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61883-3:2004
https://standards.iteh.ai/catalog/standards/sist/a3b80c1e-7457-4b1b-8a13-958a5c4ff2a3/iec-61883-3-2004

A propos de l'IEC
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue
Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub
La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,…). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished
Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org
Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 14 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary
Plus de 55 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc
Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

IEC 61883-3

Edition 2.0 2004-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Consumer audio/video equipment – Digital interface – Part 3: HD-DVCR data transmission

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Matériel audio/vidéo grand public – Interface numérique – Partie 3: Transmission de données HD-DVCR

IEC 61883-3:2004
https://standards.iteh.ai/catalog/standards/sist/3b80c1e-7457-4b1b-8a13-958a5c4ff2a3/iec-61883-3-2004

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE
CODE PRIX K

ICS 33.160.01; 35.200

ISBN 978-2-8322-1361-2

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

INTERNATIONAL ELECTROTECHNICAL COMMISSION

CONSUMER AUDIO/VIDEO EQUIPMENT – DIGITAL INTERFACE –

Part 3: HD-DVCR data transmission

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. 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 IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61883-3:2004
https://standards.iteh.ai/catalog/standards/sist/a3b80c1e-7457-4b1b-8a13-988e5a4d2e3/iec-61883-3-2004

International Standard IEC 61883-3 has been prepared by technical area 4: Digital system interfaces and protocols, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This second edition of IEC 61883-3 cancels and replaces the first edition published in 1998. This edition contains the following significant technical changes with respect to the previous edition:

Added specifications of IEEE 1394 packet, CIP header and transmission timing in high speed transmission.

This bilingual version (2014-04) corresponds to the monolingual English version, published in 2004-08.

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

CDV	Report on voting
100/728/CDV	100/817/RVC

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

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

IEC 61883 consists of the following parts under the general title *Consumer audio/video equipment – Digital interface:*

Part 1: General

Part 2: SD-DVCR data transmission

Part 3: HD-DVCR data transmission

Part 4: MPEG2-TS data transmission

Part 5: SDL-DVCR data transmission

Part 6: Audio and music data transmission protocol

Part 7: Transmission of ITU-R BO.1294 System B

iTeh STANDARD PREVIEW
(standards.iteh.ai)

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

IEC 61883-3:2004
https://standards.iteh.ai/catalog/standards/sist/a3b80c1e-7457-4b1b-8a13-958a5c4ff2a3/iec-61883-3-2004

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

CONSUMER AUDIO/VIDEO EQUIPMENT – DIGITAL INTERFACE –

Part 3: HD-DVCR data transmission

1 Scope

This part of IEC 61883 specifies the packet format and the transmission timing for HD-DVCR data. It describes the specifications for the IEEE 1394 packet, the CIP header for 1125-60 and 1250-50 television systems, and the transmission timing.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61834-3, *Recording – Helical-scan digital video cassette recording system using 6,35 mm magnetic tape for consumer use (525-60, 625-50, 1125-60 and 1250-50 systems) – Part 3: HD format for 1125-60 and 1250-50 systems*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

IEC 61883-1, *Consumer audio/video equipment – Digital interface – Part 1: General*

IEC 61883-2, *Consumer audio/video equipment – Digital interface – Part 2: SD-DVCR data transmission*

IEC 61883-3:2004
https://standards.iteh.ai/catalog/standards/sist/a3b80c1e-7457-4b1b-8a13-958a5c4ff2a3/iec-61883-3-2004

3 Abbreviations

For the purpose of this document, the following abbreviations apply:

1125-60 system:	the 1125-line system with a frame frequency of 30,00 Hz
1250-50 system:	the 1250-line system with a frame frequency of 25,00 Hz
HD-DVCR:	high-definition digital video cassette recorder
IEEE 1394 packet:	IEEE 1394 isochronous packet defined in IEC 61883-1

4 Construction of IEEE 1394 packet

4.1 Source packet structure of the HD-DVCR data stream

For the HD-DVCR data stream, the data structure for digital interface defined in IEC 61834-3, Clause 10 is used. The source packet size for the HD-DVCR data stream is 960 bytes, divided into 12 DIF blocks.

The correspondence between DIF blocks and source packets for the 1125-60 system and the 1250-50 system are shown in Figure 1 and Figure 2 respectively.

4.2 Packetization of source packet of the HD-DVCR data stream

A source packet shall not be divided and shall be equal to a data block.

Data blocks transmitted in an IEEE 1394 isochronous cycle shall be determined according to the TR value in the CIP header (see 5.2). An empty packet is placed in any cycle with no data block.

Where the TR value is

00_2 (1x), one or no data block is transmitted;

01_2 (2x), two or no data block are transmitted;

10_2 (4x), four or no data block are transmitted.

The SYT field of the CIP header (see 5.1) is used to synchronize the transmitter and the receiver.

4.3 Transmission order of video frames for high-speed transmission

Transmission order of data within one video frame is defined in Figure 1 and Figure 2. For high-speed transmission, the transmission order of each video frame data shall follow the time sequence.

