
**Information technology — Generic
coding of moving pictures and
associated audio information —**

**Part 1:
Systems**

*Technologies de l'information — Codage générique des images
animées et du son associé —*

Partie 1: Systèmes

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted.

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by ITU-T as Rec. ITU-T H.220.0 (03/2017) and drafted in accordance with its editorial rules. It was adopted under the JTC1 PSDO procedure by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*, in collaboration with ITU-T.

This sixth edition cancels and replaces the fifth edition (ISO/IEC 13818-1:2015), which has been technically revised. It also incorporates ISO/IEC 13818-1:2015/Cor.1:2016, ISO/IEC 13818-1:2015/Cor.2:2017, ISO/IEC 13818-1:2015/Amd.1:2015, ISO/IEC 13818-1:2015/Amds.2–6:2016, and ISO/IEC 13818-1:2015/Amds.7–8 (unpublished following DAM ballot).

A list of all parts in the ISO/IEC 13818 series can be found on the ISO website.

**INTERNATIONAL STANDARD ISO/IEC 13818-1
RECOMMENDATION ITU-T H.222.0**

**Information technology – Generic coding of moving pictures and
associated audio information: Systems**

Summary

This Recommendation | International Standard specifies the system layer of the coding. It was developed in 1994 to principally support the combination and synchronization of video and audio coding methods defined in ISO/IEC 13818 Part 2 (ITU-T H.262) and Part 3. Since 1994, this standard has been extended to support additional video coding specifications (e.g., ISO/IEC 14496-2, ITU-T H.264 | ISO/IEC 14496-10, ITU-T H.265 | ISO/IEC 23008-2 and ITU-T T.800 | ISO/IEC 15444-1 Annex M JPEG 2000 video), audio coding specifications (e.g., ISO/IEC 13818-7 and ISO/IEC 14496-3), system streams (e.g., ISO/IEC 14496-1 and ISO/IEC 15938-1), ISO/IEC 23009-1 dynamic adaptive streaming over HTTP (DASH), ISO/IEC 13818-11 intellectual property management and protection (IPMP) as well as generic metadata. The system layer supports six basic functions:

- 1) the synchronization of multiple compressed streams on decoding;
- 2) the interleaving of multiple compressed streams into a single stream;
- 3) the initialization of buffering for decoding start up;
- 4) continuous buffer management;
- 5) time identification; and
- 6) multiplexing and signalling of various components in a system stream.

Recommendation ITU-T H.222.0 | ISO/IEC 13818-1 multiplexed bit stream is either a transport stream or a program stream. Both streams are constructed from packetized elementary stream (PES) packets and packets containing other necessary information. Both stream types support multiplexing of video and audio compressed streams from one program with a common time base. The transport stream additionally supports the multiplexing of video and audio compressed streams from multiple programs with independent time bases. For almost error-free environments the program stream is generally more appropriate, supporting software processing of program information. The transport stream is more suitable for use in environments where errors are likely.

Recommendation ITU-T H.222.0 | ISO/IEC 13818-1 multiplexed bit stream, whether a transport stream or a program stream, is constructed in two layers: the outermost layer is the system layer, and the innermost is the compression layer. The system layer provides the functions necessary for using one or more compressed data streams in a system. The video and audio parts of this Specification define the compression coding layer for audio and video data. Coding of other types of data is not defined by this Recommendation | International Standard, but is supported by the system layer provided that the other types of data adhere to the constraints defined in this Recommendation | International Standard.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T H.222.0	1995-07-10	15	11.1002/1000/1071
1.1	ITU-T H.222.0 (1995) Amd. 1	1996-11-11	16	11.1002/1000/3834
1.2	ITU-T H.222.0 (1995) Amd. 2	1996-11-11	16	11.1002/1000/4096
1.3	ITU-T H.222.0 (1995) Technical Cor. 1	1998-02-06	16	11.1002/1000/4532
1.4	ITU-T H.222.0 (1995) Amd. 3	1998-02-06	16	11.1002/1000/4228
1.5	ITU-T H.222.0 (1995) Amd. 4	1998-02-06	16	11.1002/1000/4229
1.6	ITU-T H.222.0 (1995) Amd. 5	1999-05-27	16	11.1002/1000/4498
1.7	ITU-T H.222.0 (1995) Amd. 6	1999-05-27	16	11.1002/1000/4671

* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

ISO/IEC 13818-1:2018 (E)

