INTERNATIONAL STANDARD

ISO/IEC 13818-1

Third edition
2007-10-15

AMENDMENT 2
2008-12-15

Corrected version
2010-07-15

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

AMENDMENT 2: Carriage of auxiliary video data

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

AMENDEMENT 2: Chariot de données vidéo auxiliaires

Reference number
ISO/IEC 13818-1:2007/Amd.2:2008(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published by ISO in 2009

Published in Switzerland

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 13818-1:2007/Amd.2:2008 was prepared 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. The identical text is published as ITU-T Rec.H.222.0 (2006)/Amd.2 (08/2007).

This corrected version of ISO/IEC 13818-1:2007/Amd.2:2008 incorporates the following corrections: the title has been changed from "*Information technology — Generic coding of moving pictures and associated audio information: Systems — Amendment 2: Carriage of auxiliary video streams*" to "*Information technology — Generic coding of moving pictures and associated audio information: Systems — Amendment 2: Carriage of auxiliary video data*", and the reference on the cover page has been changed from "ISO" to "ISO/IEC".

INTERNATIONAL STANDARD
ITU-T RECOMMENDATION

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

Amendment 2

Carriage of auxiliary video data

1) Clause 2.4.3.7

Replace Table 2-27 with the following one:

Table 2-27 – Stream_id_extension assignments

stream_id_extension	Note	stream coding
000 0000	1	IPMP Control Information stream
000 0001	2	IPMP stream
000 0010 … 000 1111		ISO/IEC 14496-17 text stream
001 0000 … 001 1111		ISO/IEC 23002-3 auxiliary video stream
~~010 0010~~ 010 0000 … 011 1111		reserved_data_stream
100 0000 … 111 1111		private_stream
NOTE 1 – PES packets of stream_id_extension 0b000 0000 (IPMP Control Information Stream) have a unique syntax specified in ISO/IEC 13818-11 (MPEG-2 IPMP). NOTE 2 – PES packets of stream_id_extension 0b000 0001 (IPMP Stream) have a unique syntax specified in ISO/IEC 13818-11 (MPEG-2 IPMP).		

2) Clause 2.4.4.9

Replace Table 2-34 with the following one:

Table 2-34 – Stream type assignments

Value	Description
0x00	ITU-T | ISO/IEC Reserved
0x01	ISO/IEC 11172-2 Video
0x02	ITU-T Rec. H.262 | ISO/IEC 13818-2 Video or ISO/IEC 11172-2 constrained parameter video stream
0x03	ISO/IEC 11172-3 Audio
0x04	ISO/IEC 13818-3 Audio
0x05	ITU-T Rec. H.222.0 | ISO/IEC 13818-1 private_sections
0x06	ITU-T Rec. H.222.0 | ISO/IEC 13818-1 PES packets containing private data
0x07	ISO/IEC 13522 MHEG
0x08	ITU-T Rec. H.222.0 | ISO/IEC 13818-1 Annex A DSM-CC
0x09	ITU-T Rec. H.222.1
0x0A	ISO/IEC 13818-6 type A
0x0B	ISO/IEC 13818-6 type B
0x0C	ISO/IEC 13818-6 type C
0x0D	ISO/IEC 13818-6 type D
0x0E	ITU-T Rec. H.222.0 | ISO/IEC 13818-1 auxiliary

Table 2-34 – Stream type assignments

Value	Description
0x0F	ISO/IEC 13818-7 Audio with ADTS transport syntax
0x10	ISO/IEC 14496-2 Visual
0x11	ISO/IEC 14496-3 Audio with the LATM transport syntax as defined in ISO/IEC 14496-3/Amd.1
0x12	ISO/IEC 14496-1 SL-packetized stream or FlexMux stream carried in PES packets
0x13	ISO/IEC 14496-1 SL-packetized stream or FlexMux stream carried in ISO/IEC 14496_sections
0x14	ISO/IEC 13818-6 Synchronized Download Protocol
0x15	Metadata carried in PES packets
0x16	Metadata carried in metadata_sections
0x17	Metadata carried in ISO/IEC 13818-6 Data Carousel
0x18	Metadata carried in ISO/IEC 13818-6 Object Carousel
0x19	Metadata carried in ISO/IEC 13818-6 Synchronized Download Protocol
0x1A	IPMP stream (defined in ISO/IEC 13818-11, MPEG-2 IPMP)
0x1B	AVC video stream as defined in ITU-T Rec. H.264 | ISO/IEC 14496-10 Video
0x1C	ISO/IEC 14496-3 Audio, without using any additional transport syntax, such as DST, ALS and SLS
0x1D	ISO/IEC 14496-17 Text
0x1E	Auxiliary video stream as defined in ISO/IEC 23002-3
0x1F-0x7E	ITU-T Rec. H.222.0 | ISO/IEC 13818-1 Reserved
0x7F	IPMP stream
0x80-0xFF	User Private

3) Clause 2.6.1

Replace Table 2-45 with the following one:

