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Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 2: Burst-info

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CONTENTS

FOREWORD.....	3
INTRODUCTION to Amendment 1	5
INTRODUCTION to Amendment 2	5
1 Scope.....	6
2 Normative references	6
3 Terms, definitions and abbreviations	7
3.1 Terms and definitions	7
3.2 Abbreviations	8
4 Burst-info	8
4.1 General.....	8
4.2 Data-type and subdata-type	9
4.3 Audio data-bursts	12
4.3.1 General	12
4.3.2 AC-3.....	12
4.3.3 MPEG-1 layer-1.....	12
4.3.4 MPEG-1 layer-2 or layer-3 or MPEG-2 without extension.....	12
4.3.5 MPEG-2 with extension.....	13
4.3.6 MPEG-2 AAC	13
4.3.7 MPEG-2 layer-1 low sampling frequency	13
4.3.8 MPEG-2 layer-2 low sampling frequency	13
4.3.9 MPEG-2 layer-3 low sampling frequency	13
4.3.10 DTS type I.....	13
4.3.11 DTS type II.....	13
4.3.12 DTS type III.....	13
4.3.13 DTS type IV.....	13
4.3.14 ATRAC.....	14
4.3.15 ATRAC 2/3.....	14
4.3.16 ATRAC-X.....	14
4.3.17 MPEG-2 AAC low sampling frequency	14
4.3.18 MPEG-4 AAC	14
4.3.19 Windows Media Audio professional.....	14
4.3.20 Enhanced AC-3	14
4.3.21 MAT	14
4.3.22 MPEG-4 ALS	15
4.3.23 MPEG-4 AAC LC in LATM/LOAS	15
4.3.24 MPEG-4 HE AAC in LATM/LOAS.....	15
4.3.25 DRA	15
4.3.26 ATRAC-X low latency	15
4.3.27 MPEG-H 3D Audio.....	15
4.3.28 AC-4, AC-4 HBR4, AC-4 HBR16 and AC-4 LD	16
4.3.29 MPEG-4 ALS in LATM/LOAS	16
Bibliography.....	17
Table 1 – Fields of burst-info	9
Table 2 – Data-types	9

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2: Burst-info

FOREWORD

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This consolidated version of the official IEC Standard and its amendments has been prepared for user convenience.

IEC 61937-2 edition 2.2 contains the second edition (2007-05) [documents 100/1115/CDV and 100/1221/RVC], its amendment 1 (2011-10) [documents 100/1811/CDV and 100/1884/RVC] and its amendment 2 (2018-03) [documents 100/2944/CDV and 100/3032/RVC].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendments 1 and 2. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 61937-2 has been prepared by technical area 4: Digital system interfaces and protocols, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

- a) New audio data-types of enhanced AC-3 data, MPEG-2 AAC low sampling frequency, MPEG-4 AAC, DTS type IV, ATRAC-X, WMA professional and MAT are added.
- b) Data-type field in Pc is expanded from bit 0-4 to 0-6.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The list of all the parts of the IEC 61937 series, under the general title *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958*, can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the stability 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,
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- amended.

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INTRODUCTION to Amendment 1

The revision of IEC 61937-2 (2007) has become necessary to define additional data types, in order to be consistent with the data-type field description in IEC 61937-1 and to clarify the rule and definition of this data-type. Amendment 1 contains the following significant technical changes with respect to the base publication (IEC 61937-2, second edition).

- New audio data-types of MPEG-4 ALS, MPEG-4 AAC LC in LATM/LOAS, MPEG-4 HE AAC in LATM/LOAS and DRA are added.
- The description of data-type and subdata-type fields in Pc is clarified.
- A rule has been defined for new data-types.

INTRODUCTION to Amendment 2

The revision of IEC 61937-2:2007 has become necessary to define additional data types. Amendment 2 contains the following significant technical changes with respect to the base publication (IEC 61937-2:2007 and IEC 61937-2:2007/AMD1:2011):

- a) new audio data-types of ATRAC-X low latency, MPEG-H 3D Audio, MPEG-H 3D Audio HBR, AC-4, AC-4 HBR4, AC-4 HBR16, AC-4 LD and MPEG-4 ALS in LATM/LOAS are added;
- b) units of Pd column is added to Table 2,
- c) update SMPTE reference.

In the next full revision of IEC 61937-2, it is planned to relinquish the use of "Conventional data-type" and "Subdata-type", replacing them with "data-type bits 0 to 4" and "data-type bits 5 to 6", respectively.

