

Information technology — Open Document Architecture (ODA) and interchange format —

Part 9: Audio content architectures —

(ITU-T Rec. T.419 (1995)
ISO/IEC 8613-9:1996)

ICS 35.240.20

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW



Document Sharing Hub

National foreword

This British Standard reproduces verbatim ISO/IEC 8613-9:1996 and implements it as the UK national standard.

The UK participation in its preparation was entrusted to Technical Committee IST/18, Document processing and related communication, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the ISO/IEC title page, pages ii to iv, pages 1 to 26 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

This British Standard, having been prepared under the direction of the DISC Board, was published under the authority of the Standards Board and comes into effect on 15 April 1998

© BSI 06-1999

ISBN 0 580 29697 0

Amd. No.	Date	Comments

Contents

	Page
National foreword	Inside front cover
Foreword	iv
Text of ISO/IEC 8613-9	1

INTERNATIONAL
STANDARD

ISO/IEC
8613-9

First edition
1996-09-15

**Information technology — Open Document
Architecture (ODA) and interchange format:
Audio content architectures**

*Technologies de l'information — Architecture de document ouverte (ODA)
et format de transfert: Architectures du système audio*



Contents

	Page
Foreword	iv
Introduction	1
1 Scope	1
2 Normative references	2
2.1 Identical Recommendations International Standards	2
2.2 Paired Recommendations International Standards equivalent in technical content	3
2.3 Additional references	3
3 Definitions	3
4 Abbreviations	4
5 Conventions	4
6 General principles	4
6.1 Content architectures	4
6.1.1 Formatted processable content architecture class	4
6.2 Content	4
6.3 Presentation attributes	4
6.4 Content portion attributes	4
6.5 Coding of content information	4
7 Audio positioning	4
7.1 Basic concepts	5
7.1.1 Measurement units	5
7.2 Positioning of elements of sampled sound in a basic layout time frame	5
7.3 Reference recording level	5
8 Audio presentation	5
8.1 Attenuation and temporal envelope	5
8.2 Frequency envelope	6
9 Definition of audio presentation attributes	6
9.1 Shared presentation attributes	6
9.1.1 Clipping	6
9.2 Layout presentation attributes	7
9.2.1 Attenuation	7
9.2.2 Temporal envelope	7
9.2.3 Frequency envelope	8
9.2.4 Content architecture class	9
10 Definition of audio content portion attributes	9
10.1 Common coding attributes	9
10.1.1 Type of coding	9
10.2 Other coding attributes	10
10.2.1 Marker	10
10.3 Content information attribute	10
11 Formal definitions of audio content architecture dependent data types	11
11.1 Introduction	11
11.2 Representation of document profile attributes	11
11.3 Representation of presentation attributes	12
11.4 Representation of coding attributes	13
11.5 Representation of non-basic features and non-standard defaults	13
12 Content layout process	13
12.1 Introduction	13

	Page
12.1.1 Purpose	13
12.1.2 Available area	13
12.1.3 Available time span	14
12.1.4 Presentation attributes	14
12.1.5 Audio content architecture classes	14
12.1.6 Association of content	14
12.2 Content layout process for audio content	14
13 Content presentation process	14
13.1 Introduction	14
13.2 Content presentation process for formatted processable form	15
14 Interactions with document architecture attributes.	15
15 Definition of audio content architecture classes	16
15.1 Summary of audio presentation attributes	16
15.2 Summary of audio content portion attributes	16
Annex A SGML representation of audio content-specific attributes for ODL	17
A.1 Introduction	17
A.2 Names and public identifiers	17
A.3 Representation of attribute values	17
A.3.1 Constructed parameters	17
A.3.2 String parameters	17
A.3.3 Keyword parameters	17
A.3.4 Integer parameters	17
A.3.5 Real parameters	18
A.4 Presentation attributes	18
A.5 Coding attributes	19
Annex B Data type definitions for audio content architecture attributes	19
Annex C Summary of audio content architecture class	21
C.1 Formatted processable audio content architecture class	21
C.1.1 Presentation attributes	21
C.1.2 Content portion attributes	22
Annex D Summary of ASN.1 object identifiers	23
Annex E Modifications to other parts of ITU-T Rec. T.410-Series ISO/IEC 8613	24
E.1 Modifications to ITU-T Rec. T.411 ISO/IEC 8613-1	24
E.2 Modifications to ITU-T Rec. T.412 ISO/IEC 8613-2	24
E.3 Modifications to ITU-T Rec. T.414 ISO/IEC 8613-4	24
E.4 Modifications to ITU-T Rec. T.415 ISO/IEC 8613-5	24
Annex F — Characteristics of audio encoding schemes	25
Index	26
Figure 1 — Example of mapping between audio encoding and content information	11
Table 1 — Categories of audio presentation attributes	6
Table 2 — Audio presentation attributes	16
Table 3 — Audio content portion attributes	16
Table B.1	20
Table C.1	21
Table C.2	22
Table D.1	23
Table F.1	25

Descriptors: Data processing, text processing, information interchange, documents, audio data, document architecture, logical structure, formats.

