IEC 61937-2

Edition 2.0 2011-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
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Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 –
Part 2: Burst-info

Audionumérique – Interface pour les flux de bits audio à codage MIC non linéaire conformément à la CEI 60958 –
Partie 2: Salve d'informations

IEC 61937-2:2007/A1:2011

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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
100/1811/CDV	100/1884/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 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- withdrawn,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.

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.

2 Normative references

Delete footnote 1 to IEC 61937-9.

Insert, in the list of normative references, the following new publications:

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*

4.1 General

Replace the entire existing Table 1 by the following new Table 1:

Table 1 – Fields of burst-info

Bits of Pc		Value	Contents
0-6			Data-type (defined in IEC 61937-1)
	0-4		*Conventional* data-type
		0-31	See Table 2
	5-6		Subdata-type
		0-3	See Table 2
7			Error-flag
		0	Error-flag indicating a valid burst-payload
		1	Error-flag indicating that the burst-payload may contain errors
8-12			Data-type-dependent info
13-15		0-7	Bit-stream-number
NOTE Refer to IEC 61937-1, 6.1.7 and 6.1.7.1.			

4.2 Data-type and subdata-type

Replace the entire existing subclause 4.2 and Table 2 by the following:

Data-type defined in PC bits 0-6 in IEC 61937-1 consists of *conventional* data-type (0-4) and subdata-type (5-6) for historical reasons. All *conventional* data-types and subdata-types are defined in Table 2.

Further definition of data-type in the reserved area of Table 2 shall be allocated in PC bits 0-6, in ascending order and without skipping gap.

Table 2 – Data-types

Data-type Value of Pc bit 0-6		Contents	Reference point R	Repetition period of data-burst measured in IEC 60958 frames
Conventional **data-type** Value of Pc bit 0-4	**Subdata-type** Value of Pc bit 5-6			
0	0	Null data		See Note 1
1	0	AC-3 data	R-AC-3	1 536
2	0 – 3	Refer to SMPTE 338M		
3	0	Pause	bit 0 of Pa	See Note 2
4	0	MPEG-1 layer 1 data	bit 0 of Pa	384
5	0	MPEG-1 layer 2 or 3 data or MPEG-2 without extension	bit 0 of Pa	1 152
6	0	MPEG-2 data with extension	bit 0 of Pa	1 152
7	0	MPEG-2 AAC	bit 0 of Pa	1 024
8	0	MPEG-2, layer-1 low sampling frequency	bit 0 of Pa	768
9	0	MPEG-2, layer-2 low sampling frequency	bit 0 of Pa	2 304
10	0	MPEG-2, layer-3 low sampling frequency	bit 0 of Pa	1 152
11	0	DTS type I	bit 0 of Pa	512
12	0	DTS type II	bit 0 of Pa	1 024
13	0	DTS type III	bit 0 of Pa	2 048
14	0	ATRAC	bit 0 of Pa	512
15	0	ATRAC 2/3	bit 0 of Pa	1 024
16	0	ATRAC-X	bit 0 of Pa	2 048
17	0	DTS type IV	bit 0 of Pa	See IEC 61937-5
18	0	WMA professional type I	bit 0 of Pa *3	2 048
	1	WMA professional type II	bit 0 of Pa	2 048
	2	WMA professional type III	bit 0 of Pa	1 024
	3	WMA professional type IV	bit 0 of Pa	512
19	0	MPEG-2 AAC low sampling frequency	bit 0 of Pa	2 048
	1	MPEG-2 AAC low sampling frequency	bit 0 of Pa	4 096
	2 – 3	MPEG-2 AAC low sampling frequency	reserved	reserved
20	0	MPEG-4 AAC	bit 0 of Pa	1 024
	1	MPEG-4 AAC	bit 0 of Pa	2 048
	2	MPEG-4 AAC	bit 0 of Pa	4 096
	3	MPEG-4 AAC	bit 0 of Pa	512

Data-type Value of Pc bit 0-6		**Contents**	**Reference point R**	**Repetition period of data-burst measured in IEC 60958 frames**
***Conventional* data-type Value of Pc bit 0-4**	**Subdata-type Value of Pc bit 5-6**			
21	0	Enhanced AC-3	bit 0 of Pa	6 144
22	0	MAT	R-MAT	15 360
23	0	MPEG-4 ALS	bit 0 of Pa	See IEC 61937-10
	1	MPEG-4 AAC LC in LATM/LOAS	bit 0 of Pa	See IEC 61937-11
	2	MPEG-4 HE AAC in LATM/LOAS	bit 0 of Pa	See IEC 61937-11
	3	DRA	bit 0 of Pa	See IEC 61937-12
96 – 107		Reserved (do not use until defined)		
(24 – 26)	*(0 – 3)*			
27 – 30	0 – 3	Refer to SMPTE 338M		
31	0 – 3	Extended data-type (do not use until defined)		

NOTE 1 Refer to IEC 61937-1, 7.3.

NOTE 2 The repetition period of pause data-bursts depends on the application. The repetition period of pause data-bursts is defined for each audio data-burst.

NOTE 3 Refer to IEC 61937-8, 4.2.

4.3 Audio data-bursts

Add, after the existing subclause 4.3.21, the following new subclauses:

4.3.22 MPEG-4 ALS

The MPEG-4 ALS bitstream consists of a sequence of frames. The data-type of an MPEG-4 ALS data-burst is 23 and the subdata-type is 0. The data-burst is headed with a burst-preamble, followed by the burst-payload. The burst-payload of each data-burst of MPEG-4 ALS data shall contain 1 complete MPEG-4 ALS frame. The length of the MPEG-4 ALS data-burst depends on the encoded bit rate (which determines the MPEG-4 ALS frame length), see IEC 61937-10.

4.3.23 MPEG-4 AAC LC in LATM/LOAS

The MPEG-4 AAC LC in LATM/LOAS bitstream consists of a sequence of frames. The data-type of an MPEG-4 AAC LC in LATM/LOAS data-burst is 23 and the subdata-type is 1. The data-burst is headed with a burst-preamble, followed by the burst-payload. The burst-payload of each data-burst of MPEG-4 AAC LC in LATM/LOAS data shall contain 1 complete MPEG-4 AAC LC in LATM/LOAS frame. The length of the MPEG-4 AAC LC in LATM/LOAS data-burst depends on the encoded bit rate (which determines the MPEG-4 AAC LC in LATM/LOAS frame length), see IEC 61937-11.

4.3.24 MPEG-4 HE AAC in LATM/LOAS

The MPEG-4 HE AAC in LATM/LOAS bitstream consists of a sequence of frames. The data-type of an MPEG-4 HE AAC in LATM/LOAS data-burst is 23 and the subdata-type is 2. The data-burst is headed with a burst-preamble, followed by the burst-payload. The burst-payload of each data-burst of MPEG-4 HE AAC in LATM/LOAS data shall contain 1 complete MPEG-4 HE AAC in LATM/LOAS frame. The length of the MPEG-4 HE AAC in LATM/LOAS data-burst depends on the encoded bit rate (which determines the MPEG-4 HE AAC in LATM/LOAS frame length), see IEC 61937-11.

4.3.25 DRA

The DRA bitstream consists of a sequence of frames. The data-type of a DRA data-burst is 23 and the subdata-type is 3. The data-burst is headed with a burst-preamble, followed by the burst-payload. The burst-payload of each data-burst of DRA data shall contain 1 complete DRA frame. The length of the DRA data-burst depends on the encoded bit rate (which determines the DRA frame length), see IEC 61937-12.