5 CIP header

iTeh STANDARD PREVIEW
(standards.iteh.ai)

5.1 CIP header for HD-DVCR data stream

The structure of the CIP header for the HD-DVCR data stream is the same as the structure of the CIP header for the SD-DVCR data stream (see IEC 61883-2, 5.1).

IEC 61883-3:2004
https://standards.iteh.ai/catalog/standards/sist/a3b80c1e-7457-4b1b-8a13-958a5c4ff2a3/iec-61883-3-2004

The DBS for HD takes different values from that for SD through the difference of data block size as given in 4.1.

5.2 FDF area

The STYPE takes different values as shown in Table 1 of IEC 61883-2.

Where the STYPE is 00010_2, TR is defined as follows.

TR: 01_2 = 2x

10_2 = 4x

11_2 = Reserved for future definition

5.3 DBC values

Increments of DBC value shall be determined according to the TR value.

Where the TR value is

00_2 (1x), the DBC value increments with 1;

01_2 (2x), the DBC value is a multiple of 2;

10_2 (4x), the DBC value is a multiple of 4.

5.4 CIP header for 1125-60 system

For the 1125-60 system, the values of the CIP header components are as follows.

DBS: 11110000_2
FN: 00_2
QPC: 000_2
SPH: 0
DBC (see 5.3)
FMT: 000000_2
50/60: 0
STYPE: 00010_2
TR: 00_2 = 1x, 01_2 = 2x, 10_2 = 4x

5.5 CIP header for 1250-50 system

For the 1250-50 system, the values of the CIP header components are as follows.

DBS: 11110000_2
FN: 00_2
QPC: 000_2
SPH: 0
DBC (see 5.3)
FMT: 000000_2
50/60: 1
STYPE: 00010_2
TR: 00_2 = 1x, 01_2 = 2x, 10_2 = 4x

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61883-3:2004
https://standards.iteh.ai/catalog/standards/sist/a3b80c1e-7457-4b1b-8a13-958a5c4ff2a3/iec-61883-3-2004

6 Transmission timing

The transmitter shall transmit a time stamp value in the SYT field once every video frame period. The time stamp should be transmitted in a packet that meets the following conditions:

– packet_arrival_time_L ≤ time stamp value
– time stamp value – transmission_delay_limit ≤ packet_arrival_time_F

where

packet_arrival_time_F is the cycle time when the first bit of the packet which has the time stamp has arrived at the receiver;

packet_arrival_time_L is the cycle time when the last bit of the packet which has the time stamp has arrived at the receiver;

transmission_delay_limit = 450 µs.

In case of Hx (H = 1,2,4) transmission, KH data blocks are transmitted in a video frame period M using K isochronous packets. Isochronous packet n contains H data blocks of nH, nH+1, … and (n+1) H–1.

The isochronous packet n of a video frame period M should be transmitted on the following conditions (n = 0, … , K–1):

– packet_arrival_time_L ≤ nominal timing for isochronous packet n

– nominal timing for isochronous packet n – transmission_delay_limit ≤ packet_arrival_time_F

where

packet_arrival_time_F is the cycle time when the first bit of the isochronous packet n has arrived at the receiver;

packet_arrival_time_L is the cycle time when the last bit of the isochronous packet n has arrived at the receiver;

K is the number of isochronous packets without empty packets in a video frame period.

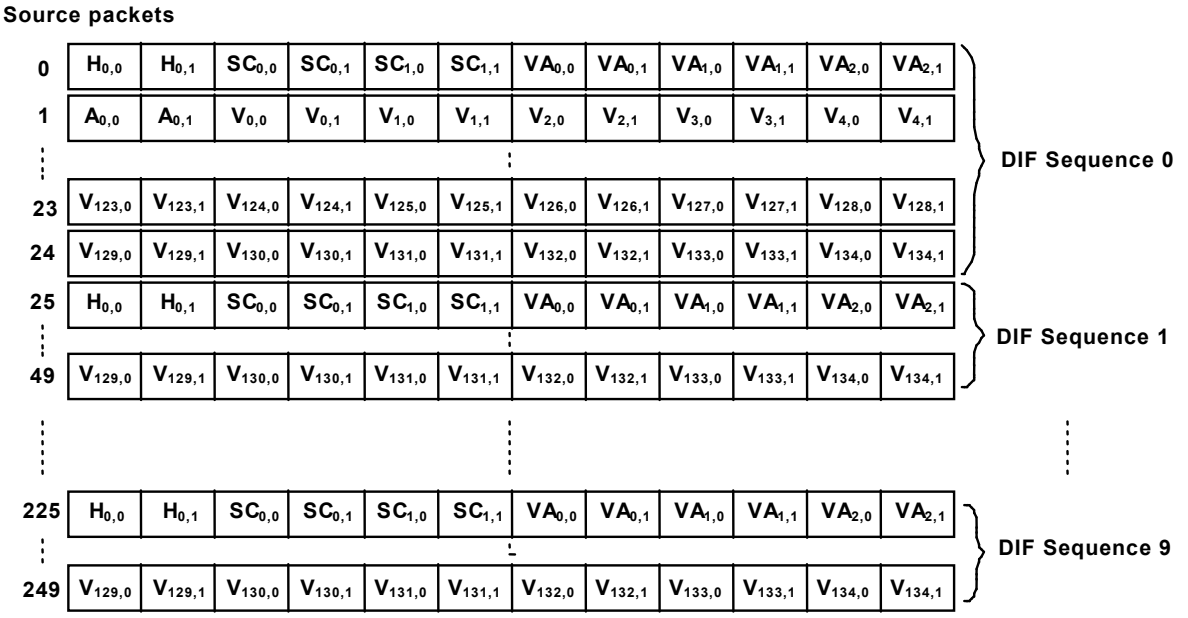
K = 250 (1125-60 system)