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 8613-9 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 18, *Document processing and related communication*, in collaboration with ITU-T. The identical text is published as ITU-T Recommendation T.419.

ISO/IEC 8613 consists of the following parts, under the general title *Information technology — Open Document Architecture (ODA) and interchange format*:

- *Part 1: Introduction and general principles;*
- *Part 2: Document structures;*
- *Part 3: Abstract interface for the manipulation of ODA documents;*
- *Part 4: Document profile;*
- *Part 5: Open Document Interchange Format;*
- *Part 6: Character content architectures;*
- *Part 7: Raster graphics content architectures;*
- *Part 8: Geometric graphics content architectures;*
- *Part 9: Audio content architectures;*
- *Part 10: Formal specifications;*
- *Part 11: Tabular structures and tabular layout;*
- *Part 12: Identification of document fragments;*
- *Part 13: Spreadsheet;*
- *Part 14: Temporal relationship and non-linear structures.*

Annex A and Annex E form an integral part of this part of ISO/IEC 8613. Annex B to Annex D and Annex F are for information only.

Introduction

This ITU-T Recommendation | International Standard was prepared as a joint publication by TSS Study Group 8 and ISO/IEC Joint Technical Committee 1.

At present, the ITU-T Recommendations T.410-Series | International Standard ISO/IEC 8613 consists of:

- Introduction and general principles;
- Document structures;
- Abstract interface for the manipulation of ODA documents;
- Document profile;
- Open document interchange formats;
- Character content architectures;
- Raster graphics content architectures;
- Geometric graphics content architectures;
- Audio content architectures;
- Formal specification of the Open Document Architecture (FODA) (the use of this Specification is applicable to ISO/IEC 8613 only);
- Tabular structures and tabular layout;
- Identification of document fragments;
- Temporal relationships and non-linear structures.

Further Recommendations | International Standards may be added to this series of ITU-T Recommendations | International Standard.

Development of this series of ITU-T Recommendations | International Standard was originally in parallel with ECMA-101: *Open Document Architecture*.

This ITU-T Recommendation | International Standard contains six annexes:

- Annex A (integral to ISO/IEC only): SGML representation of audio content-specific attributes for ODL;
- Annex B (non-integral): Data type definitions for audio content architecture attributes;
- Annex C (non-integral): Summary of audio content architecture class;
- Annex D (non-integral): Summary of ASN.1 object identifiers;
- Annex E (integral): Modifications to other common texts of ITU-T Rec. T.410-Series | ISO/IEC 8613;
- Annex F (non-integral): Characteristics of audio encoding schemes.

1 Scope

The purpose of this ITU-T Rec. T.410-Series | ISO/IEC 8613 is to facilitate the interchange of documents.

In the context of these Recommendations | International Standards, documents are considered to be items such as memoranda, letters, invoices, forms and reports, which may include pictures and tabular material. The content elements used within the documents may include graphic characters, geometric graphic elements, raster graphic elements and audio elements, all potentially within one document.

NOTE These Recommendations | International Standards are designed to allow for extensions, such as hypermedia features, spreadsheets and additional types of content such as video.

In addition to the content types defined in these Recommendations | International Standards, ODA also provides for arbitrary content types to be included in documents.

These Recommendations | International Standards apply to the interchange of documents by means of data communications or the exchange of storage media.

These Recommendations | International Standards provide for the interchange of documents for either or both of the following purposes:

- to allow presentation as intended by the originator;
- to allow processing such as editing and reformatting.

The composition of a document in interchange can take several forms:

- formatted form, allowing presentation of the document;

- processable form, allowing processing of the document;
- formatted processable form, allowing both presentation and processing.

These Recommendations | International Standards also provide for the interchange of ODA information structures used for the processing of interchanged documents.

This Recommendation | International Standard:

- defines audio content architectures that can be used in conjunction with the document architecture defined in ITU-T Rec. T.412 | ISO/IEC 8613-2 and ITU-T Rec. T.424 | ISO/IEC 8613-14;
- defines those aspects of rendition applicable to the presentation of audio content;
- defines the presentation and content portion attributes applicable to these audio content architectures;
- describes an audio layout and presentation process, which, together with the document processing model described in ITU-T Rec. T.412 | ISO/IEC 8613-2, determines the layout of basic layout objects with associated audio content in the spatial and temporal dimensions of a document and the presentation of audio content on some suitable media.

2 Normative references

The following ITU-T Recommendations and International Standards contain provisions which through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU-T maintains a list of currently valid ITU-T Recommendations.

