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(71) Applicant: **SAMSUNG ELECTRONICS CO., LTD.**
Suwon-city,
Kyungki-do (KR)

(72) Inventors:
• **Lee, Seung-Woo,**
Doksan Hyundai Apt. 102-1008
Seoul (KR)
• **Yu Yun-ju,**
Cheonrok Villa 1-139
Seoul (KR)

- **Park, Doo-Sik,**
Hwanggolmaeul Jookong Apt. 135-1401
Suwon-city
Kyungki-do (KR)
- **Kim, Jong-Seon,**
Dongbu Apt. 102-301
Pyeongtaek-city
Kyungki-do (KR)
- **Choh, Heui-Keun**
Seoul (KR)
- **Kim, Chang-Yeong,**
Jinsanmaeul Samsung 5-cha
Yongin-city
Kyungki-do (KR)

(74) Representative: **Modiano, Micaela Nadia**
Modiano Josif Pisanty & Staub Ltd
Thierschstrasse 11
80538 München (DE)

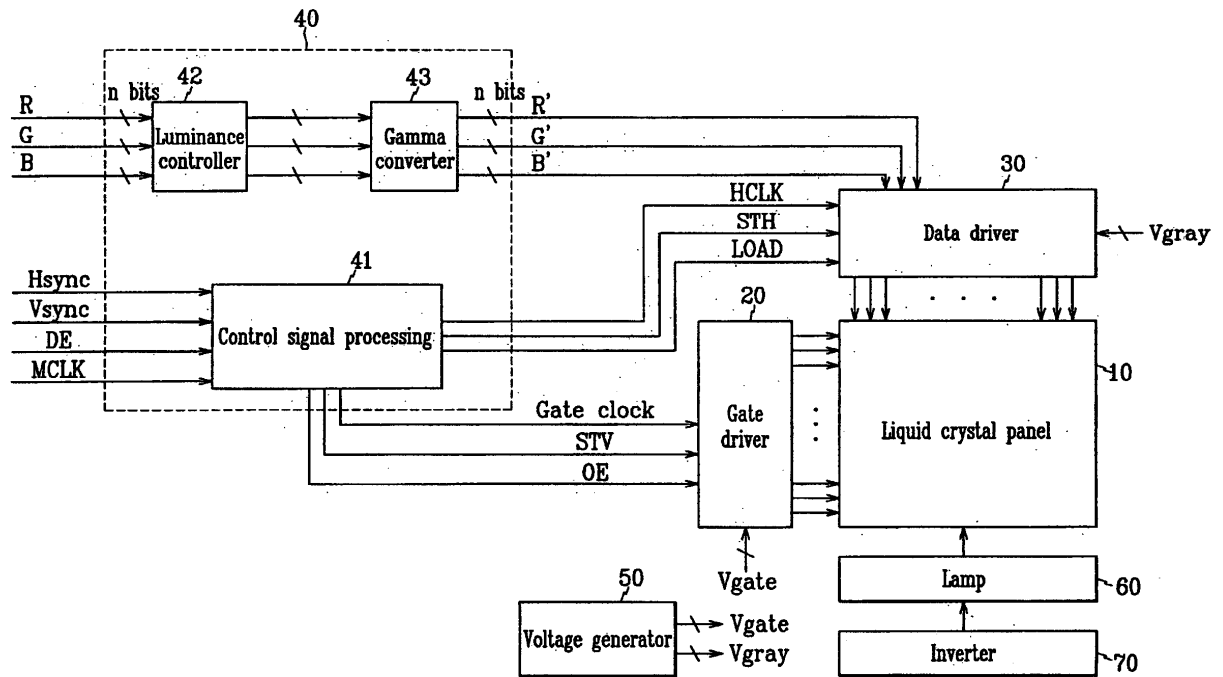
(54) **Liquid crystal display and driving method thereof**

