



(51) International Patent Classification:

F21V 9/16 (2006.01) F21Y 101/02 (2006.01)
F21V 7/00 (2006.01) F21V 13/04 (2006.01)
F21V 7/22 (2006.01)

(21) International Application Number:

PCT/US2012/048867

(22) International Filing Date:

30 July 2012 (30.07.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/514,233 2 August 2011 (02.08.2011) US
13/560,830 27 July 2012 (27.07.2012) 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, BN, 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.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: LED-BASED ILLUMINATION MODULE WITH PREFERENTIALLY ILLUMINATED COLOR CONVERTING SURFACES

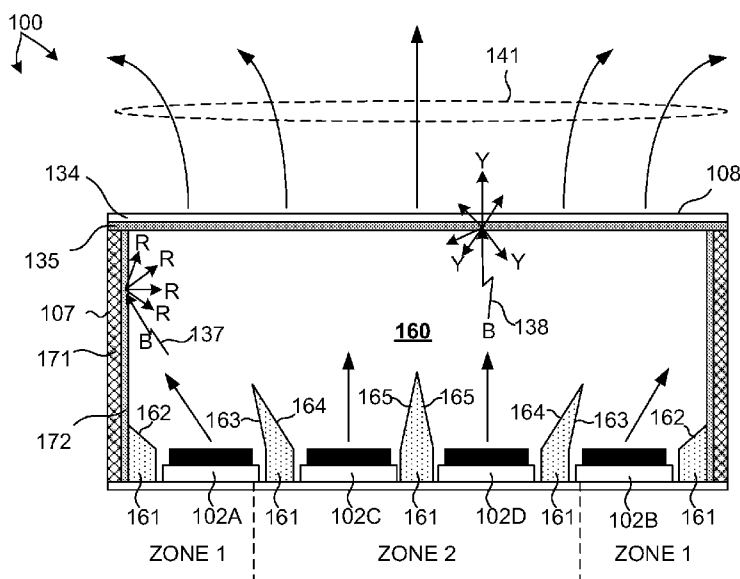


FIG. 6

(57) Abstract: An illumination module (100) includes a color conversion cavity (160) with multiple interior surfaces, such as sidewalls (107) and an output window (108). A shaped reflector (161) is disposed above a mounting board upon which are mounted LEDs (102A-102D). The shaped reflector (161) includes a first plurality of reflective surfaces (162, 163) that preferentially direct light emitted from a first LED to a first interior surface of the color conversion cavity and a second plurality of reflective surfaces (164, 165) that preferentially direct light emitted from a second LED to a second interior surface. The illumination module may further include a second color conversion cavity.





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))*
- *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:
1 August 2013

Published:

- *with international search report (Art. 21(3))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/048867

A. CLASSIFICATION OF SUBJECT MATTER
 INV. F21V9/16 F21V7/00
 ADD. F21V7/22 F21Y101/02 F21V13/04

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)
 F21V

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

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| Y | page 11, line 27 - page 16, line 12 page 25, line 15 - line 27 figures 1, 9 | 6,17 |
| Y A | ----- US 2008/310158 A1 (HARBERS GERARD [US] ET AL) 18 December 2008 (2008-12-18) paragraph [0047] figure 5 | 6,17 1,12 |
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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

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"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

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"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

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"&" document member of the same patent family

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| Date of the actual completion of the international search | Date of mailing of the international search report |
| 6 February 2013 | 27/05/2013 |

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| 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 Cosnard, Denis |
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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/048867

| C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT | | |
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| X | DE 100 44 455 A1 (OSRAM OPTO SEMICONDUCTORS GMBH [DE]) 4 April 2002 (2002-04-04) | 1 |
| A | paragraphs [0031], [0043] - [0047], [0051] figure 3 ----- | 12 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

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| International application No PCT/US2012/048867 |
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| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-22

An LED based illumination device, with at least one cavity and first and second LED mounted on mounting board and a shaped reflector comprising first and second plurality of reflective surfaces to direct light to the interior surfaces of the at least one cavity

2. claims: 23-26

An LED based illumination device, with a least one cavity and first and second LED mounted on mounting board, wherein the cavity comprises two interior surfaces each having wavelength converting material, and the first and second LED receiving first and second current respectively, the currents being selectable to achieve a range of correlated color temperature of the light output

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/048867

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.:

1-22

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.