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13/107,928 15 May 2011 (15.05.2011) US
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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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Declarations under Rule 4.17:

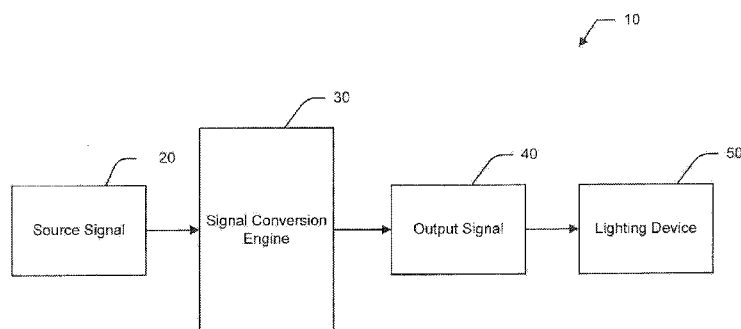
- as to the identity of the inventor (Rule 4.17(i))

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:

17 January 2013

(54) Title: SYSTEM AND METHOD FOR ADAPTING CHROMATICITY OF A LIGHTING DEVICE**FIG. 1**

(57) **Abstract:** A signal adapting chromacity system (10) that may include a signal conversion engine (30) to receive a source signal (20) designating a color of light defined by a two spatial plus luminance dimensional color space, such as the xxY color space. The signal conversion engine may convert the source signal to a three dimensional color space defined within a subset gamut of a full color gamut, such as an RGW, RBW, or GBW color space. The subset gamut may include a first color light, a second color light and a high efficacy light. The signal conversion engine may perform a conversion operation to convert the source signal to an output signal, using the output signal to drive light emitting diodes "LEDs". The conversion operation may be a matrix, angular or linear conversion operation.

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/037884

A. CLASSIFICATION OF SUBJECT MATTER

INV. G09G3/34 H05B33/08
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)

G09G H05B

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	WO 2009/121539 A1 (TRIDONICATCO SCHWEIZ AG [CH]; PEREIRA EDUARDO [CH]; ZIMMERMANN MICHAEL) 8 October 2009 (2009-10-08)	1,2,4,5, 7,8,19, 20,22, 23,25,26 3,21
Y	abstract; figures 1-3 page 1, lines 9-14 page 8, line 16 - page 18, line 12 -----	
Y	CN 101 702 421 A (JIANGSU WENRUN OPTOELECTRONIC JIANGSU WENRUN OPTOELECTRONIC CORP) 5 May 2010 (2010-05-05) paragraph [0002]; figure 1 -----	3,21

☐ 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

8 August 2012

Date of mailing of the international search report

22/11/2012

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/037884

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.:

1-5, 7, 8, 19-23, 25, 26

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

International application No

PCT/US2012/037884

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009121539 A1	08-10-2009	DE 102008016756 A1	01-10-2009
		EP 2258146 A1	08-12-2010
		WO 2009121539 A1	08-10-2009

CN 101702421 A	05-05-2010	NONE	

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-5, 7, 8, 19-23, 25, 26

A system to adapt chromaticity of a lighting device.
First and second colour lights contain a coating to convert the emission range.

2. claims: 6, 24

A system to adapt chromaticity of a lighting device.
The high efficacy light is defined by a color temperature between 2000K and 10000K.

3. claims: 9, 27

A system to adapt chromaticity of a lighting device.
The matrices of colour components that are defined as non-square matrices undergo square matrix preconditioning.

4. claims: 10-13, 28-31

A system to adapt chromaticity of a lighting device.
The conversion operation converts the source signal to the output signal by performing an angular conversion operation.

5. claims: 14-17, 32-35

A system to adapt chromaticity of a lighting device.
The conversion operation converts the source signal to the output signal by performing a linear conversion operation.

6. claims: 18, 36

A system to adapt chromaticity of a lighting device.
A color feedback signal is received to perform a color correction operation.
