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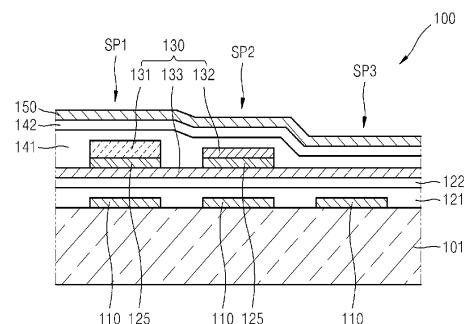
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(54) **Organic light-emitting display apparatus**

(57) An organic light-emitting display apparatus is disclosed. The organic light-emitting display apparatus includes a first sub-pixel (SP1), a second sub-pixel (SP2), and a third sub-pixel (SP3), where each of said first, second and third sub-pixels displays a different colour, a substrate, a first electrode (110) disposed on the substrate, a second electrode (150) disposed on the first electrode (110), facing the first electrode, an organic emission layer disposed between the first electrode and the second electrode, including a first organic emission layer (131), a second organic emission layer (132), and a third organic emission layer (133), and an electron acceptor layer (125) disposed between the first electrode and the second electrode configured to contact the organic emission layer, where the first organic emission layer (131) is disposed in the first sub-pixel (SP1), the second organic emission layer (132) is disposed in the second sub-pixel (SP2), and the third organic emission layer (133) is commonly disposed over the first sub-pixel (SP1), the second sub-pixel (SP2), and the third sub-

pixel (SP3), and where the electron acceptor layer (125) is disposed between the first organic emission layer (131) and the third organic emission layer (133) in the first sub-pixel (SP1) and between the second organic emission layer (132) and the third organic emission layer (133) in the second sub-pixel (SP2).

FIG. 1



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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2009/242911 A1 (ISHIHARA SHINGO [JP] ET AL) 1 October 2009 (2009-10-01)	1-4, 6-10, 12-15	INV. H01L27/32 H01L51/50
Y	* paragraphs [0207] - [0218]; figures 11-12 *	5,11	
Y	US 2009/191427 A1 (LIAO LIANG-SHENG [US] ET AL) 30 July 2009 (2009-07-30) * paragraphs [0334] - [0361] *	5,11	
Y	US 2009/079342 A1 (KUMAKI DAISUKE [JP] ET AL) 26 March 2009 (2009-03-26) * paragraph [0097] *	5,11	
Y	US 2006/226770 A1 (LEE JUN-YEOB [KR] ET AL) 12 October 2006 (2006-10-12) * paragraph [0031] *	5,11	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			H01L
Place of search		Date of completion of the search	Examiner
The Hague		18 November 2011	Persat, Nathalie
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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18-11-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2009242911 A1	01-10-2009	CN 101552283 A	07-10-2009
		JP 4734368 B2	27-07-2011
		JP 2009245747 A	22-10-2009
		US 2009242911 A1	01-10-2009

US 2009191427 A1	30-07-2009	CN 101978528 A	16-02-2011
		EP 2243177 A1	27-10-2010
		JP 2011511458 A	07-04-2011
		KR 20100138899 A	31-12-2010
		TW 200940512 A	01-10-2009
		US 2009191427 A1	30-07-2009
		WO 2009097108 A1	06-08-2009

US 2009079342 A1	26-03-2009	CN 1735298 A	15-02-2006
		CN 101562236 A	21-10-2009
		EP 1624502 A2	08-02-2006
		JP 2011014939 A	20-01-2011
		KR 20060049289 A	18-05-2006
		TW 200947774 A	16-11-2009
		US 2006027830 A1	09-02-2006
		US 2009079342 A1	26-03-2009
		US 2011241007 A1	06-10-2011

US 2006226770 A1	12-10-2006	CN 1855576 A	01-11-2006
		JP 2006295163 A	26-10-2006
		KR 20060108332 A	17-10-2006
		US 2006226770 A1	12-10-2006

专利名称(译)	有机发光显示装置		
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其他公开文献	EP2372770A2		
外部链接	Espacenet		

摘要(译)

公开了一种有机发光显示装置。有机发光显示装置包括第一子像素 (SP1)，第二子像素 (SP2) 和第三子像素 (SP3)，其中所述第一，第二和第三子像素中的每一个显示不同颜色，基板，设置在基板上的第一电极 (110)，设置在第一电极 (110) 上，面向第一电极的第二电极 (150)，设置在第一电极和第二电极之间的有机发光层包括第一有机发光层 (131)，第二有机发光层 (132) 和第三有机发光层 (133)，以及设置在第一电极和第二电极之间的电子受体层 (125)，其被配置为接触有机发光层，其中第一有机发光层 (131) 设置在第一子像素 (SP1) 中，第二有机发光层 (132) 设置在第二子像素 (SP2) 中，第三有机发光层 (133) 通常设置在第一子像素上 (SP1)，第二子像素 (SP2) 和第三子像素 (SP3)，并且电子受体层 (125) 设置在第一有机发光层 (131) 和第三有机发光层 (133) 之间在第一子像素 (SP1) 中以及第二子像素 (SP2) 中的第二有机发光层 (132) 和第三有机发光层 (133) 之间。

FIG. 1

