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(54) Title: QUANTISATION MATRIX FOR DIFFERENT COLOUR SAMPLING FORMATS AND BLOCK SIZES

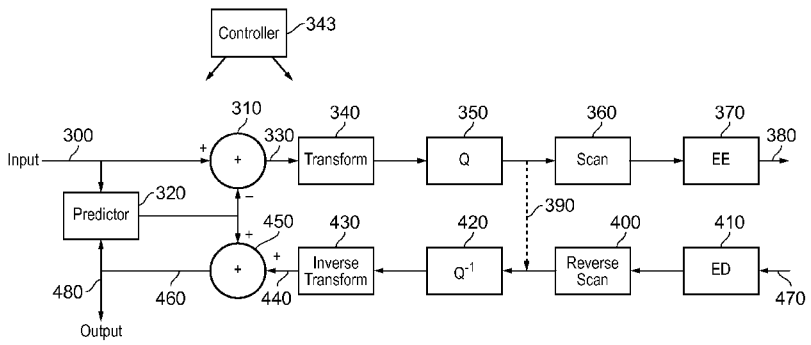


FIG. 5

(57) Abstract: A video coding or decoding method operable to generate blocks of quantised spatial frequency data by quantising the video data according to a selected quantisation step size and a matrix of data modifying the quantisation step size for use at different respective block positions within an ordered block of samples, the method being operable with respect to at least two different chrominance subsampling formats; comprises for at least one of the chrominance subsampling formats, defining one or more quantisation matrices as one or more predetermined modifications with respect to one or more reference quantisation matrices defined for a reference one of the chrominance subsampling formats.

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INTERNATIONAL SEARCH REPORT

International application No
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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, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	LU: "Quantization Weighting Proposal for PExt", 11. JVT MEETING; 68. MPEG MEETING; 15-03-2004 - 19-03-2004; MUNICH,DE; (JOINT VIDEO TEAM OF ISO/IEC JTC1/SC29/WG11 AND ITU-T SG.16),, no. JVT-K029r1, 19 March 2004 (2004-03-19) , XP030005846, ISSN: 0000-0421	1,4-10, 12, 16-20, 23-25, 28,30
Y	Sections 1-4	2,3
A		13-15, 22,27

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[X] Further documents are listed in the continuation of Box C.

[X] 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	Date of mailing of the international search report
21 October 2013	29/10/2013

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Morbee, Marleen

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Form PCT/ISA/210 (second sheet) (April 2005)

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/271288 A1 (SUZUKI TERUHIKO [JP] ET AL) 8 December 2005 (2005-12-08)	1,4-10, 12, 16-20, 23-25, 28,30
Y	paragraph [0104] - paragraph [0241]	2,3
A	paragraph [0022] - paragraph [0081]	13-15, 22,27

X	MORIGAMI Y ET AL: "CE4 subtest 3: Quantization matrix for HEVC based on JCTVC-F362 and F475", 98. MPEG MEETING; 28-11-2011 - 2-12-2011; GENEVA; (MOTION PICTURE EXPERT GROUP OR ISO/IEC JTC1/SC29/WG11),, no. m21998, 26 November 2011 (2011-11-26), XP030050561,	13-15, 17-19, 22-24, 27,28,30
Y	Section 1	2,3
A		1,4-10, 12,16, 20,25

X,P	SILCOCK P ET AL: "AHG12: Extension of HM7 to Support Additional Chroma Formats", 10. JCT-VC MEETING; 101. MPEG MEETING; 11-7-2012 - 20-7-2012; STOCKHOLM; (JOINT COLLABORATIVE TEAM ON VIDEO CODING OF ISO/IEC JTC1/SC29/WG11 AND ITU-T SG.16); URL: HTTP://WFTP3.ITU.INT/AV-ARCH/JCTVC-SITE/,, no. JCTVC-J0191, 2 July 2012 (2012-07-02), XP030112553,	1-10,12, 16-20, 23-25, 28,30
A,P	the whole document	13-15, 22,27

X	TANAKA J ET AL: "Enhancement of quantization matrix coding for HEVC", 6. JCT-VC MEETING; 97. MPEG MEETING; 14-7-2011 - 22-7-2011; TORINO; (JOINT COLLABORATIVE TEAM ON VIDEO CODING OF ISO/IEC JTC1/SC29/WG11 AND ITU-T SG.16); URL: HTTP://WFTP3.ITU.INT/AV-ARCH/JCTVC-SITE/,, no. JCTVC-F475, 11 July 2011 (2011-07-11), XP030009498,	13-15, 17-19, 22-24, 27,28,30
A	abstract Sections 1, 2	1-10,12, 16,20,25

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2013/050903

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.:

1-10, 12-20, 22-25, 27, 28, 30

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-10, 20, 25(completely); 12, 16-19, 23, 24, 28, 30(partially)

   video (de)coding method in which spatial frequency data are quantised by means of a quantisation step size and a quantisation matrix, and which is operable with respect to at least two different parameters of the video sequence, in this case in particular two different chrominance sampling formats. In order to obtain a compatible definition of the quantisation matrices throughout the different chrominance sampling formats, the quantisation matrices are defined with respect to a reference quantisation matrix of a reference chrominance subsampling format.

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2. claims: 11, 21, 26(completely); 12, 16-19, 23, 24, 29, 30(partially)

   video (de)coding method in which spatial frequency data are quantised by means of a quantisation step size and a quantisation matrix, and which is operable with respect to at least two different parameters of the video sequence, in this case in particular two different chrominance sampling formats. In order to provide a more efficient representation of the quantisation matrices, the matrix coefficients of the quantisation matrices are defined as a function of the coefficient position within the matrix.

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3. claims: 13-15, 22, 27(completely); 16-19, 23, 24, 28, 30(partially)

   video (de)coding method in which spatial frequency data are quantised by means of a quantisation step size and a quantisation matrix, and which is operable with respect to at least two different parameters of the video sequence, in this case in particular two different block sizes. In order to obtain a compatible definition of the quantisation matrices throughout the different block sizes, the quantisation matrices are defined with respect to a reference quantisation matrix that corresponds to a certain block size.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/GB2013/050903

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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		US 2011123109 A1	26-05-2011
		WO 2005009050 A1	27-01-2005