

INTERNATIONAL STANDARD

IEC
61937-6

Second edition
2006-01

**Digital audio – Interface for non-linear PCM
encoded audio bitstreams applying IEC 60958 –**

**Part 6:
Non-linear PCM bitstreams according
to the MPEG-2 AAC and MPEG-4 AAC
audio formats**

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Reference number
IEC 61937-6:2006(E)

Publication numbering

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International Electrotechnical Commission
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DIGITAL AUDIO –
INTERFACE FOR NON-LINEAR PCM ENCODED
AUDIO BITSTREAMS APPLYING IEC 60958 –****Part 6: Non-linear PCM bitstreams according to
the MPEG-2 AAC and MPEG-4 AAC formats**

FOREWORD

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International Standard IEC 61937-6 has been prepared by technical area 4: Digital systems interfaces, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This second edition of IEC 61937-6 cancels and replaces the first edition published in 2002. This edition contains the following significant technical changes with respect to the previous edition:

- a) addition of data-type for MPEG2 AAC low sampling frequency;
- b) addition of data-type for MPEG-4 AAC.

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

CDV	Report on voting
100/942/CDV	100/1043A/RVC

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.

IEC 61937 consists of the following parts under the general title *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958*:

- Part 1: General
- Part 2: Burst-info
- Part 3: Non-linear bitstreams according to the AC-3 format
- Part 4: Non-linear PCM bitstreams according to the MPEG audio formats
- Part 5: Non-linear PCM bitstreams according to the DTS (Digital Theater Systems) format(s)
- Part 6: Non-linear PCM bitstreams according to the MPEG-2 AAC and MPEG-4 AAC formats
- Part 7: Non-linear PCM bitstreams according to the ATRAC, ATRAC2/3 and ATRAC-X formats

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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

DIGITAL AUDIO – INTERFACE FOR NON-LINEAR PCM ENCODED AUDIO BITSTREAMS APPLYING IEC 60958 –

Part 6: Non-linear PCM bitstreams according to the MPEG-2 AAC and MPEG-4 AAC formats

1 Scope

This part of IEC 61937 specifies the method for IEC 60958 to convey non-linear PCM bitstreams encoded in accordance with the MPEG-2 AAC (Advanced Audio Coding) and MPEG-4 AAC formats.

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 60958 (all parts), *Digital audio interface*

IEC 61937 (all parts), *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958*

IEC 61937-1, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 1: General*

<http://standards.iteh.ai/> IEC 61937-2, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 2: Burst-info*

ISO/IEC 13818-7:2004, *Information technology – Generic coding of moving pictures and associated audio information – Part 7: Advanced Audio Coding (AAC)*

ISO/IEC 14496-3:2001, *Information technology – Coding of audio-visual objects – Part 3: Audio*
Amendment 1 (2003)

3 Terms, definitions, abbreviations and presentation convention

For the purposes of this document, the following terms, definitions, abbreviations and presentation convention apply.

3.1 Terms and definitions

3.1.1

subdata-type

reference to the type of payload of the data-burst defined for use with the specified data-type

3.1.2

LC profile

low complexity profile identified in ISO/IEC 13818-7

3.1.3**LC profile with SBR**

low complexity profile with spectral band replication identified in ISO/IEC 13818-7

3.1.4**latency**

delay time of an external audio decoder to decode a MPEG-2 AAC or MPEG-4 AAC data-burst defined as the sum of two values of the receiving delay time and the decoding delay time

3.1.5**AAC profile**

AAC profile identified in ISO/IEC 14496-3

3.1.6**HE-AAC profile**

HE-AAC profile identified in ISO/IEC 14496-3

3.2 Abbreviations

AAC	Advanced Audio Coding
ADTS	Audio Data Transport Stream
SBR	Spectral Band Replication
HE-AAC	High Efficiency AAC

3.3 Presentation convention

01₂ Value "01" in binary format

4 Mapping of the audio bitstream on to IEC 61937

The coding of the bitstream and data-burst is in accordance with IEC 61937.

4.1 MPEG-2 AAC burst-info

MPEG-2 AAC burst-info (data-type=7) is given in Table 1.

Table 1 – Fields of burst-info (data-type=7)

Bits of Pc	Value	Contents	Reference point R	Repetition period of data-burst in IEC 60958 frames
0-4		Data-type		
	7	MPEG-2 AAC ADTS	Bit 0 of Pa	1 024
5,6	00 ₂	Reserved		
7-15		In accordance with IEC 61937-1 and IEC 61937-2		

MPEG-2 AAC burst-info (data-type=19) is given in Table 2.

Table 2 – Fields of burst-info (data-type=19)

Bits of Pc	Value	Contents	Reference point R	Repetition period of data-burst in IEC 60958 frames
0-4		Data-type		
	19	MPEG-2 AAC ADTS low sampling frequency		Depends on subdata-type
5,6		Subdata-type		
	00 ₂	Subdata-type for MPEG-2 AAC ADTS half-rate low sampling frequency	Bit 0 of Pa	2 048
	01 ₂	Subdata-type for MPEG-2 AAC ADTS quarter-rate low sampling frequency	Bit 0 of Pa	4 096
	10 ₂ , 11 ₂	Reserved		
7-15		In accordance with IEC 61937-1 and IEC 61937-2		

4.2 MPEG-4 AAC burst-info

MPEG-4 AAC burst-info (data-type=20) is given in Table 3.

Table 3 – Fields of burst-info (data-type=20)

Bits of Pc	Value	Contents	Reference point R	Repetition period of data-burst in IEC 60958 frames
0-4		Data-type		
	20	MPEG-4 AAC		Depends on subdata-type
5,6		Subdata-type		
	00 ₂	Subdata-type for MPEG4 AAC	Bit 0 of Pa	1024
	01 ₂	Subdata-type for MPEG4 AAC half-rate low sampling frequency	Bit 0 of Pa	2 048
	10 ₂	Subdata-type for MPEG4 AAC quarter-rate low sampling frequency	Bit 0 of Pa	4 096
	11 ₂	Subdata-type for MPEG4 AAC double-rate high sampling frequency	Bit 0 of Pa	512
7-15		In accordance with IEC 61937-1 and IEC 61937-2		

5 Format of MPEG-2 AAC and MPEG-4 AAC data-bursts

This clause specifies the audio data-bursts MPEG-2 AAC and MPEG-4 AAC. Specific properties such as reference points, repetition period, the method of filling stream gaps, and decoding latency are specified for each data-type.

The decoding latency (or delay), indicated for the data-types, should be used by the transmitter to schedule data-bursts as necessary to establish synchronization between the picture and the decoded audio.