

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2019/008638

A. CLASSIFICATION OF SUBJECT MATTER

C07D 403/04(2006.01)i, C07D 495/04(2006.01)i, C07D 491/048(2006.01)i, C09K 11/06(2006.01)i, H01L 51/00(2006.01)i, H01L 51/50(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)

C07D 403/04; C07D 209/56; C07D 401/04; C07D 487/04; C07D 491/048; C09K 11/06; C07D 495/04; H01L 51/00; H01L 51/50

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: 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: organic light emitting diode, heterocyclic compound, light emitting layer, host, electrode

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-2017-0057850 A (LG CHEM, LTD.) 25 May 2017 See claims 1, 2, 7-9, 14; and paragraphs [0015], [0232].	1-7
X	KR 10-2018-0071880 A (DOOSAN CORPORATION) 28 June 2018 See claims 1, 14-16; and paragraph [0069].	1-7
X	KR 10-2018-0063651 A (SAMSUNG SDI CO., LTD. et al.) 12 June 2018 See claims 1, 6, 12-15.	1-7
X	KR 10-2018-0032021 A (SAMSUNG SDI CO., LTD. et al.) 29 March 2018 See claims 1, 6, 13-15.	1-7
X	KR 10-2017-0077806 A (SFC CO., LTD.) 06 July 2017 See claims 1, 7-10.	1-7



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

18 OCTOBER 2019 (18.10.2019)

Date of mailing of the international search report

18 OCTOBER 2019 (18.10.2019)

Name and mailing address of the ISA/KR

 Korean Intellectual Property Office
Government Complex Daejeon Building 4, 189, Cheongsa-ro, Seo-gu,
Daejeon, 35208, Republic of Korea

Facsimile No. +82-42-481-8578

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2019/008638

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 10-2017-0057850 A	25/05/2017	KR 10-2020529 B1	11/09/2019
KR 10-2018-0071880 A	28/06/2018	None	
KR 10-2018-0063651 A	12/06/2018	CN 108148047 A US 2018-0155325 A1	12/06/2018 07/06/2018
KR 10-2018-0032021 A	29/03/2018	CN 107857772 A KR 10-2018238 B1 US 10096784 B2 US 2018-0083202 A1	30/03/2018 04/09/2019 09/10/2018 22/03/2018
KR 10-2017-0077806 A	06/07/2017	None	