



- (51) **International Patent Classification:**
G02F 1/13357 (2006.01) G02F 1/1333 (2006.01)
- (21) **International Application Number:**
PCT/KR2012/002022
- (22) **International Filing Date:**
21 March 2012 (21.03.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
10-2011-0025530 22 March 2011 (22.03.2011) KR
- (71) **Applicant (for all designated States except US):** LG IN-
NOTEK CO., LTD. [KR/KR]; Seoul Square, 541, Nam-
daemunno 5-ga, Jung-gu, Seoul 100-714 (KR).
- (72) **Inventor; and**
- (75) **Inventor/Applicant (for US only):** PARK, Seung Ryong
[KR/KR]; Seoul Square, 541, Namdaemunno 5-ga, Jung-
gu, Seoul 100-714 (KR).
- (74) **Agent:** SEO, Kyo Jun; 9th Fl. Hyun Juk Bldg., 832-
41, Yeoksam-dong, Gangnam-gu, Seoul 135-080 (KR).
- (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, 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, MD, 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).

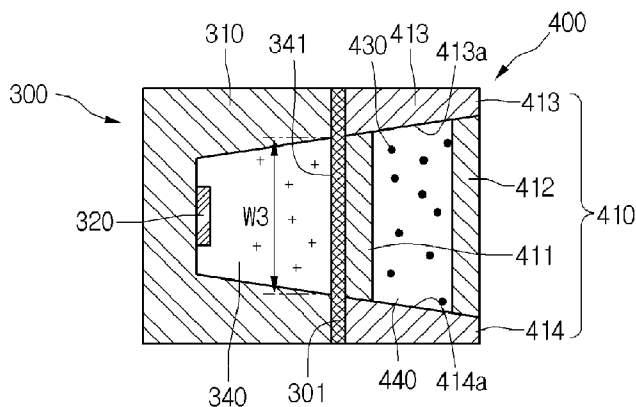
Published:

- 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:**
3 January 2013

(54) **Title:** LIGHT CONVERSION MEMBER AND DISPLAY DEVICE HAVING THE SAME

[Fig. 4]



(57) **Abstract:** Disclosed are a light conversion member and a display device having the same. The display device includes a light source, and a light conversion member adjacent to the light source. The light conversion member includes a plurality of light conversion particles to convert a wavelength of a light emitted from the light source, and a sealing member to receive the light conversion particles. The sealing member includes an incident part facing an exit surface of the light source, an exit part facing the incident part while the light conversion particles are interposed between the exit part and the incident part, and a reflection part connected to the incident part and the exit part.



A. CLASSIFICATION OF SUBJECT MATTER**G02F 1/13357(2006.01)i, G02F 1/1333(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)

G02F 1/13357; H01L 33/56; H01L 33/00; H01L 33/04; H01L 33/48; H01L 33/50

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: light conversion, LED, display

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	KR 10-2010-0046698 A (SAMSUNG ELECTRONICS) 07 May 2010 See abstract, figures 1,3,4, pages 3-5.	1,9,10,17-19 2-4,7,8,11,12 ,14-16 5,6
X Y	KR 10-2009-0082497 A (RENSELAER POLYTECHNIC INSTITUTE) 30 July 2009 See abstract, figures 2-5, pages 6-8.	13 11,12,14-16
Y	JP 2009-200534 A (STANLEY ELECTRIC CO LTD) 03 September 2009 See abstract, figures 3,4, pages 3,4.	2-4,7,8
Y	JP 2011-035187 A (NICHIA CORP) 17 February 2011 See abstract, figures 3A,3B,3C,3D, page 7.	8

 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 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

30 OCTOBER 2012 (30.10.2012)

Date of mailing of the international search report

31 OCTOBER 2012 (31.10.2012)

Name and mailing address of the ISA/KR

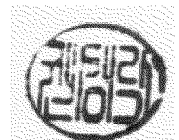
Korean Intellectual Property Office
189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan
City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

Kwon, Sung Lark

Telephone No. 82-42-481-5646



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2012/002022

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
KR 10-2010-0046698 A	07.05.2010	US 2010-0103648 A1 US 7819539 B2	29.04.2010 26.10.2010
KR 10-2009-0082497 A	30.07.2009	CA 2669663 A1 CN 101611500 A EP 2126988 A1 JP 2010-510654 A US 2008-0117500 A1 US 2011-0102883 A1 US 2011-0102884 A1 US 7889421 B2 US 8031393 B2 US 8164825 B2 WO 2008-060335 A1	22.05.2008 23.12.2009 02.12.2009 02.04.2010 22.05.2008 05.05.2011 05.05.2011 15.02.2011 04.10.2011 24.04.2012 22.05.2008
JP 2009-200534 A	03.09.2009	None	
JP 2011-035187 A	17.02.2011	JP 2011-035040 A US 2011-0024786 A1 US 8080436 B2	17.02.2011 03.02.2011 20.12.2011