



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.

(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:

21 March 2013

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/026396

A. CLASSIFICATION OF SUBJECT MATTER
 INV. C07F15/00 C09K11/00 H01L51/00 H05B33/00
 ADD.

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)
 C07F C09K H01L H05B

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 EPO-Internal, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE CA [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; 2009, TAKEDA, REI ET AL: "Organic electroluminescent device", XP002674739, retrieved from STN Database accession no. 2009:1402120 1196444-71-9/RN, 1196444-72-0/RN, 1196444-73-1/RN -/--	1,2,14, 15,17,19

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
---	---

Date of the actual completion of the international search 7 May 2012	Date of mailing of the international search report 07/02/2013
---	--

Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Richter, Herbert
--	--

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/026396

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	-& JP 2009 267244 A (FUJIFILM CORPORATION, JAPAN) 12 November 2009 (2009-11-12) page 55; compounds 2-1, 2-2, 2-3 page 51 - page 54 -----	1,2,14, 15,17, 19-21, 33,34, 36, 38-40, 43-46
A	WO 2010/118026 A2 (UNIV ARIZONA [US]; LI JIAN [US]; WANG ZIXING [US]; TURNER ERIC [US]) 14 October 2010 (2010-10-14) paragraph [0076] - paragraph [0093]; claims 1-7,15-22; example 2 -----	1,2, 5-15, 17-21, 24-34, 36-47
A	EP 2 031 037 A1 (FUJIFILM CORP [JP]) 4 March 2009 (2009-03-04) page 49 -----	5-7, 9-11, 24-26, 28-30

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/026396

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
2, 15, 19, 21, 34(completely); 1, 5-14, 17, 18, 20, 24-33, 36-47(partially)

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 2, 15, 19, 21, 34(completely); 1, 5-14, 17, 18, 20, 24-33, 36-47(partially)

Compounds of formula I in which Y is absent. A first device comprising this compound

2. claims: 3, 16, 22, 35(completely); 1, 5-14, 17, 18, 20, 24-33, 36-47(partially)

Compounds of formula I in which X is absent. A first device comprising this compound

3. claims: 4, 23(completely); 1, 5-14, 17, 18, 20, 24-33, 36-47(partially)

Compounds of formula I in which both X and Y are present. A first device comprising this compound

4. claims: 48-77

Compounds of formula I' and a first device comprising this compound

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/026396

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2009267244	A	12-11-2009	NONE

WO 2010118026	A2	14-10-2010	CN 102449108 A 09-05-2012
			EP 2417217 A2 15-02-2012
			JP 2012522843 A 27-09-2012
			KR 20120015303 A 21-02-2012
			US 2012095232 A1 19-04-2012
			WO 2010118026 A2 14-10-2010

EP 2031037	A1	04-03-2009	EP 2031037 A1 04-03-2009
			JP 2009076865 A 09-04-2009
			KR 20090023298 A 04-03-2009
			US 2009058279 A1 05-03-2009