2.0	ITU-T H.222.0	2000-02-17	16	11.1002/1000/5142
2.1	ITU-T H.222.0 (2000) Technical Cor. 1	2001-03-01	16	11.1002/1000/5419
2.2	ITU-T H.222.0 (2000) Technical Cor. 2	2002-03-29	16	11.1002/1000/5675
2.3	ITU-T H.222.0 (2000) Amd. 1	2002-12-14	16	11.1002/1000/6190
2.4	ITU-T H.222.0 (2000) Amd. 1/Cor. 1	2003-06-29	16	11.1002/1000/6449
2.5	ITU-T H.222.0 (2000) Amd. 2	2003-06-29	16	11.1002/1000/6363
2.6	ITU-T H.222.0 (2000) Amd. 3	2004-03-15	16	11.1002/1000/7208
2.7	ITU-T H.222.0 (2000) Technical Cor. 3	2005-01-08	16	11.1002/1000/7435
2.8	ITU-T H.222.0 (2000) Amd. 4	2005-01-08	16	11.1002/1000/7436
2.9	ITU-T H.222.0 (2000) Amd. 5	2005-01-08	16	11.1002/1000/7437
2.10	ITU-T H.222.0 (2000) Technical Cor. 4	2005-09-13	16	11.1002/1000/8560
3.0	ITU-T H.222.0	2006-05-29	16	11.1002/1000/8802
3.1	ITU-T H.222.0 (2006) Amd. 1	2007-01-13	16	11.1002/1000/9024
3.2	ITU-T H.222.0 (2006) Amd. 2	2007-08-29	16	11.1002/1000/9214
3.3	ITU-T H.222.0 (2006) Cor. 1	2008-06-13	16	11.1002/1000/9471
3.4	ITU-T H.222.0 (2006) Cor. 2	2009-03-16	16	11.1002/1000/9692
3.5	ITU-T H.222.0 (2006) Amd. 3	2009-03-16	16	11.1002/1000/9691
3.6	ITU-T H.222.0 (2006) Cor. 3	2009-12-14	16	11.1002/1000/10621
3.7	ITU-T H.222.0 (2006) Cor. 4	2009-12-14	16	11.1002/1000/10622
3.8	ITU-T H.222.0 (2006) Amd. 4	2009-12-14	16	11.1002/1000/10623
3.9	ITU-T H.222.0 (2006) Amd. 5	2011-05-14	16	11.1002/1000/11287
3.10	ITU-T H.222.0 (2006) Amd. 6	2011-05-14	16	11.1002/1000/11288
4.0	ITU-T H.222.0	2012-06-29	16	11.1002/1000/11655
4.1	ITU-T H.222.0 (2012) Amd. 1	2014-01-13	16	11.1002/1000/12054
4.2	ITU-T H.222.0 (2012) Amd. 2	2014-01-13	16	11.1002/1000/12055
4.3	ITU-T H.222.0 (2012) Amd. 3	2014-01-13	16	11.1002/1000/12056
4.4	ITU-T H.222.0 (2012) Amd. 4	2014-01-13	16	11.1002/1000/12057
4.5	ITU-T H.222.0 (2012) Amd. 5	2014-10-14	16	11.1002/1000/12306
5.0	ITU-T H.222.0	2014-10-14	16	11.1002/1000/12359
5.1	ITU-T H.222.0 (2014) Amd. 1	2015-04-29	16	11.1002/1000/12452
5.2	ITU-T H.222.0 (2014) Amd. 1 Cor. 1	2015-11-29	16	11.1002/1000/12625
5.3	ITU-T H.222.0 (2014) Amd. 2	2015-12-14	16	11.1002/1000/12632
5.4	ITU-T H.222.0 (2014) Amd. 3	2015-12-14	16	11.1002/1000/12633
5.5	ITU-T H.222.0 (2014) Amd. 1 Cor. 2	2016-07-14	16	11.1002/1000/12899
5.5	ITU-T H.222.0 (2014) Cor. 1	2016-07-14	16	11.1002/1000/12903
5.7	ITU-T H.222.0 (2014) Amd. 4	2016-07-14	16	11.1002/1000/12900
5.8	ITU-T H.222.0 (2014) Amd. 5	2016-07-14	16	11.1002/1000/12901
5.9	ITU-T H.222.0 (2014) Amd. 6	2016-07-14	16	11.1002/1000/12902
5.10	ITU-T H.222.0 (2014) Amd. 3 Cor. 1	2017-03-01	16	11.1002/1000/13184
5.10	ITU-T H.222.0 (2014) Cor. 2	2017-03-01	16	11.1002/1000/13188
5.12	ITU-T H.222.0 (2014) Amd. 7	2017-03-01	16	11.1002/1000/13186
5.13	ITU-T H.222.0 (2014) Amd. 8	2017-03-01	16	11.1002/1000/13187
6.0	ITU-T H.222.0	2017-03-01	16	11.1002/1000/13269

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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