INTERNATIONAL STANDARD

IEC 61603-7

First edition 2003-05

Transmission systems of audio and/or video and related signals using infra-red radiation –

Part 7:

Digital audio signals for conference and similar applications

© IEC 2003 — Copyright - all rights reserved

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 the publisher.

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



PRICE CODE



CONTENTS

FΟ	OREWORD	4
1	Scope	5
2	Normative references	5
3	Terms and definitions	5
4	Abbreviations	5
5	Explanation of terms and general information	6
6	System considerations	6
7	Basic system concept	6
8	Protocol	7
	8.1 System context	7
	8.2 Physical layer	8
	8.3 Data link layer	
_	8.4 Detailed overview of audio frame structures	
9	•	
	9.1 General	
	9.2 Data messages	
	5.5 Data packet structure	21
An	nnex A (normative) Definition of prototype filter	23
	nnex B (informative) Example of λIf diagram in the user area conference	
	nnex C (informative) Provision for future developments	
	· ·	
Bib	ibliography	26
		_
_	igure 1 – System	
_	igure 2 – Conceptual model	
_	igure 3 – Band allocation for 6 modulated sub-carriers	
_	igure 4 – (D)QPSK constellation and differential decoding algorithm	
Fig	igure 5 – Pulse response of a raised cosine channel filter	10
_	igure 6 – Scrambler	
Fig	igure 7 – Block diagram of sub-band APCM encoder	12
Fig	igure 8 – Quantization of sub-band samples	13
Fig	igure 9 – Superframe structure	14
Fig	igure 10 – RS frame structure	14
Fig	igure 11 – Audio block structure	15
Fig	igure 12 – CRC calculation	15
Fig	igure 13 – Audio block structure for medium quality	16
Fig	igure 14 – Bit-pool sample structure for medium quality	16
Fig	igure 15 – Audio block structure for high quality	16
Fia	igure 16 – Bit-pool sample structure for high quality	17
3	gare to the poor campio of actions the might qualify minimum.	

Figure 18 – Data message build-up	18
Figure 19 – Configuration message structure	19
Figure 20 – Display message structure for ASCII display data	20
Figure 21 – Display message structure for bitmap display data	21
Figure 22 – Segmentation of data messages	21
Figure 23 – Data packets fitted on to the superframe structure	22
Table 1 – Sub-carrier centre frequencies	8
Table 2 – Phase transitions of the differential encoding algorithm	9
Table 3 – Characteristics of sub-band APCM encoder	12
Table 4 – Definition of audio mode bits	15
Table 5 – Audio blocks and audio quality	17
Table 6 – Data message identifier definition	18
Table 7 – SCI definition	19
Table 8 – Channel allocation table	19
Table 9 – Audio quality mode (AQM) to number of audio blocks used	20
Table C.1 – Sub-carrier allocation	25

INTERNATIONAL ELECTROTECHNICAL COMMISSION

TRANSMISSION SYSTEMS OF AUDIO AND/OR VIDEO AND RELATED SIGNALS USING INFRA-RED RADIATION -

Part 7: Digital audio signals for conference and similar applications

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.
- The formal decisions or agreements of the 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 National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, 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.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61603-7 has been prepared by Technical Area 3, Infrared systems and applications, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This first edition cancels and replaces 2.6.2 of IEC 61603-3 (1997).

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

FDIS	Report on voting
100/649/FDIS	100/676/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 2.

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.

TRANSMISSION SYSTEMS OF AUDIO AND/OR VIDEO AND RELATED SIGNALS USING INFRA-RED RADIATION -

Part 7: Digital audio signals for conference and similar applications

1 Scope

This part of IEC 61603 describes the characteristics of a digital multiple channel, multiple carrier audio transmission system as an extension to conference interpretation or similar systems using the frequency ranges 45 kHz to 1 MHz and 2 MHz to 6 MHz.

NOTE These frequency ranges are also covered by analogue pulse systems used for the same applications. Interference is not expected because both transmission systems are normally not applied at the same time in the same room.

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 61603-1:1997, Transmission of audio and/or video and related signals using infrared radiation – Part 1: General

IEC 61603-3:1997, Transmission of audio and/or video and related signals using infrared radiation – Part 3: Transmission systems for audio signals for conference and similar systems

IEC 61920, Infrared transmission systems – Free air applications¹

ISO/IEC 7498-1:1994, Information technology – Open Systems Interconnection – Basic Reference Model: The Basic Model

¹ To be published. For the purposes of the reference in C.1, IEC 61920:1998 is equally valid.