2.1 Identical Recommendations | International Standards

- ITU-T Recommendation H.263¹⁾ | ISO/IEC 13818-3 ...¹⁾, *Information technology — Generic coding of moving pictures and associated audio information: Audio*.
- ITU-T Recommendation T.411 (1993) | ISO/IEC 8613-1:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Introduction and general principles*.
- ITU-T Recommendation T.412 (1993) | ISO/IEC 8613-2:1995, *Information technology — Open Document Architecture (ODA) and interchange format: Document structures*.
- ITU-T Recommendation T.414 (1993) | ISO/IEC 8613-4:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Document profile*.
- ITU-T Recommendation T.415 (1993) | ISO/IEC 8613-5:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Open Document Interchange Format*.
- ITU-T Recommendation T.416 (1993) | ISO/IEC 8613-6:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Character content architectures*.
- ITU-T Recommendation T.417 (1993) | ISO/IEC 8613-7:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Raster graphics content architectures*.
- ITU-T Recommendation T.418 (1993) | ISO/IEC 8613-8:1994, *Information technology — Open Document Architecture (ODA) and interchange format: Geometric graphics content architectures*.
- ITU-T Recommendation T.421 (1994) | ISO/IEC 8613-11:1995, *Information technology — Open Document Architecture (ODA) and interchange format: Tabular structures and tabular layout*.
- ITU-T Recommendation T.422 (1995) | ISO/IEC 8613-12:1996, *Information technology — Open Document Architecture (ODA) and interchange format: Identification of document fragments*.
- ITU-T Recommendation T.424²⁾ | ISO/IEC 8613-14 ...²⁾, *Information technology — Open Document Architecture (ODA) and interchange format: Temporal relationships and non-linear structures*.

¹⁾ Presently at the stage of draft.

²⁾ To be published.

2.2 Paired Recommendations | International Standards equivalent in technical content

- CCITT Recommendation X.208 (1988), *Specification of Abstract Syntax Notation One (ASN.1)*.
- ISO/IEC 8824:1990, *Information technology — Open Systems Interconnection — Specification of Abstract Syntax Notation One (ASN.1)*.

2.3 Additional references

- ISO 8879:1986, *Information processing — Text and office systems — Standard Generalized Markup Language (SGML)*.
- ISO 266:1975³⁾, *Acoustics — Preferred frequencies for measurements*.
- CCITT Recommendation G.711 (1988), *Pulse Code Modulation (PCM) of voice frequencies*.
- CCITT Recommendation G.721 (1988), *32 kbit/s Adaptive Differential Pulse Code Modulation (ADPCM)*.
- CCITT Recommendation G.722 (1988), *7 kHz audio-coding within 64 kbit/s*.
- CCITT Recommendation G.723 (1988), *Extensions of Recommendation G.721 adaptive differential pulse code modulation to 24 and 40 kbit/s for digital circuit multiplication equipment application*.
- CCITT Recommendation G.726 (1990), *40, 32, 24, 16 kbit/s Adaptive Differential Pulse Code Modulation (ADPCM)*.
- CCITT Recommendation G.727 (1990), *5-, 4-, 3-, and 2-bits/sample embedded Adaptive Differential Pulse Code Modulation (ADPCM)*.
- CCITT Recommendation G.728 (1992), *Coding of speech at 16 kbit/s using low-delay code excited linear prediction*.
- CCITT Recommendation J.41 (1988), *Characteristics of equipment for the coding of analogue high quality sound-program signals for transmission on 384 kbit/s channels*.
- CCITT Recommendation J.42 (1988), *Characteristics of equipment for the coding of analogue medium quality sound-program signals for the transmission on 384 kbit/s channels*.
- ISO/IEC 11172-3:1993, *Information technology — Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s — Part 3: Audio*.
- IEC 899:1987, *Sampling rate and source encoding for professional digital audio recording*.
- I-ETS 300 036 *European digital cellular communications system (phase 1); full rate speech transcoding (GSM 06-10)*.
- ANSI S4.28-1984, *Preferred sampling frequencies for professional digital audio applications employing pulse code modulation*.
- ANSI S4.40-1985, *Serial transmission format for linearly represented digital audio data*.
- ANSI/AES 3-1992, *Serial transmission format for 2-channel linearly represented audio data*.

3 Definitions

For the purposes of this Recommendation | International Standard, the definitions given in ITU-T Rec. T.411 | ISO/IEC 8613-1 apply.

For the purpose of this Recommendation | International Standard, the following definitions also apply.

3.1

sampled sound

a sequence of digital values that represent instantaneous pressure of an auditory sensation taken at discrete intervals of time

3.2

required duration

the time required to present the audio content information derived by the audio content layout process taking into account applicable presentation and coding attributes

³⁾ Currently under revision.