



100/2503/CDV

COMMITTEE DRAFT FOR VOTE (CDV) PROJET DE COMITÉ POUR VOTE (CDV)

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Proposed horizontal standard Norme horizontale suggérée <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the TC/SC secretary Les autres CE/SC sont requis d'indiquer leur intérêt, si nécessaire, dans ce CDV à l'intention du secrétaire du CE/SC						
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Titre :

Title : IEC 61937-7 Ed.2 Amd.1: 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)

Note d'introduction

Introductory note

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FOREWORD

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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:

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

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 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- withdrawn,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.

The National Committees are requested to note that for this publication the stability date is

THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE.



25

INTRODUCTION to Amendment 1

26 The revision of IEC 61937-7 (2004) has become necessary to specify the new additional
27 subdata-types of ATRAC-X low latency. This amendment 1 contains the following significant
28 technical changes with respect to the previous edition of IEC 61937-7.

29 a) New three subdata-types of ATRAC-X low latency are defined.

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

32 **4.2 ATRAC2/3 and ATRAC-X burst-info**

33 *Replace the Table 1 by the following:*

34

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	0-13	data-type 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
7-15	11 ₂	Subdata-type for ATRAC-X low latency	bit 0 of Pa	128
		in accordance with IEC 61937-1 and IEC 61937-2		

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36 **5.2.5 The data ATRAC-X**

37 *Replace the 1st paragraph as following;*

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

40 *Replace the NOTE above Figure 5 as following;*

41 NOTE The reference to the specification for the ATRAC-X bitstream, representing 2 048, 512,
42 256 or 128 samples of encoded audio per frame, may be found in the bibliography.

43 *Replace the 2nd paragraph as following;*

44 The reference point of an ATRAC-X data-burst is bit 0 of Pa and shall occur exactly once
45 every 2 048, 512, 256 or 128 sampling periods. The data-burst containing ATRAC-X frames
46 shall occur at a regular rate, with the reference point of each ATRAC-X data-burst beginning 2

47 048, 512, 256 or 128 IEC 60958 frames after the reference point of the preceding ATRAC-X
48 data-burst (of the same bit-stream-number).

49 *Replace the 3rd paragraph as following;*

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

53 **5.2.6 Latency of ATRAC-X decoding**

54 *Replace the last paragraph as followings;*

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

57 EXAMPLE-1 (ATRAC-X subdata-type 0) In this case, the sampling period is 2048. The length
58 of preamble is 64 bits. If each ATRAC-X frame consists of maximum bit rate of 352,8 kbit/s,
59 the maximum length of the whole data burst-payload is 16 384 bits. In this case, the whole
60 length of the data burst is 16 448 bits. The receiving delay time is calculated as 11,66 ms with
61 44,1 kHz sampling frequency. The decoding delay time is calculated as 46,44 ms, and is
62 equal to the decoding time for one ATRAC-X frame data. Hence, the latency of ATRAC-X
63 decoding is approximately 58,10 ms in this case.

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

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

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

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

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

88 EXAMPLE-4 (ATRAC-X low latency subdata-type 3) In this case, the sampling period is 128.
89 The length of preamble is 64 bits. If each ATRAC-X low latency subdata-type 3 frame consists
90 of bit rate of 990 kbit/s, the length of the whole data burst-payload is 2 640 bits. In this case,
91 the whole length of the data burst is 2 704 bits. The receiving delay time is calculated as 1,76

92 ms with 48 kHz sampling frequency. The decoding delay time is calculated as 2,66 ms, and is
93 equal to the decoding time for one ATRAC-X low latency subdata-type 3 frame data. Hence,
94 the latency of ATRAC-X low latency subdata-type 3 decoding is approximately 4,42 ms in this
95 case.

96 The absolute maximum decoding latency is taken when ATRAC-X low latency subdata-type 3
97 burst-payload extends to just before the Pa of the next frame and is equal to 5.33 ms at 48
98 kHz sampling frequency.

99 NOTE ATRAC-X low latency has plural sampling periods to change by sampling frequency.
100 So, plural sampling periods has same decoding delay time.

101

102

Bibliography

103 *Replace the 4th document reference as following;*

104 ATRAC-X Memory Stick Standard Audio File Format Specifications, ver. 2.1, Chap. 7
105 ATRAC-X, 2001, 2002, Sony Corporation (ATRAC-X subdata-type 0)

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