



(51) International Patent Classification:
H01L 31/042 (2006.01)

2608 Graceland Avenue, San Carlos, California 94070 (US).

(21) International Application Number:
PCT/US2010/024822

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(22) International Filing Date:
19 February 2010 (19.02.2010)

(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, RO, RS, RU, 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.

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/154,256 20 February 2009 (20.02.2009) US
61/220,741 26 June 2009 (26.06.2009) US
12/708,505 18 February 2010 (18.02.2010) US

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(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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, 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: SOLAR MODULES INCLUDING SPECTRAL CONCENTRATORS AND RELATED MANUFACTURING METHODS

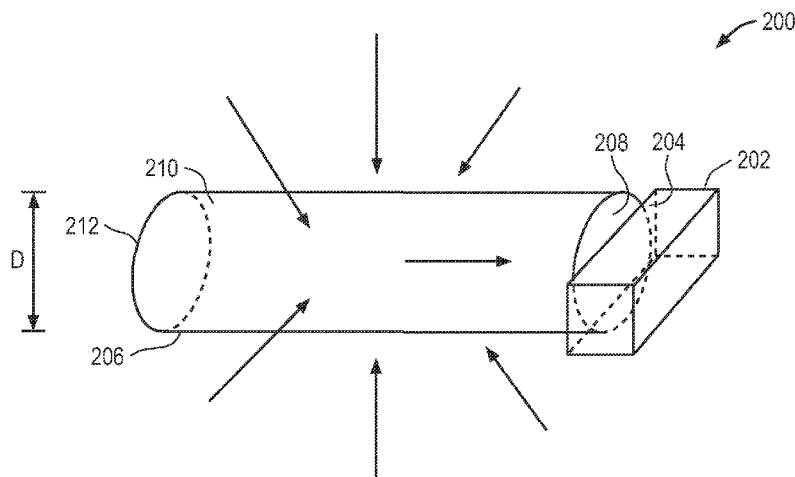


FIG. 2

(57) Abstract: Described herein are solar modules and related manufacturing methods. In one embodiment, a solar module includes: (1) a photovoltaic cell; and (2) a resonant cavity waveguide having a non-planar configuration and optically coupled to the photovoltaic cell, the resonant cavity waveguide including: (a) an outer reflector; (b) an inner reflector; and (c) an emission layer disposed between the outer reflector and the inner reflector with respect to an anti-node position within the resonant cavity waveguide, the emission layer configured to absorb incident solar radiation and emit radiation that is guided towards the photovoltaic cell, the emitted radiation including an energy band having a peak emission wavelength that is substantially matched to a bandgap energy of the photovoltaic cell.



WO 2010/096718 A3



Published:

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

(88) Date of publication of the international search report:

27 January 2011

A. CLASSIFICATION OF SUBJECT MATTER***H01L 31/042(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)

H01L 31/042; H01L 31/05; H01L 31/04; H01L 31/052; H01L 31/0232; G02F 1/35

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) & Keywords: reflector , reflective , down-conversion

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2009-002943 A2 (ULTRADOTS, INC. et al.) 31 December 2008 See claims 1-10 and figures 1-5.	1-22
A	US 2008-0223438 A1 (XIANG, XIAO-DONG et al.) 18 September 2008 See abstract and figures 1-3.	1-22
A	US 2008-0121269 A1 (WELSER, ROGER E. et al.) 29 May 2008 See abstract.	1-22



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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"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

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"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

30 SEPTEMBER 2010 (30.09.2010)

Date of mailing of the international search report

30 SEPTEMBER 2010 (30.09.2010)

Name and mailing address of the ISA/KR

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gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

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Telephone No. 82-42-481-8249



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2010/024822

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009-002943 A2	31.12.2008	EP 2160768 A2 WO 2009-002943 A3	10.03.2010 31.12.2008
US 2008-0223438 A1	18.09.2008	None	
US 2008-0121269 A1	29.05.2008	None	