Table 2-45 – Program and program element descriptors

descriptor_tag	TS	PS	Identification
0	n/a	n/a	Reserved
1	n/a	X	Forbidden
2	X	X	video_stream_descriptor
3	X	X	audio_stream_descriptor
4	X	X	hierarchy_descriptor
5	X	X	registration_descriptor
6	X	X	data_stream_alignment_descriptor
7	X	X	target_background_grid_descriptor
8	X	X	video_window_descriptor
9	X	X	CA_descriptor
10	X	X	ISO_639_language_descriptor
11	X	X	system_clock_descriptor
12	X	X	multiplex_buffer_utilization_descriptor
13	X	X	copyright_descriptor
14	X		maximum_bitrate_descriptor
15	X	X	private_data_indicator_descriptor

Table 2-45 – Program and program element descriptors

descriptor_tag	TS	PS	Identification
16	X	X	smoothing_buffer_descriptor
17	X		STD_descriptor
18	X	X	IBP_descriptor
19-26	X		Defined in ISO/IEC 13818-6
27	X	X	MPEG-4_video_descriptor
28	X	X	MPEG-4_audio_descriptor
29	X	X	IOD_descriptor
30	X		SL_descriptor
31	X	X	FMC_descriptor
32	X	X	external_ES_ID_descriptor
33	X	X	MuxCode_descriptor
34	X	X	FmxBufferSize_descriptor
35	X		multiplexBuffer_descriptor
36	X	X	content_labeling_descriptor
37	X	X	metadata_pointer_descriptor
38	X	X	metadata_descriptor
39	X	X	metadata_STD_descriptor
40	X	X	AVC video descriptor
41	X	X	IPMP_descriptor (defined in ISO/IEC 13818-11, MPEG-2 IPMP)
42	X	X	AVC timing and HRD descriptor
43	X	X	MPEG-2 AAC audio descriptor
44	X	X	FlexMux_Timing_descriptor
45	X	X	MPEG-4_text_descriptor
46	X	X	MPEG-4_audio_extension_descriptor
47	X	X	auxiliary_video_stream_descriptor
48-63	n/a	n/a	ITU-T Rec. H.222.0 | ISO/IEC 13818-1 Reserved
64-255	n/a	n/a	User Private

4) New clauses 2.6.74 to 2.6.75

Add the following clauses:

2.6.74 Auxiliary video stream descriptor

The auxiliary video stream descriptor specifies parameters for the decoding and interpretation of the auxiliary video stream to which the descriptor is associated. For each auxiliary video stream carried in an ITU-T Rec. H.222.0 | ISO/IEC 13818-1 stream, the auxiliary video stream descriptor shall be included in the PMT or in the PSM, if PSM is present in the program stream.

Table 2-92.3 – Auxiliary video stream descriptor

Syntax	No. of bits	Mnemonic
Auxiliary_video_stream_descriptor() {		
descriptor_tag	**8**	**uimsbf**
descriptor_length	**8**	**uimsbf**
aux_video_codedstreamtype	**8**	**uimsbf**
si_rbsp(descriptor_length-1)		
}		

2.6.75 Semantic definition of fields in auxiliary video stream descriptor

aux_video_codedstreamtype – An 8-bit unsigned integer that indicates the compression coding type of the auxiliary video stream. The value of aux_video_codedstreamtype shall match one of the stream types defined in Table 2-34 for video (for instance 0x02, 0x10 or 0x1B). In order to convey additional information such as profile/level, a descriptor that corresponds to the aux_video_codedstreamtype may also be included in the PMT or in the PSM, if PSM is present in the program stream, for the auxillary video data stream.

NOTE – For example, if the auxiliary video is encoded using ITU-T Rec. H.264 | ISO/IEC 14496-10 Video, then the value of aux_video_codedstreamtype is 0x1B and an AVC video descriptor (descriptor_tag = 40) can be optionally included.

si_rbsp() – Supplemental Information RBSP as defined in ISO/IEC 23002-3. It shall contain at least one Auxiliary Video Supplemental Information (AVSI) message (also defined in ISO/IEC 23002-3). The type of auxiliary video is inferred from si_rbsp(). The total size of si_rbsp() shall not exceed 254 bytes.

5) New clause 2.16

Add the following new clause:

2.16 Carriage of auxiliary video streams

ISO/IEC 23002-3 specifies auxiliary video streams. ISO/IEC 23002-3 auxiliary video streams can be carried over ITU-T Rec. H.222.0 | ISO/IEC 13818-1 streams as follows:

- in Table 2-27, 16 stream-id_extension values are assigned to signal auxiliary video streams;
- in Table 2-34, one stream-type value is assigned to signal an auxiliary video stream;
- in Table 2-45, one descriptor tag is assigned to indicate an auxiliary video stream descriptor;
- in subclause 2.6.57 the auxiliary video stream descriptor is specified;
- the auxiliary video stream descriptor is associated to each auxiliary video stream.

Auxiliary video streams provide additional information about a conventional primary video sequence, as specified in ISO/IEC 23002-3. The auxiliary video stream shall be synchronized with its primary video counterpart through the use of timestamps in the associated PES header based on the same PCR clock.

In case a program contains multiple video streams, it will be up to the application to specify the association between the video component and auxiliary video streams.