

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference SP363395WO00	FOR FURTHER ACTION		See item 4 below
International application No. PCT/JP2016/058369	International filing date (<i>day/month/year</i>) 16 March 2016 (16.03.2016)	Priority date (<i>day/month/year</i>) 24 March 2015 (24.03.2015)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant SONY CORPORATION			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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	Date of issuance of this report 26 September 2017 (26.09.2017)
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TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing (day/month/year)	14.06.2016
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Applicant's or agent's file reference SP363395W000	FOR FURTHER ACTION See paragraph 2 below
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International application No. PCT/JP2016/058369	International filing date (day/month/year) 16.03.2016	Priority date (day/month/year) 24.03.2015
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International Patent Classification (IPC) or both national classification and IPC
**H04N21/2362 (2011.01) i, H04N5/225 (2006.01) i,
H04N21/4402 (2011.01) i**

Applicant
SONY CORPORATION

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Date of completion of this opinion	Authorized officer
Facsimile No.		Telephone No.

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Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - the international application in the language in which it was filed
 - a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

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Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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1. Statement			
Novelty (N)	Claims	1-12	YES
	Claims	_____	NO
Inventive step (IS)	Claims	_____	YES
	Claims	1-12	NO
Industrial applicability (IA)	Claims	1-12	YES
	Claims	_____	NO

2. Citations and explanations:	
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Document 1: JP 2014-534719 A (DOLBY LABORATORIES LICENSING CORP.) 18 December 2014, paragraphs [0034]-[0037], [0049]-[0052], fig. 2, 3, 5 & WO 2013/059116 A1 & US 2015/0042890 A1 & EP 2769540 A & KR 10-2014-0061538 A & CN 103907343 A

Document 2: JP 2015-8361 A (SONY CORP.) 15 January 2015, paragraphs [0049]-[0054], fig. 2 & WO 2014/208346 A1 & CN 105324987 A & KR 10-2016-0023674 A

The invention as in claims 1-7 does not involve an inventive step in the light of document 1 cited in the ISR.

Regarding claims 1, 6, and 7, document 1 (paragraphs [0034]-[0037] and [0049], fig. 2, 3, and 5) discloses a video delivery system having the following features: a feature of acquiring a video stream resulting from time-division multiplexing and encoding of HDR segments and SDR segments, which are different types of video segments (a video stream resulting from the encoding of

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

transmission video data obtained by switching between a plurality of different types of transmission video data having prescribed photoelectric conversion characteristics); a feature in which selected segments of video streams are combined to generate a combined stream, encoded using MPEG-2 (a prescribed format), and delivered (a container is transmitted); a feature in which a video stream includes metadata indicating the type of video equalization to be applied to the video content of each of the segments (identification information indicating a transmission video data type); and a feature in which the metadata may be included in the header of each segment.

Further, according to paragraphs [0049]-[0052], a display system (video stream reception device) identifies SDR content and HDR content in a video stream in response to metadata identification and equalizes the SDR content and HDR content. Therefore, a person skilled in the art could easily conceive of making the position for inserting a header including the metadata for identifying SDR and HDR content in document 1 correspond to a time that is at least a prescribed amount of time before equalization switching.

Regarding claims 2-4, document 1 (paragraphs [0036], [0037], and [0049], fig. 2, 3, and 5) discloses a feature in which in the video delivery system, the code values of SDR content delivered together with HDR content are mapped to the code values within a subrange of the full range of the HDR content encoding scheme (third transmission video data) and a feature in which in a video stream source for transmitting a video stream to a display system, the video stream is a sequence of video segments including different types of video segments,

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such as a video stream in which SDR segments (first transmission video data) and HDR segments (second transmission video data) have been time-division multiplexed, and the video stream includes metadata indicating the type of video equalization to be applied to the video content of each of the segments. In document 1, when the video stream source for transmitting the video stream to the display system transmits content, it would be obvious to a person skilled in the art to use, in addition to the HDR segments and SDR segments for transmission, the segments of data of the video delivery system in which the code values of the SDR content are mapped to the code values of a given subrange of the HDR content.

Regarding claim 5, document 1 indicates that metadata indicating the type of video equalization to be applied to the video content of each of the segments is included. Therefore, in the above added use of segments of data in which the code values of the SDR content are mapped to the code values of a subrange of the HDR content in the video stream source for transmitting the video stream to the display system, a person skilled in the art could easily include, in the metadata, information about the subrange that has been mapped to (a reference level that is a reference luminance level).

The invention as in claims 8-12 does not involve an inventive step in the light of document 1 and document 2 cited in the ISR.

Regarding claims 8-12, document 1 (paragraphs [0049]-[0052], fig. 5) discloses a feature in which the display system has an HDR display to which a video stream

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is delivered from a stream source (a container of a prescribed format is received) and a feature of identifying SDR content and HDR content on the basis of metadata included in the video stream, equalizing the content by mapping the code values of SDR content (first transmission video data) to HDR encoding scheme code values and passing through unchanged HDR content (second transmission video data), and displaying the result on the HDR display (image data for display is obtained through photoelectric conversion processing based on identification information and display performance).

Further, in the above added use of segments of data in which the code values of the SDR content are mapped to the code values of a given subrange of the HDR content (third transmission video data) in the video stream source for transmitting the video stream to the display system, it can be said that the metadata includes information about whether each segment is SDR, HDR, or a mapping of SDR to HDR and the type of video equalization to be applied to the video content of each segment.

Meanwhile, document 2 (paragraphs [0049]-[0054], fig. 2) discloses a feature in which a reproduction device decodes encoded data included in a video stream (decoding processing) and generates HDR video (second transmission video data) and a feature in which if an outputting display device has an STD monitor (normal dynamic range display performance), tone mapping definition information extracted from the video stream is used to convert the HDR data obtained through decoding to STD data (dynamic range conversion), and the obtained STD data is output to a display device (photoelectric conversion using a normal dynamic range photoelectric

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conversion characteristic is carried out and image data for display is obtained).

The inventions of documents 1 and 2 share the same technical problem of transmitting and appropriately displaying HDR content data. Therefore, a person skilled in the art could easily apply, to the display system of document 1, the feature disclosed in document 2 of converting HDR data to STD data and outputting the same to an STD monitor.