Digitalni avdio - Vmesnik za nelinearne PCM-kodirane avdio bitne tokove po IEC 60958 - 7. del: Nelinearni PCM-bitni tokovi v formatih ATRAC, ATRAC2/3 in ATRAC -X (TA 4)

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 (TA 4)

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Digitalton - Schnittstelle für nichtlinear-PCM-codierte Audio-Bitströme unter Verwendung von IEC 60958 - Teil 7: Nichtlineare PCM-Bitströme entsprechend ATRAC-, ATRAC2/3- und ATRAC-X-Formaten
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Audionumérique - Interface pour les flux de bits audio à codage MIC (PCM) non linéaire conformément à la CEI 60958 - Partie 7: Flux de bits MIC (PCM) non-linéaire selon les formats ATRAC, 2/3 ATRAC et X-ATRAC

Ta slovenski standard je istoveten z: EN 61937-7:2005/A1:2016

<u>**ICS:**</u>

33.160.30	Avdio sistemi	Audio systems
35.200	Vmesniška in povezovalna oprema	Interface and interconnection equipment

SIST EN 61937-7:2006/A1:2016   **en,fr,de**

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61937-7:2005/A1

September 2016

ICS 33.160.01

English Version

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This amendment A1 modifies the European Standard EN 61937-7:2005; it was approved by CENELEC on 2016-06-17. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 61937-7:2005/A1:2016 E

EN 61937-7:2005/A1:2016

European foreword

The text of document 100/2503/CDV, future IEC 61937-7:2005/A1, prepared by IEC/TC 100, "Audio, video and multimedia systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61937-7:2005/A1:2016.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2017-03-17
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2019-06-17

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Endorsement notice

The text of the International Standard IEC 61937-7:2005/A1:2016 was approved by CENELEC as a European Standard without any modification.

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IEC 61937-7

Edition 2.0   2016-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

Digital audio – Interface for non-linear PCM encoded audio bitstreams applying to IEC 60958 –
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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.160.01

ISBN 978-2-8322-3284-2

FOREWORD

This amendment has been prepared by technical area 4: Digital system interfaces and protocols of IEC technical committee 100: Audio, video and multimedia systems and equipment.

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

CDV	Report on voting
100/2503/CDV	100/2614/RVC

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC website 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.

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Insert, after the FOREWORD, the following new INTRODUCTION:

INTRODUCTION to Amendment 1

The revision of IEC 61937-7:2004 has become necessary to specify the new additional subdata-types of ATRAC-X low latency. This amendment includes the following technical changes:

a) new three subdata-types of ATRAC-X low latency are defined;

b) specific properties such as reference points, repetition period, and decoding latency are specified for each subdata-type of ATRAC-X.

4.2   ATRAC, ATRAC2/3 and ATRAC-X burst-info

Replace the existing Table 1 by the following new table:

Table 1 – Fields of burst-info

Bits of Pc	Value	Contents	Reference point R	Repetition period of data-burst in IEC 60958 frames
0-4		Data-type		
	0-13	In accordance with IEC 61937-1 and IEC 61937-2		
	14	ATRAC	bit 0 of Pa	512
	15	ATRAC2/3	bit 0 of Pa	1 024
	16	ATRAC-X	Subdata-type dependent	Subdata-type dependent
	17-31	In accordance with IEC 61937-2		
5, 6	00_2	Reserved in ATRAC and ATRAC2/3 formats		
	00_2	Subdata-type for ATRAC-X	bit 0 of Pa	2 048
	01_2	Subdata-type for ATRAC-X low latency	bit 0 of Pa	512
	10_2	Subdata-type for ATRAC-X low latency	bit 0 of Pa	256
	11_2	Subdata-type for ATRAC-X low latency	bit 0 of Pa	128
7-15		In accordance with IEC 61937-1 and IEC 61937-2		

5.2.5 The data ATRAC-X

Replace the existing first paragraph by the following new text:

The burst-payload of each data-burst of ATRAC-X data shall contain one complete ATRAC-X frame, and represents 2 048, 512, 256 or 128 samples for each encoded channel.

Replace the NOTE above Figure 5 as follows:

NOTE   The reference to the specification for the ATRAC-X bitstream, representing 2 048, 512, 256 or 128 samples of encoded audio per frame, may be found in the Bibliography.

Replace the first paragraph after Table 4 by the following:

The reference point of an ATRAC-X data-burst is bit 0 of Pa and shall occur exactly once every 2 048, 512, 256 or 128 sampling periods. The data-burst containing ATRAC-X frames shall occur at a regular rate, with the reference point of each ATRAC-X data-burst beginning 2 048, 512, 256 or 128 IEC 60958 frames after the reference point of the preceding ATRAC-X data-burst (of the same bit-stream-number).