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

Part 2: Burst-info

1 Scope

This part of IEC 61937 specifies the digital audio interface to convey non-linear PCM encoded audio bitstreams applying IEC 60958-1 and IEC 60958-3. This standard specifies burst-info which defines content information about the data contained in the burst payload.

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 60958-1, *Digital audio interface – Part 1: General*

IEC 60958-3, *Digital audio interface – Part 3: Consumer applications*

IEC 61937-1:2007, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 1: General*

IEC 61937-3, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 3: Non-linear PCM bitstreams according to the AC-3 format*

IEC 61937-4, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 4: Non-linear PCM bitstreams according to the MPEG audio format*

IEC 61937-5, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 5: Non-linear PCM bitstreams according to the DTS (Digital Theater Systems) format(s)*

IEC 61937-6, *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*

IEC 61937-7, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 7: Non-linear PCM bitstreams according to the ATRAC, ATRAC2/3 and ATRAC-X formats*

IEC 61937-8:2006, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 8: Non-linear PCM bitstreams according to the Windows Media Audio (WMA) Professional format*

IEC 61937-9, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 9: Non-linear PCM bitstreams according to the MAT format⁴*

⁴—To be published.

IEC 61937-10, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 10: Non-linear PCM bitstreams according to the MPEG-4 audio lossless coding (ALS) format*

IEC 61937-11, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 11: MPEG-4 AAC and its extensions in LATM/LOAS*

IEC 61937-12, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 12: Non-linear PCM bitstreams according to the DRA formats*

IEC 61937-13, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 13: MPEG-H 3D Audio*

IEC 61937-14, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 14: Non-linear PCM bitstreams according to the AC-4 format*

ISO/IEC 11172-3, *Information technology – Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mb/s – Part 3: Audio*

ISO/IEC 13818-3, *Information technology – Generic coding of moving pictures and associated audio information – Part 3: Audio*

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

ISO/IEC 14496-3, *Information technology – Coding of audio-visual objects – Part 3: Audio*

ITU-R Recommendation BS.1196, *Audio coding for digital terrestrial television broadcasting*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

audio data-burst	data-burst with an encoded audio frame as burst-payload
audio data-word	16-bit data word
audio frame	fixed number of audio samples. The number of samples in an audio frame is dependent on the particular encoding system which is used to encode the audio frame into the encoded audio frame
audio gap	period in the sequence of baseband audio samples where valid samples of audio are not available
bitstream	non-linear PCM encoded audio source, represented in a sequence of bits. In this interface the bitstream consists of a sequence of data-bursts
data-burst	packet of data, including the burst-preamble, to be transmitted across the interface
burst-payload	information content of the data-burst
burst-preamble	header for the data-burst, containing synchronization and information about the data contained in the burst-payload
data-type	reference to the type of payload of the data-bursts
encoded audio frame	minimum decodable unit of an encoded data sequence. Each encoded audio frame is the encoded representation of a fixed number of audio samples (for each original audio channel). The number of samples which are encoded into an encoded audio

	frame depends on the particular encoding system which is used to encode the audio frame into the encoded audio frame
length-code	length of the data-burst-payload in bits, bytes or 8-bytes
repetition period	period between the reference point of the current data-burst, and the reference point of the immediately following data-burst of the same data-type
sampling frequency	sampling frequency of the encoded PCM audio samples (i.e. before encoding and after decoding)
sampling period	period related to the sampling frequency of the PCM audio samples, represented in the encoded bitstream
stuffing	occupying the unused data capacity of the interface
stuffing sub-frame	occupying the unused data capacity in 16-bit audio data words
stream gap	period within the encoded audio bitstream without any audio frame; a discontinuity in the bitstream. Typically, a stream gap will occur between encoded audio frames

3.2 Abbreviations

ATRAC	Adaptive TRansform Acoustic Coding
ATRAC2	Adaptive TRansform Acoustic Coding 2
ATRAC3	Adaptive TRansform Acoustic Coding 3
ATRAC2/3	ATRAC2 and/or ATRAC3
ATRAC-X	Adaptive TRansform Acoustic Coding-X
ATSC	Advanced Television Systems Committee
IEC	International Electrotechnical Commission
ISO/IEC MPEG	Moving Pictures Expert Group, a joint committee of ISO and IEC
ITU-R	International Telecommunication Union, Radiocommunication Bureau
MPEG	Motion Pictures Expert Group, a joint committee of ISO and IEC
SMPTE	Society of Motion Picture and Television Engineers

4 Burst-info

4.1 General

The 16-bit burst-info contains information about the data which will be found in the data-burst. Fields of burst-info is specified in Table 1.