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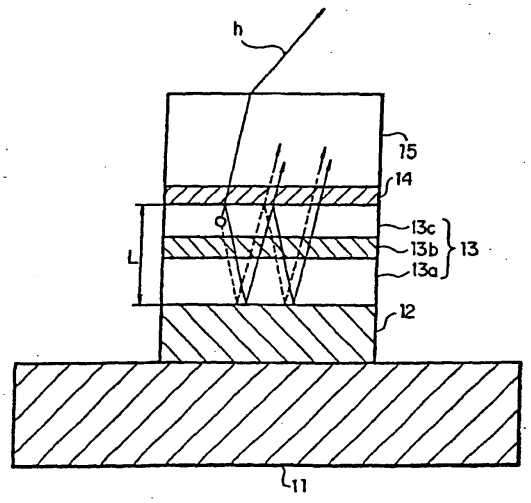
(54) Display device

(57) In an organic EL device having a first electrode (12) of a light reflective material, organic layer (13) including an organic light emitting layer (13c), semitransparent reflection layer (14), and second electrode (15) of a transparent material that are stacked sequentially, and so configured that the organic layer functions as a cavity portion of a cavity structure, light that resonates in a certain spectral width (wavelength λ) is extracted by so configuring that optical path length L becomes minimum in a range satisfying $(2L)/\lambda + \Phi(2\pi) = m$ (m is an integer) where the phase shift produced in light generated in the organic light emitting layer when reflected by opposite ends of the cavity portion is Φ radians, L is optical path length of the cavity portion, and λ is the peak wavelength of the spectrum of part of light to be extracted.

Fig. 4



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PARTIAL EUROPEAN SEARCH REPORT

under Rule 62a and/or 63 of the European Patent Convention. This report shall be considered, for the purposes of subsequent proceedings, as the European search report

Application Number
EP 09 01 2630

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	US 5 920 080 A (JONES GARY W [US]) 6 July 1999 (1999-07-06) * column 6, lines 1-36; figure 4 * * column 8, lines 23-28 * * column 9, lines 20-21 * * column 11, lines 10-12 * -----	1,2	INV. H01L51/52 H05B33/12 H05B33/24 H05B33/14 H01L33/00 G02B5/28
Y	US 5 674 636 A (DODABALAPUR ANANTH [US] ET AL) 7 October 1997 (1997-10-07) * column 1, lines 63-67 * * column 6, lines 28-32; figure 7 * * column 6, lines 57-56 * -----	1,2	
A	EP 0 653 902 A1 (HITACHI LTD [JP]) 17 May 1995 (1995-05-17) * column 11, lines 20-49; figures 18,19 * ----- -/--	1,2	

TECHNICAL FIELDS SEARCHED (IPC)

H01L

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

Place of search	Date of completion of the search	Examiner
Munich	1 October 2012	Beierlein, Udo

CATEGORY OF CITED DOCUMENTS

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

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

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PARTIAL EUROPEAN SEARCH REPORT

Application Number
EP 09 01 2630

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	DODABALAPUR A ET AL: "COLOR VARIATION WITH ELECTROLUMINESCENT ORGANIC SEMICONDUCTORS IN MULTIMODE RESONANT CAVITIES", APPLIED PHYSICS LETTERS, AIP, AMERICAN INSTITUTE OF PHYSICS, MELVILLE, NY, US, vol. 65, no. 18, 31 October 1994 (1994-10-31), pages 2308-2310, XP000476525, ISSN: 0003-6951, DOI: 10.1063/1.112726 * page 2310, column 1, lines 2-5; figure 1 * -----	1,2	TECHNICAL FIELDS SEARCHED (IPC)

EPO FORM 1503 03.82 (P04C10) 2

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INCOMPLETE SEARCH
SHEET C

Application Number
EP 09 01 2630

Claim(s) completely searchable:
1, 2

Claim(s) not searched:
3-10

Reason for the limitation of the search:

The present application contains 10 claims, of which 5 are independent. There is no clear distinction between the independent claims because of overlapping scope. There are so many claims and they are drafted in such a way that the claims as a whole do not comply with the provisions of clarity and conciseness in Article 84 EPC, as it is particularly burdensome for a skilled person to establish the subject-matter for which protection is sought. Non-compliance with the substantive provisions is such that a meaningful search of the whole claimed subject-matter could not be carried out (Rule 63 EPC and Guidelines B-VIII, 3).
Thus, pursuant to Rule 63(2) EPC, the search report has been drawn up on the basis of claims 1 and 2, which appears to comprise a reasonable definition of what is understood to be the invention for which protection is sought.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 09 01 2630

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

01-10-2012

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

专利名称(译)	显示设备		
公开(公告)号	EP2169738A3	公开(公告)日	2012-11-07
申请号	EP2009012630	申请日	2000-11-22
[标]申请(专利权)人(译)	索尼公司		
申请(专利权)人(译)	索尼公司		
当前申请(专利权)人(译)	索尼公司		
[标]发明人	YAMADA JIRO SASAOKA TATSUYA HIRANO TAKASHI		
发明人	YAMADA, JIRO SASAOKA, TATSUYA HIRANO, TAKASHI		
IPC分类号	H01L51/52 H05B33/12 H05B33/24 H05B33/14 H01L33/00 G02B5/28 H01L27/32 H01L33/10 H01L33/26 H01L33/42 H01L33/44		
CPC分类号	H01L27/322 H01L51/5265 H01L2251/5315 H05B33/22 Y10S428/917		
优先权	1999330805 1999-11-22 JP 2000251996 2000-08-23 JP		
其他公开文献	EP2169738A2		
外部链接	Espacenet		

摘要(译)

在具有光反射材料的第一电极的有机EL器件中，有机层包括依次堆叠的有机发光层，半透明反射层和透明材料的第二电极，并且配置成使得有机层用作腔结构的空腔部分，通过如此配置使得光路长度L在满足（2L）/λ+Φ（2π）= m（m）的范围内变得最小，从而提取在一定光谱宽度（波长X）中谐振的光。当由空腔部分的相对端反射时在有机发光层中产生的光产生的相移是Φ弧度，L是空腔部分的光路长度，并且λ是光谱的峰值波长。要提取的光的一部分。

Fig. 4