(57) A liquid crystal display includes a signal controller having a luminance controller receiving image data from an external graphic source and controlling the luminance of the image data such that the luminance at the gray expressed by a specific data value of the image data is established to be 80cd/m², and a gamma converter outputting image data each having a gamma characteristic adapted to the gamma 2.2 curve. The liquid crystal display further includes a data driver receiving the image data from the signal controller and selecting and outputting gray voltages corresponding to the image data, and an inverter controlling a lamp such that the lamp emits

light with a luminance of 80cd/m² or more. With the liquid crystal display, the luminance of a backlight is determined to be a specific value larger than 80cd/m², and the luminance of the input image data is controlled such that the luminance of the image data at the specific data value is established to be 80cd/m². Furthermore, the gamma characteristic of the image data RGB is converted to be adapted to the gamma 2.2 curve required for the sRGB color space. In this way, the sRGB mode is realized with the liquid crystal display.

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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 2002/130830 A1 (PARK CHEOL-WOO [KR]) 19 September 2002 (2002-09-19) * paragraphs [0009], [0023] - [0027], [0039] - [0053], [0081], [0082]; figures 1,6 *	1,2,4-9	INV. G09G3/36
X	US 2002/154088 A1 (NISHIMURA MITSUHIKA [JP]) 24 October 2002 (2002-10-24) * paragraphs [0115], [0122] - [0126], [0134], [0159], [0176]; figure 1 *	1,3,8-10	
X	US 2001/055007 A1 (MIURA SEISHI [JP] ET AL) 27 December 2001 (2001-12-27) * paragraphs [0030] - [0034]; figure 1 *	1,9	
A	GAURAV SHARMA: "LCDs Versus CRTs-Color-Calibration and Gamut Considerations" PROCEEDINGS OF THE IEEE, IEEE. NEW YORK, US, vol. 90, no. 4, April 2002 (2002-04), XP011064994 ISSN: 0018-9219 * page 608, column 1 *	1-12	TECHNICAL FIELDS SEARCHED (IPC) G09G
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 8 March 2007	Examiner Kunze, Holger
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
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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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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2002130830	A1	19-09-2002	CN 1375814 A	23-10-2002
			KR 20020073353 A	26-09-2002
			TW 527497 B	11-04-2003

US 2002154088	A1	24-10-2002	EP 1255241 A1	06-11-2002
			JP 2002323876 A	08-11-2002
			KR 20020082790 A	31-10-2002
			TW 582002 B	01-04-2004

US 2001055007	A1	27-12-2001	JP 2001290174 A	19-10-2001
			KR 20020005398 A	17-01-2002

专利名称(译)	液晶显示器及其驱动方法		
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[标]申请(专利权)人(译)	三星电子株式会社		
申请(专利权)人(译)	SAMSUNG ELECTRONICS CO. , LTD.		
当前申请(专利权)人(译)	三星DISPLAY CO. , LTD.		
[标]发明人	CHOH HEUI KEUN		
发明人	LEE, SEUNG-WOO, DOKSAN HYUNDAI APT. 102-1008 YU YUN-JU, CHEONROK VILLA 1-139 PARK, DOO-SIK, HWANGGOLMAEUL JOOKONG APT. 135-1401 KIM, JONG-SEON, DONGBU APT. 102-301 CHOH, HEUI-KEUN KIM, CHANG-YEONG, JINSANMAEUL SAMSUNG 5-CHA		
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其他公开文献	EP1420385A2 EP1420385B1		
外部链接	Espacenet		

摘要(译)

液晶显示器包括信号控制器，该信号控制器具有从外部图形源接收图像数据并控制图像数据的亮度的亮度控制器，使得由图像数据的特定数据值表示的灰度亮度被建立为80cd / m²，以及输出图像数据的伽马转换器，每个图像数据具有适合于伽马2.2曲线的伽马特性。液晶显示器还包括：数据驱动器，接收来自信号控制器的图像数据，并选择和输出对应于图像数据的灰度电压；以及逆变器，控制灯，使得灯发出的亮度为80cd / m²或更高。。利用液晶显示器，确定背光的亮度是大于80cd / m²的特定值，并且控制输入图像数据的亮度，使得特定数据值处的图像数据的亮度被建立为是80cd / m²。此外，图像数据RGB的伽马特性被转换以适应sRGB色彩空间所需的伽马2.2曲线。这样，sRGB模式通过液晶显示器实现。

