## (19) World Intellectual Property Organization

International Bureau



# 

#### (43) International Publication Date 5 July 2007 (05.07.2007)

(51) International Patent Classification: F21V 9/00 (2006.01)

(21) International Application Number:

PCT/US2006/048654

(22) International Filing Date:

20 December 2006 (20.12.2006)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/752,555

21 December 2005 (21.12.2005) US

- (71) Applicant (for all designated States except US): LED LIGHTING FIXTURES, INC. [US/US]: 617 Davis Drive, Suite 200, Keystone Technology Park VI, Morrisville, North Carolina 27560 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): VAN DE VEN, Antony, Paul [AU/US]; 11F Hing Keng Shek, Sai Kung, NT, Hong Kong Sar (US). NEGLEY, Gerald, H [US/US]; 811 Clearview Lane, Durham, n 27713 (US).
- (74) Agents: BROWN, Kevin, C et al.; P.O. Box 7068, Syracuse, New York 13261 (US).

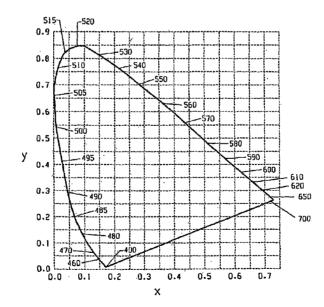
### (10) International Publication Number WO 2007/075815 A3

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, 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, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### **Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 10 April 2008

(54) Title: LIGHTING DEVICE AND LIGHTING METHOD



(57) Abstract: A lighting device comprising sources of visible light comprising solid state light emitters and/or luminescent materials emitting three or four different hues. A first group of the sources, when illuminated, emit light of two hues which, if combined, would produce illumination having coordinates within an area on a 1931 CIE Chromaticity Diagram defined by points having coordinates: 0.59, 0.24; 0.40, 0.50; 0.24, 0.53; 0.17, 0.25; and 0.30, 0.12. A second group of the sources is of an additional hue. Mixing light from the first and second groups produces illumination within ten MacAdam ellipses of the blackbody locus. Also, a lighting device comprising a white light source having a CRI of 75 or less and at least one solid state light emitters and/or luminescent material. Also, methods of lighting.



### INTERNATIONAL SEARCH REPORT

International application No.
PCT/US06/48654

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 Inte	rnational Searching Authority found multiple inventions in this international application, as follows:		
See extra 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 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.:		
Remark	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.		