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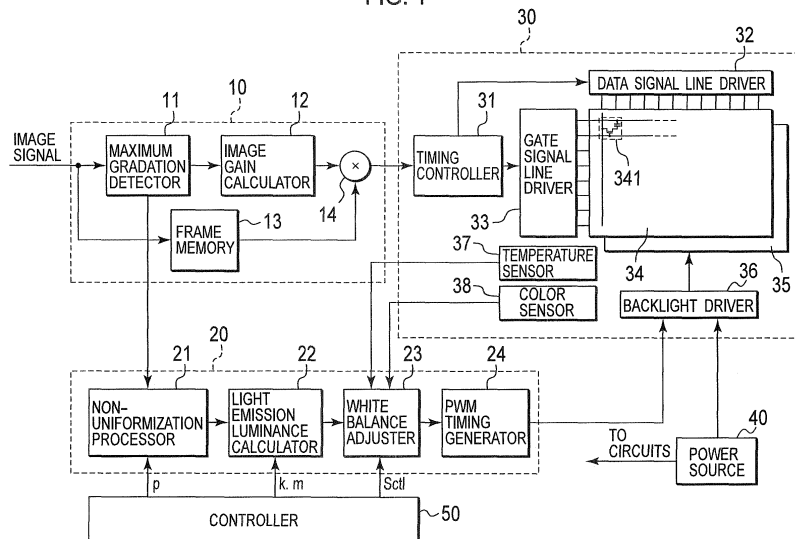
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(54) **Liquid crystal display device and image display method thereof**

(57) A liquid crystal panel displays an image from image signals. A backlight device is disposed on the back side of the liquid crystal panel, and is divided into a plurality of regions. The backlight device comprises light sources in each of the regions. The light sources are positioned to emit light onto the liquid crystal panel. A histogram detector detects an image signal gradation distribution for each region and to produce a histogram

therefrom. An image gain calculator calculates a gain from the detected gradation distribution of the histogram detector, and controls light emission from each light source in each region of the backlight device. A light emission luminance calculator controls the light emission luminance of each light source based on a maximum luminance of the light sources and based on an inverse number of the gain calculated in the image gain calculator.

FIG. 1





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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:
- 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).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 09 16 6391

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, 2, 7, 8

a multiplier to solve problem of adjusting the image signal
with the calculated gain

2. claims: 3-5, 9-11

plurality of pixel ratios used to improve the histogram
analysis for certain images

3. claims: 6, 12

backlight allowing light to leak to nearby regions to reduce
cost of backlight construction

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

EP 09 16 6391

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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13-04-2011

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专利名称(译)	液晶显示装置及其图像显示方法		
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申请(专利权)人(译)	VICTOR COMPANY OF JAPAN , LIMITED		
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IPC分类号	G09G3/34 G09G3/36		
CPC分类号	G09G3/3426 G09G3/3611 G09G2310/0232 G09G2320/0233 G09G2320/0276 G09G2320/0285 G09G2320/041 G09G2320/043 G09G2320/0646 G09G2320/0666 G09G2330/021 G09G2360/145 G09G2360/16		
优先权	2008239039 2008-09-18 JP		
其他公开文献	EP2166532A2 EP2166532B1		
外部链接	Espacenet		

摘要(译)

液晶面板显示来自图像信号的图像。背光装置设置在液晶面板的背面，并且被分成多个区域。背光装置包括每个区域中的光源。定位光源以将光发射到液晶面板上。直方图检测器检测每个区域的图像信号灰度分布并从中产生直方图。图像增益计算器根据检测到的直方图检测器的灰度分布计算增益，并控制来自背光装置的每个区域中的每个光源的光发射。发光亮度计算器基于光源的最大亮度并基于在图像增益计算器中计算的增益的倒数来控制每个光源的发光亮度。