K = 300 (1250-50 system)

Nominal timing for isochronous packet $n = T_M + (_{M+1} - T_M) \times n/K$

T_M is the time stamp for video frame period M transmitted in the SYT field.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61883-3:2004
https://standards.iteh.ai/catalog/standards/sist/a3b80c1e-7457-4b1b-8a13-958a5c4ff2a3/iec-61883-3-2004

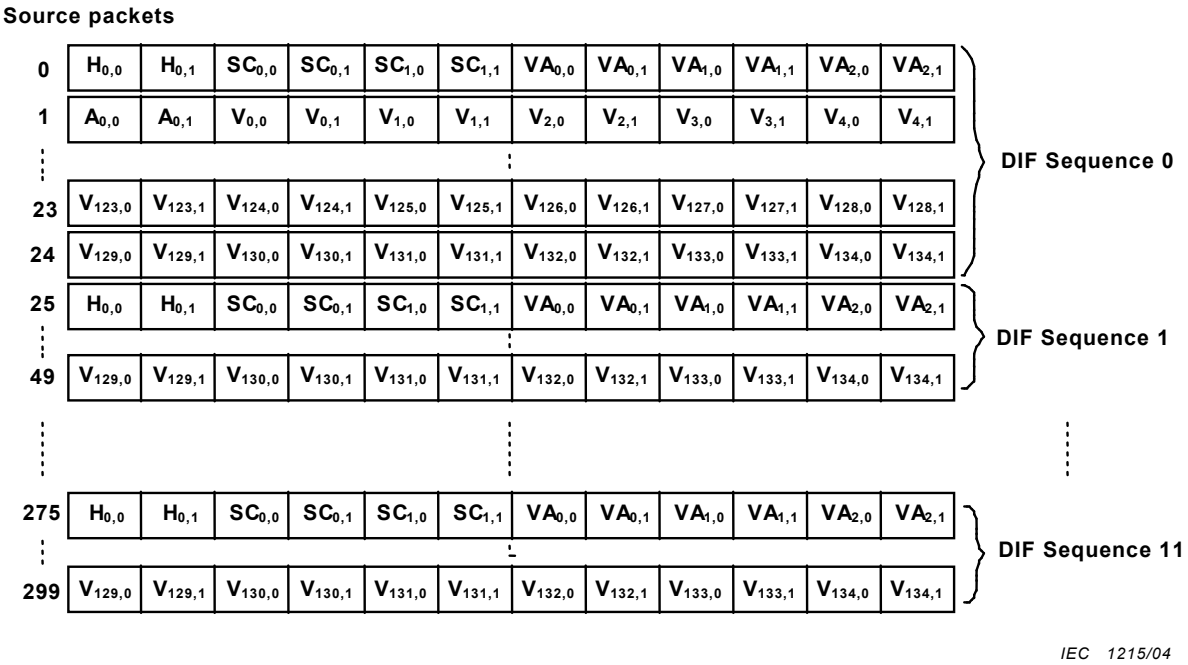


Key:

$H_{0,k}$: Header DIF block 0, section k (k = 0,1)
$SC_{i,k}$: Subcode DIF block i, section k (i = 0,1), (k = 0,1)
$VA_{i,k}$: VAUX DIF block i, section k (i = 0,1,2), (k = 0,1)
$A_{i,k}$: Audio DIF block i, section k (i = 0,...,8), (k = 0,1)
$V_{i,k}$: Video DIF block i, section k (i = 0,...,134), (k = 0,1)

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61883-3:2004
https://standards.iteh.ai/catalog/standards/sist/a3b80c1e-7457-4b1b-8a13-958a5c4ff2a3/iec-61883-3-2004

Figure 1 – Source packets of HD-DVCR 1125-60 system



Key:

$H_{0,k}$: Header DIF block 0, section k (k = 0,1)
$SC_{i,k}$: Subcode DIF block i, section k (i = 0,1), (k = 0,1)
$VA_{i,k}$: VAUX DIF block i, section k (i = 0,1,2), (k = 0,1)
$A_{i,k}$: Audio DIF block i, section k (i = 0,...,8), (k = 0,1)
$V_{i,k}$: Video DIF block i, section k (i = 0,...,134), (k = 0,1)

iTeh STANDARD PREVIEW
(standards.iteh.ai)
IEC 61883-3:2004
https://standards.iteh.ai/catalog/standards/sist/c3b80e1e-7457-4b1b-8a13-958a5c4ff2a3/iec-61883-3-2004

Figure 2 – Source packets of HD-DVCR 1250-50 system