Replace the second paragraph after Table 4 by the following:

When a stream gap in an ATRAC-X stream is filled by a sequence of Pause data-bursts, the Pa of the first Pause data-burst shall be located 2 048, 512, 256 or 128 sampling periods following the Pa of the previous ATRAC-X frame.

5.2.6 Latency of ATRAC-X decoding

Replace the ultimate paragraph of this subclause by the following new paragraphs:

The latencies of each subdata-type ATRAC-X and ATRAC-X low latency are calculated as follows.

EXAMPLE 1   (ATRAC-X subdata-type 0) In this case, the sampling period is 2 048. The length of preamble is 64 bit. If each ATRAC-X frame consists of a maximum bit rate of 352,8 kbit/s, the maximum length of the whole data burst-payload is 16 384 bit. In this case, the whole length of the data burst is 16 448 bit. The receiving delay time is calculated as 11,66 ms with 44,1 kHz sampling frequency. The decoding delay time is calculated as 46,44 ms, and is equal to the decoding time for one ATRAC-X frame data. Hence, the latency of ATRAC-X decoding is approximately 58,10 ms in this case.

The absolute maximum decoding latency is taken when ATRAC-X burst-payload extends to just before the Pa of the next frame and is equal to 92,88 ms at 44,1 kHz sampling frequency.

EXAMPLE 2   (ATRAC-X low latency subdata-type 1) In this case, the sampling period is 512. The length of preamble is 64 bit. If each ATRAC-X low latency subdata-type 1 frame consists of bit rate of 990 kbit/s, the length of the whole data burst-payload is 2 640 bit. In this case, the whole length of the data burst is 2 704 bit. The receiving delay time is calculated as 0,44 ms with 192 kHz sampling frequency. The decoding delay time is calculated as 2,66 ms, and is equal to the decoding time for one ATRAC-X low latency subdata-type 1 frame data. Hence, the latency of ATRAC-X low latency subdata-type 1 decoding is approximately 3,10 ms in this case.

The absolute maximum decoding latency is taken when ATRAC-X low latency subdata-type 1 burst-payload extends to just before the Pa of the next frame and is equal to 5,33 ms at 192 kHz sampling frequency.

EXAMPLE 3   (ATRAC-X low latency subdata-type 2) In this case, the sampling period is 256. The length of preamble is 64 bit. If each ATRAC-X low latency subdata-type 2 frame consists of bit rate of 990 kbit/s, the length of the whole data burst-payload is 2 640 bit. In this case, the whole length of the data burst is 2 704 bit. The receiving delay time is calculated as 0,88 ms with 96 kHz sampling frequency. The decoding delay time is calculated as 2,66 ms, and is equal to the decoding time for one ATRAC-X low latency subdata-type 2 frame data. Hence, the latency of ATRAC-X low latency subdata-type 2 decoding is approximately 3,54 ms in this case.

The absolute maximum decoding latency is taken when ATRAC-X low latency subdata-type 2 burst-payload extends to just before the Pa of the next frame and is equal to 5,33 ms at 96 kHz sampling frequency.

EXAMPLE 4   (ATRAC-X low latency subdata-type 3) In this case, the sampling period is 128. The length of preamble is 64 bit. If each ATRAC-X low latency subdata-type 3 frame consists of a bit rate of 990 kbit/s, the length of the whole data burst-payload is 2 640 bit. In this case, the whole length of the data burst is 2 704 bit. The receiving delay time is calculated as 1,76 ms with 48 kHz sampling frequency. The decoding delay time is calculated as 2,66 ms, and is equal to the decoding time for one ATRAC-X low latency subdata-type 3 frame data. Hence, the latency of ATRAC-X low latency subdata-type 3 decoding is approximately 4,42 ms in this case.

The absolute maximum decoding latency is taken when ATRAC-X low latency subdata-type 3 burst-payload extends to just before the Pa of the next frame and is equal to 5,33 ms at 48 kHz sampling frequency.

NOTE   ATRAC-X low latency has plural sampling periods to change by sampling frequency. Therefore, several sampling periods have the same decoding delay time.

Bibliography

Replace, in the list of bibliographical references, the fourth reference ATRAC-X by the following new references:

ATRAC-X, *Memory Stick Standard Audio File Format Specifications, ver. 2.1, Chap. 7*

ATRAC-X, 2001, 2002,   Sony Corporation (ATRAC-X)

ATRAC-X *low latency Standard Specification* ver.1.0, 2014,   Sony Corporation. (ATRAC-X low latency subdata-type 1, 2 and 3)

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