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(71) Applicants:
- **Samsung Mobile Display Co., Ltd.**
  Giheung-Gu
  Yongin-City
  Gyunggi-Do (KR)
- **IUCF-HYU (Industry-University Cooperation Foundation Hanyang University)**
  Seongdong-gu, Seoul (KR)

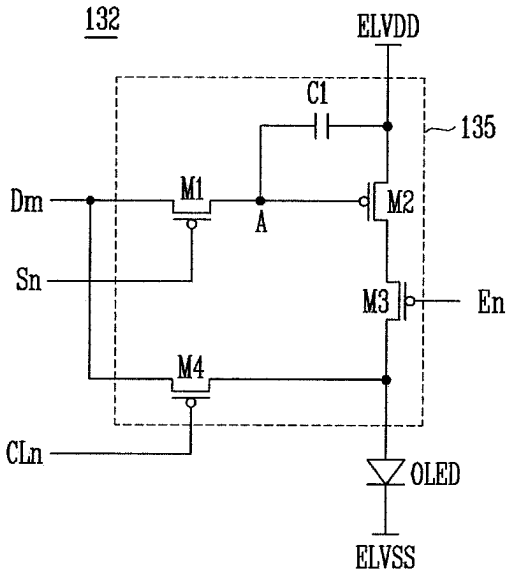
(72) Inventor: **Kwon, Oh-Kyong**
Seoul (KR)

(74) Representative: **Walaski, Jan Filip et al**
Venner Shipley LLP
20 Little Britain
London
EC1A 7DH (GB)

(54) Organic light emitting display and driving method thereof

(57) An organic light emitting display includes a pixel unit including a plurality of pixels arranged at intersecting points of data lines, scan lines and light emitting control lines; a temperature sensor provided to measure a temperature of the pixel unit; a first analog/digital converter (first ADC) to convert information of the temperature measured in the temperature sensor into a first digital value; a controller to receive the first digital value outputted from the first ADC and outputting a control signal corresponding to the received first digital value; a sensing unit to extract a degradation level of an organic light emitting diode included in each of the pixels; a second analog/digital converter (second ADC) to receive information of the degradation of the organic light emitting diode extracted from the sensing unit and a control signal outputted from the controller and generating a second digital value corresponding to the information of the degradation of the organic light emitting diode that is varied according to the temperature; a conversion unit to convert an input data (Data) into a correction data (Data') so as to display an image having uniform luminance regardless of the changes in the degradation level of the organic light emitting diode according to temperature, by using the second digital value outputted from the second ADC; a data driver to receive the correction data (Data') outputted from the conversion unit and generating data signals to be supplied to the pixels.

FIG. 3



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EUROPEAN SEARCH REPORT

Application Number
EP 09 15 0725

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 2005/030267 A1 (TANGHE GINO [BE] ET AL) 10 February 2005 (2005-02-10) * paragraph [0010] - paragraph [0014] * * paragraph [0020] - paragraph [0022] * * paragraphs [0051], [0052], [0056] * -----	1,2,14, 15	INV. G09G3/32
A	Analog Devices: "AD7416 10-bit Digital Temperature Sensor"[Online] 26 August 2004 (2004-08-26), XP002601746 Retrieved from the Internet: URL:http://www.chipcatalog.com/Analog/AD7416.htm> [retrieved on 2010-09-22] * the whole document * -----	1-5,14, 15	

TECHNICAL FIELDS SEARCHED (IPC)

G09G

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
Munich	28 September 2010	Fulcheri, Alessandro

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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EPO FORM 1503 03.82 (P04C01)

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Application Number
EP 09 15 0725

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-5, 14, 15

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 09 15 0725

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-5, 14, 15

OLED display device
A second ADC comprises a (j*k) bit resistor string, a (j*k) bit switch array to select some region from the resistor string through the control signal supplied from the controller and to provide information on a predetermined reference voltage corresponding to the temperature measured in the temperature sensor, a comparator to receive information on the reference voltage outputted by the switch array and information on the degradation level of the organic light emitting diode outputted from the sensing circuit provided in each of the channels of the sensing unit, and to compare capacities of the received information to output a predetermined digital bit value and a j bit register to sequentially store a bit value outputted from the comparator.

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2. claim: 6

OLED display device.
The conversion unit comprises a look-up table (LUT) addressed by a signal outputted from the second ADC to generate a certain corrected value and a frame memory to store the corrected value generated in the look-up table.

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3. claims: 7-13

OLED display device.
The data driver includes a shift register unit, a sampling latch unit, a holding latch unit, a digital/analog converting (DAC) unit and a buffer unit.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 09 15 0725

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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28-09-2010

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005030267 A1	10-02-2005	NONE	

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)	有机发光显示器及其驱动方法		
公开(公告)号	EP2081175A3	公开(公告)日	2011-04-06
申请号	EP2009150725	申请日	2009-01-16
[标]申请(专利权)人(译)	三星显示有限公司 汉阳大学校产学协力团		
申请(专利权)人(译)	三星移动显示器有限公司. IUCF-HYU（产学合作基金会汉阳大学）		
当前申请(专利权)人(译)	三星移动显示器有限公司. IUCF-HYU（产学合作基金会汉阳大学）		
[标]发明人	KWON OH KYONG		
发明人	KWON, OH-KYONG		
IPC分类号	G09G3/32		
CPC分类号	G09G3/3233 G09G3/3283 G09G2300/0819 G09G2300/0861 G09G2320/0233 G09G2320/0295 G09G2320/041 G09G2320/043 G09G2320/045		
优先权	1020080005616 2008-01-18 KR		
其他公开文献	EP2081175B1 EP2081175A2		
外部链接	Espacenet		

摘要(译)

有机发光显示器包括像素单元，该像素单元包括布置在数据线，扫描线和发光控制线的交叉点处的多个像素;提供温度传感器以测量像素单元的温度;第一模拟/数字转换器（第一ADC），用于将温度传感器中测量的温度信息转换为第一数字值;控制器，用于接收从第一ADC输出的第一数字值，并输出与接收到的第一数字值对应的控制信号;感测单元，用于提取包括在每个像素中的有机发光二极管的劣化水平;第二个模拟/数字转换器（第二个ADC），用于接收信息从感测单元提取的有机发光二极管的劣化和从控制器输出的控制信号，并产生与根据温度变化的有机发光二极管的劣化信息对应的第二数字值;转换单元，用于将输入数据（Data）转换为校正数据（Data'），以便通过使用第二个来显示具有均匀亮度的图像，而不管有机发光二极管根据温度的劣化程度的变化。从第二ADC输出的数字值;数据驱动器，用于接收从转换单元输出的校正数据（Data'），并产生要提供给的数据信号像素。

FIG. 3