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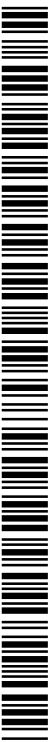
AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, 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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(54) Title: LED LIGHT SOURCE WITH DIRECT AC DRIVE

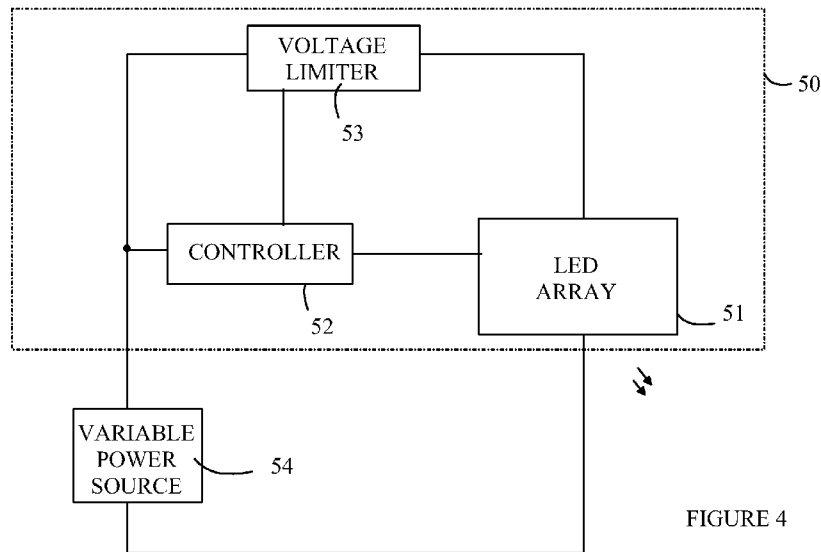


FIGURE 4

(57) Abstract: A light source and method for operating a light source are disclosed. The present invention includes a light source and method for using the same. The light source includes a power coupler, a reconfigurable two-dimensional LED array and a controller. The power coupler is configured to receive a power potential that varies as a function of time. The LED array has a plurality of configurations of LEDs, each configuration being characterized by a minimum bias potential and a maximum bias potential. The LED array generates light when a potential between first and second power terminals is greater than the minimum bias potential. The controller varies the configuration of the array such that the power potential remains between the minimum and maximum bias potentials as the power potential varies.

## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2012/021445****A. CLASSIFICATION OF SUBJECT MATTER****H05B 37/02(2006.01)i**

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)

H05B 37/02; H05B 37/00; G05F 1/00; H05B 39/00; G09G 3/36; G09G 3/10; H05B 41/36; G09G 5/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models  
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) &amp; Keywords:LED, two-dimension, bias, dimmer, rectifier

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 2008-0297067 A1 (MICHAEL WANG et al.) 04 December 2008 See abstract, Figs.2,4 and related description	1-4,6-13,15,16 5,14,17-21
Y	US 2006-0284865 A1 (FELIX TOBLER et al.) 21 December 2006 See Figs.2a, 2b and related description	5,14
Y	US 2010-0134018 A1 (NOAM TZIONY et al.) 03 June 2010 See Fig.1 and related description	17-21
A	US 2009-0187925 A1 (YUEQUAN HU et al.) 23 July 2009 See Figs.13, 14 and related description	1-21
A	US 2002-0047593 A1 (DON W. GUTHRIE et al.) 25 April 2002 See Figs.4, 5 and related description	1-21
A	US 2003-0214242 A1 (ROAR BERG-JOHANSEN) 20 November 2003 See Fig.1C and related description	1-21

 Further documents are listed in the continuation of Box C. See patent family annex.

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"&amp;" document member of the same patent family

Date of the actual completion of the international search

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008-0297067 A1	04.12.2008	US 7843150 B2 WO 2008-144961 A1	30.11.2010 04.12.2008
US 2006-0284865 A1	21.12.2006	EP 1520449 A2 EP 1520449 B1 EP 1691582 A2 EP 1691582 A3 EP 2001269 A1 EP 2262347 A1 US 2005-0218836 A1 US 2010-0213853 A1 US 7708447 B2 US 8063575 B2 US 8207689 B2 WO 2004-006629 A2 WO 2004-006629 A3	06.04.2005 20.08.2008 16.08.2006 10.10.2007 10.12.2008 15.12.2010 06.10.2005 26.08.2010 04.05.2010 22.11.2011 26.06.2012 15.01.2004 15.01.2004
US 2010-0134018 A1	03.06.2010	US 8174212 B2	08.05.2012
US 2009-0187925 A1	23.07.2009	None	
US 2002-0047593 A1	25.04.2002	AU 2001-286138 B2 AU 2001-86138 A1 AU 2002-326097 B2 AU 2002-329547 B2 CA 2423943 A1 CA 2423943 C CA 2459967 A1 CA 2459968 A1 CA 2459968 C CA 2459970 A1 CA 2459970 C EP 1323336 A2 EP 1428414 A1 EP 1430752 A2 EP 1514453 A2 EP 1713308 A2 EP 1713308 A3 EP 1713308 B1 US 2002-0047576 A1 US 2002-0047596 A1 US 2002-0047605 A1 US 2002-0047606 A1 US 6323598 B1 US 6489728 B2 US 6650064 B2 US 6653798 B2 US 6670776 B2 US 6737814 B2	22.03.2007 08.04.2002 25.09.2008 28.08.2008 04.04.2002 21.02.2012 20.03.2003 20.03.2003 06.12.2011 20.03.2003 24.01.2012 02.07.2003 16.06.2004 23.06.2004 16.03.2005 18.10.2006 14.03.2007 07.01.2009 25.04.2002 25.04.2002 25.04.2002 25.04.2002 27.11.2001 03.12.2002 18.11.2003 25.11.2003 30.12.2003 18.05.2004

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2012/021445**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		WO 02-28148 A2	04.04.2002
		WO 02-28148 A3	04.04.2002
		WO 03-024157 A2	20.03.2003
		WO 03-024157 A3	20.03.2003
		WO 03-024158 A1	20.03.2003
		WO 03-024159 A2	20.03.2003
		WO 03-024159 A3	20.03.2003
US 2003-0214242 A1	20.11.2003	AU 2003-234465 A1	02.12.2003
		US 6841947 B2	11.01.2005
		WO 03-098585 A1	27.11.2003
		WO 0309-8585A1	27.11.2003