

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2018/007838

A. CLASSIFICATION OF SUBJECT MATTER

F21S 2/00(2006.01)i, G02B 19/00(2006.01)i, F21V 19/00(2006.01)i, F21K 9/60(2016.01)i, F21Y 115/10(2016.01)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)

F21S 2/00; F21K 99/00; F21V 13/04; F21V 5/04; G02B 17/00; H01L 33/48; H01L 33/58

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: IPC as above

Japanese Utility models and applications for Utility models: IPC as above

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

eKOMPASS (KIPO internal) & Keywords: recess, circuit board, optical lens, absorbing layer, exit surface, light emitting device, protrusion part

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2016-0138680 A (LG INNOTEK CO., LTD.) 06 December 2016 See paragraphs [0022]-[0023], [0046]-[0051], [0076]-[0078], [0091], [0112], [0141]; claims 3, 8; and figures 1, 8, 16.	1-10
Y	KR 10-2015-0049669 A (LG INNOTEK CO., LTD.) 08 May 2015 See paragraphs [0072], [0075], [0088]; and figures 7-8.	1-10
A	US 2010-0302785 A1 (ZHOU, Huijun) 02 December 2010 See paragraphs [0015]-[0019]; and figures 1-4.	1-10
A	US 2010-0195335 A1 (ALLEN, Steven C. et al.) 05 August 2010 See paragraphs [0025]-[0027]; and figures 7-8.	1-10
A	KR 10-2014-0145404 A (LG INNOTEK CO., LTD.) 23 December 2014 See paragraphs [0018]-[0055]; and figures 1-4.	1-10



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 another 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

15 OCTOBER 2018 (15.10.2018)

Date of mailing of the international search report

21 November 2018 (21.11.2018)

Name and mailing address of the ISA/KR

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2018/007838

Patent document cited in search report	Publication date	Patent family member	Publication date
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		EP 3043199 A1	13/07/2016
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		TW 201629393 A	16/08/2016
		US 2016-0201875 A1	14/07/2016
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		CN 101900290 B	22/02/2012
		EP 2438478 A1	11/04/2012
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