

# TECHNICAL REPORT

# IEC TR 61998

First edition  
1999-10

---

---

## Model and framework for standardization in multimedia equipment and systems

*Structure et modèle de normalisation  
des appareils et systèmes multimédia*

Withhold

© IEC 1999 — 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  
Telefax: +41 22 919 0300

3, rue de Varembe Geneva, Switzerland  
e-mail: [inmail@iec.ch](mailto:inmail@iec.ch)

IEC web site <http://www.iec.ch>



Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

PRICE CODE **XB**

*For price, see current catalogue*

## CONTENTS

	Page
FOREWORD .....	5
INTRODUCTION .....	6
Clause	
1 Scope .....	7
2 Reference documents .....	8
3 Definitions .....	8
4 Generic model .....	8
4.1 Physical and logical connectivity .....	9
4.1.1 Information transfer media .....	10
4.1.2 Transferred data structure .....	12
4.2 Easy operation .....	13
4.3 Security .....	14
5 Specific models .....	15
5.1 Multimedia data structure .....	15
5.2 Data creation .....	16
5.3 Equipment structure .....	18
5.4 User-system interface .....	19
5.5 Distribution and management .....	19
5.6 Open-system interconnection via ISM .....	20
5.6.1 Specific layers .....	20
5.6.2 Application layer .....	22
5.6.3 Presentation layer .....	22
5.6.4 File layer .....	23
5.6.5 Volume layer .....	23
5.6.6 Logical storage layer .....	23
5.6.7 Physical storage layer .....	24
5.6.8 Physical layer .....	24
5.7 Security .....	25
5.8 Information appliance .....	25
5.9 Application specific modelling .....	26
6 Frameworks .....	26
6.1 TC 100 frameworks .....	26
6.2 Examples of new work items .....	27
Annex A Digital TV broadcasting .....	29
A.1 Technical overview .....	29
A.2 Existing standardization .....	29
A.3 User requirements .....	30
A.3.1 Broadcaster and contents provider .....	30
A.3.2 End-user .....	30
A.4 Examples of items needed for standardization for tomorrow .....	30

	Page
Annex B Internet broadcasting.....	31
B.1 Trends in Internet broadcasting.....	31
B.1.1 Definition.....	31
B.1.2 Broadcasting formats.....	31
B.1.3 Typical set-up for Internet broadcasting.....	31
B.2 Actual broadcasting technology.....	33
B.3 Regulation.....	34
B.4 Outlook.....	34
B.4.1 Increase in network speed.....	34
B.4.2 Improvement in compression technology, standardization of telecommunication protocols.....	35
B.4.3 Popularization in PCs and information appliances.....	35
Annex C Cable TV.....	36
C.1 Standardization of digital broadcasting systems crossing many kinds of media.....	36
Annex D Display interface.....	37
D.1 Two types of display systems.....	37
D.2 Status of standardization.....	38
D.3 User requirements and subjects.....	40
D.4 Recommendation.....	40
Annex E Picture coding.....	41
E.1 Digital image coding.....	41
E.2 Application.....	42
E.3 User requirements.....	42
E.4 Study issues of core image coding.....	43
Annex F Video game contents.....	44
F.1 Games machine market.....	44
F.2 Relation to games software.....	44
F.3 Distribution of games software.....	44
F.4 Developing environment.....	44
F.5 Standardization activities.....	45
F.6 User requirements.....	45
F.7 Future work.....	45
F.8 Potential issues for game systems.....	45
Annex G Video games equipment.....	46
G.1 Current status.....	46
G.2 Standardization status.....	46
G.3 Application deployment.....	46
G.4 User requirements.....	46
G.5 Optimum situation.....	46
G.5.1 Software.....	46
G.5.2 Hardware.....	47

	Page
G.6 Benefits and problems .....	47
G.6.1 Benefits .....	47
G.6.2 Problems .....	47
Annex H Existing standardization activity on multimedia technology .....	48
Annex I Abbreviations used in multimedia terminology .....	53
Bibliography .....	65

Withdrawn

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### MODEL AND FRAMEWORK FOR STANDARDIZATION IN MULTIMEDIA EQUIPMENT AND SYSTEMS

#### 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.
- 2) 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 technical report may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

Technical reports do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful by the maintenance team.

IEC 61998, which is a technical report, has been prepared by IEC technical committee 100: Audio, video and multimedia systems and equipment.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
100/90/CDV	100/101/RVC

Full information on the voting for the approval of this technical report 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.

This document which is purely informative is not to be regarded as an International Standard.

A bilingual version of this technical report may be issued at a later date.

## INTRODUCTION

Multimedia technology covers a wide range of technical areas and involves a number of technical elements. Most of the technical elements for multimedia are now being developed and updated. IEC standardization activities on multimedia technology should, therefore, be carried out with enough discussions and clarification on the

- position and relationship of the technology to be standardized among the collection of related technologies,
- scope and framework/guideline of the standardization,
- appropriate standardization organization having the responsibility,
- schedule of the standardization,
- relationship between new work items and the existing standards on multimedia or single-medium technology.

These discussions should be based on appropriate multimedia technology models in order to create a framework for multimedia standardization. This technical report is a reflection of those discussions in IEC/TC100 and is expected to contribute as a guideline for IEC standardization experts and National Committees interested in multimedia equipment and systems, and is also expected to contribute to strategic discussions in IEC/TC100 Advisory Group on Strategy.

Withdrawn

## MODEL AND FRAMEWORK FOR STANDARDIZATION IN MULTIMEDIA EQUIPMENT AND SYSTEMS

### 1 Scope

This technical report provides models and frameworks for the standardization of multimedia technology, being undertaken or to be undertaken by the IEC.

In general, multimedia technology covers

- a) system interface:
  - inter-system connection
  - intra-system connection
  - homebus interface
  - LAN interface
  - etc.
- b) user interface:
  - pictogram
  - gesture
  - etc.
- c) interchange and distribution:
  - interchange format
  - protocol
  - abstract service
  - etc.
- d) measurements and management:
  - colour management
  - data distribution management
  - security
  - etc.
- e) multimedia data and contents:
  - authoring
  - manipulation
  - etc.

This technical report focuses on the areas of IEC responsibility and items based on general discussions of modelling for multimedia equipment and systems.

## 2 Reference documents

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

ISO/IEC 9316-2, *Information technology – Small Computer System Interface – 2(SCSI2) – Part 2: Common Access Method (CAM) – Transport and SCSI interface module<sup>1)</sup>*

ISO/IEC 11585, *Operational model for document description and processing languages*

ISO/IEC 14542, *Information technology – Multimedia and hypermedia: Model and framework*

IEEE 1394:1995, *IEEE standard for a high-performance serial bus (description)*

DAVIC 1.0 specification, *Part 2: System reference models and scenarios*

---

<sup>1)</sup> To be published.