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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM,

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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))

Published:

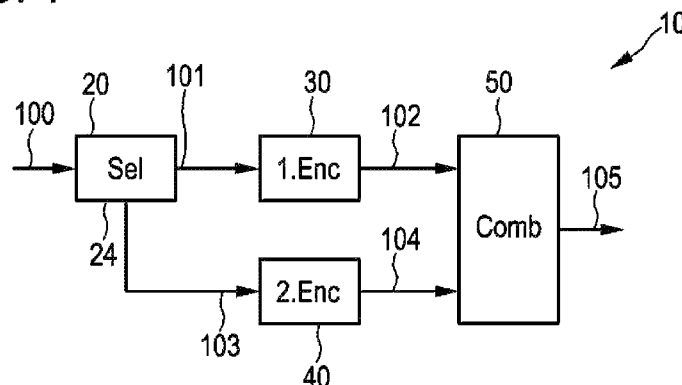
- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

- (88) **Date of publication of the international search report:**

7 September 2012

(54) **Title:** VIDEO CODING AND DECODING DEVICES AND METHODS PRESERVING PPG RELEVANT INFORMATION

FIG. 1



(57) **Abstract:** The present invention relates to a video encoding device (10, 10', 10'') and method for encoding video data and to a corresponding video decoding device (60, 60') and method. To preserve PPG relevant information after encoding without requiring a large amount of additional data for the video encoder output stream, the proposed video encoding device comprises a selection unit (20, 20') for selecting a region of interest (101) in input video data (100) providing a strong PPG signal, a first encoding unit (30, 30') for encoding said selected region of interest (101) of said input video data (100) according to a predetermined encoding scheme with a first setting of the encoding to preserve PPG-relevant information in the encoded region of interest, a second encoding unit (40, 40') for encoding remaining parts (103) of said input video data (100) according to said predetermined encoding scheme with a second setting of the encoding, and an encoder combination unit (50) for combining the encoded region of interest (102) and the encoded remaining parts (104) of said input video data into an encoder output video stream (105).



INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2011/055971

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04N7/26
ADD.

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)
H04N

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	EP 1 739 970 A1 (MATSUSHITA ELECTRIC IND CO LTD [JP]) 3 January 2007 (2007-01-03) paragraphs [0012] - [0013], [0023] - [0025]; figure 3 -----	1-6, 10-15
A	US 2010/119156 A1 (NOGUCHI YUKINORI [JP] ET AL) 13 May 2010 (2010-05-13) paragraphs [0068], [0078], [0095], [0097], [0098], [0117] - [0169] figures 11,12a -----	1-6, 10-15
A	US 2005/200757 A1 (PICA ALBERTA [US] ET AL) 15 September 2005 (2005-09-15) paragraphs [0020] - [0024] figure 1 -----	1-6, 10-15

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

10 April 2012

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10/07/2012

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2011/055971

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.:
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.:

1-6, 10-15

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-6, 10-15

Video encoding (and decoding) comprising selecting from an input video a region of interest (ROI), encoding the ROI according to a first setting of encoding parameters and encoding the remaining parts of the input video according to a second setting of encoding parameters and, finally, combining the two encodings into an encoder output video stream.

Claims 2-6 further specify how the ROI is selected (e.g., by skin colour, size of input areas, colour stability, extraction of PPG signals).

2. claims: 7-9

Video encoding (and decoding) comprising selecting from an input video a region of interest (ROI), encoding the ROI according to a first setting of encoding parameters and encoding the remaining parts of the input video according to a second setting of encoding parameters and, finally, combining the two encodings into an encoder output video stream.

Claims 7-9 further specify, regardless of what data the ROI contains or how the ROI was found, the encoding parameters of the two settings (e.g., only Intra or Intra/Inter, only chroma or luma and chroma, only encode DC coefficients or all coefficients).

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2011/055971

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1739970	A1	03-01-2007	NONE

US 2010119156	A1	13-05-2010	CN 101755460 A 23-06-2010
			EP 2179590 A1 28-04-2010
			JP 2009049979 A 05-03-2009
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			WO 2005072337 A2 11-08-2005
