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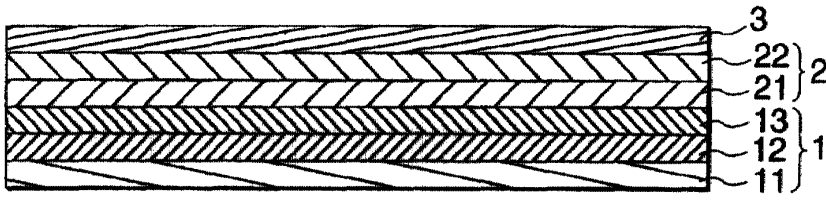
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(54) **Polarizing element for separating natural light into reflected and transmitted polarized light, and liquid-crystal display device comprising such a polarizing element**

(57) A liquid-crystal display device having a polarizing element, an optical element, a polarized light supply unit, and liquid-crystal cells. The polarizing element has a function of separating natural light into reflected and transmitted light composed of polarized light, wherein the half-reflecting wavelength measured at each position within the surface of the polarizing element falls within  $\pm 10$  nm relative to the half-reflecting average wavelength, wherein the half-reflecting wavelength is a wavelength which is located at the long or short wave side of the wavelength exhibiting maximum reflectivity on the basis of a spectrum of reflected light in a predetermined wave range in which the natural light is sepa-

rated into the reflected light and the transmitted light, and wherein the half-reflecting wavelength is defined as the wavelength which exhibits a reflectivity of 50% with respect to the maximum reflectivity, the half-reflecting average wavelength being the average of the half-reflecting wavelengths measured over the surface of the element. The optical element is a laminate of the polarizing element and of an absorption type polarizing plate. The polarized light supply unit has a surface light source provided with a reflection layer, and either one of the polarizing element and the optical element is disposed above the surface light source. The liquid-crystal cells are disposed on the light output side of the polarized light supply unit.

**FIG. 1**



**EP 1 058 148 A3**



European Patent Office

EUROPEAN SEARCH REPORT

Application Number  
EP 00 11 0459

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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)  G02F G02B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
MUNICH		27 June 2002	Petitpierre, O
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  
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 11 0459

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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专利名称(译)	用于将自然光分离成反射和透射偏振光的偏振元件，以及包括这种偏振元件的液晶显示装置		
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其他公开文献	EP1058148A2		
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摘要(译)

一种液晶显示装置，具有偏振元件，光学元件，偏振光供给单元和液晶单元。偏振元件具有将自然光分离成由偏振光组成的反射光和透射光的功能，其中在偏振元件的表面内的每个位置处测量的半反射波长相对于半反射平均波长落在 $\pm 10\text{nm}$ 内。其中半反射波长是位于波长的长波或短波波长的波长，该波长基于预定波范围内的反射光的光谱而呈现出最大反射率，其中自然光被分离成反射的光。光和透射光，其中半反射波长定义为相对于最大反射率呈现50%反射率的波长，半反射平均波长是在半反射波长上测量的半反射波长的平均值。元素的表面。光学元件是偏振元件和吸收型偏振片的叠层。偏振光供应单元具有设置有反射层的表面光源，并且偏振元件和光学元件中的任一个设置在表面光源上方。液晶单元设置在偏振光供应单元的光输出侧。

FIG. 1

