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Filed on 23 May 2013 (23.05.2013)
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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

[Continued on next page]

(54) Title: AUDIO BITSTREAMS WITH SUPPLEMENTARY DATA AND ENCODING AND DECODING OF SUCH BITSTREAMS

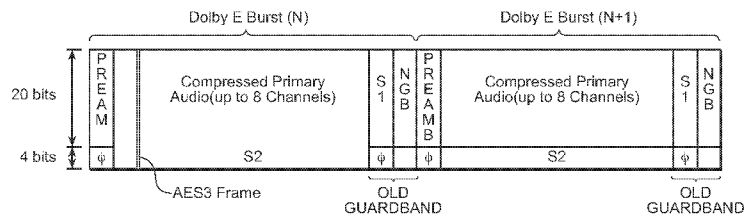


FIG. 4

(57) Abstract: Methods for generating or decoding an encoded audio bitstream including audio data and supplementary data (e.g., metadata and/or unrelated audio data), where at least some of the supplementary data is included as LSBs of audio segments, and/or at least some of the supplementary data is included in guard bands. Typical embodiments provide a scalable and video synchronous format compatible with real-time and file-based infrastructure components that support the SMPTE 337 format for carrying data in AES3 serial bitstreams, and/or provide a framework for extending distribution codecs to scale beyond an 8-channel limit to support multiples of 8 channels synchronously across multiple AES3 interfaces. Another aspect is an audio processing unit configured to perform any embodiment of the method or including a buffer memory storing at least one segment of an audio bitstream generated in accordance with any embodiment of the method.

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4 December 2014

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. G10L19/16
ADD. G10L19/018

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G10L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	"SPECIFICATION OF THE DIGITAL AUDIO INTERFACE (The AES/EBU interface)", 1 January 2004 (2004-01-01), XP055121867, Retrieved from the Internet: URL:https://tech.ebu.ch/docs/tech/tech3250.pdf [retrieved on 2014-06-05]	1,2,13, 24, 35-39, 41,43,47
Y	Sections 1, 2.1.2, 2.1.3, 2.2.1, 2.2.2; figure 1	4,9-12, 14,15, 21,25,30
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search 24 September 2014	Date of mailing of the international search report 02/10/2014
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Hofe, Robin

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/015596

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JOHN MAILHOT ET AL: "Issues and Pitfalls Regarding the Treatment of Pre-Compressed Audio Signals in Video Processing and Encoding Equipment", INTERNATIONAL BROADCASTING CONFERENCE 2010; 9-9-2010 - 14-9-2010; AMSTERDAM,, 9 September 2010 (2010-09-09), XP030082284, page 1 - page 5 -----	1-3,13, 24, 35-39, 41,43,47
X	US 6 188 987 B1 (FIELDER LOUIS DUNN [US]) 13 February 2001 (2001-02-13)	19,20, 22,23, 29, 31-34, 40,42, 45,46
Y	abstract column 1 - column 3 column 6 - column 14 claim 1; figure 5A -----	4,9-12, 14,15, 21,25,30

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/015596

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

1-4, 9-15, 19-25, 29-43, 45-47

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2014/015596

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6188987	B1	13-02-2001	
		AR 021278 A1	03-07-2002
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		US 6188987 B1	13-02-2001
		WO 0030361 A1	25-05-2000

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-3, 13, 24, 35-39, 41, 43, 47

How to structure or arrange audio frames that carry additional supplementary data.

2. claims: 4, 9-12, 14, 15, 19-23, 25, 29-34, 40, 42, 45, 46

How to provide an alternative or additional manner to include supplementary data into an audio data bitstream.

3. claims: 5-8, 18, 26, 44

How to use a selection of suitable supplementary data to improve the functionality of a system that employs audio encoding.

4. claims: 16, 17, 27, 28

How to prevent occurrences of reserved code values in the encoded data bitstream.
