

Title (en)  
FLAT PANEL DEVICE WITH INTERNAL SUPPORT STRUCTURE

Title (de)  
FLACHER BILDSCHIRM MIT INNERER TRAGSTRUKTUR

Title (fr)  
DISPOSITIF A PANNEAU PLAT POURVU D'UNE STRUCTURE INTERNE DE SUPPORT

Publication  
**EP 0683920 B2 20060412 (EN)**

Application  
**EP 94908603 A 19940201**

Priority  

- US 1254293 A 19930201
- US 18885694 A 19940131
- US 18885794 A 19940131
- US 9400602 W 19940201

Abstract (en)  
[origin: WO9418694A1] A flat panel device (300) includes a spacer (308) for providing internal support. The spacer can be made of ceramic or glass-ceramic. Spacer surfaces exposed within the flat panel device are treated to reduce secondary emissions and prevent charging of the spacer surfaces. A light-emitting structure contains a main section (302), a pattern of dark ridges (314) situated along the main section, and a plurality of electron-activated light-emissive regions (313) situated in spaces between the ridges. The dark ridges extend further away from the main section than the light-emissive regions to form a raised black matrix. When the light-emitting structure is used in an optical display, the raised black matrix contacts spacers (308) and, in so doing, protects the light-emissive regions from being damaged. The light-emitting structure can be formed according to various techniques of the invention.

IPC 8 full level  
**H01J 63/02** (2006.01); **H01J 9/18** (2006.01); **H01J 9/227** (2006.01); **H01J 9/24** (2006.01); **H01J 9/26** (2006.01); **H01J 17/49** (2006.01); **H01J 29/02** (2006.01); **H01J 29/08** (2006.01); **H01J 29/32** (2006.01); **H01J 29/46** (2006.01); **H01J 29/82** (2006.01); **H01J 29/86** (2006.01); **H01J 29/87** (2006.01); **H01J 31/12** (2006.01); **H01J 61/30** (2006.01)

CPC (source: EP)  
**H01J 9/185** (2013.01); **H01J 9/242** (2013.01); **H01J 29/028** (2013.01); **H01J 29/085** (2013.01); **H01J 29/327** (2013.01); **H01J 29/467** (2013.01); **H01J 29/864** (2013.01); **H01J 31/127** (2013.01); **H01J 61/30** (2013.01); **H01J 2329/08** (2013.01); **H01J 2329/323** (2013.01); **H01J 2329/864** (2013.01); **H01J 2329/8645** (2013.01); **H01J 2329/8655** (2013.01)

Designated contracting state (EPC)  
DE ES FR GB IT NL

DOCDB simple family (publication)  
**WO 9418694 A1 19940818**; AU 6163494 A 19940829; DE 69430568 D1 20020613; DE 69430568 T2 20030109; DE 69430568 T3 20070426; EP 0683920 A1 19951129; EP 0683920 A4 19980415; EP 0683920 B1 20020508; EP 0683920 B2 20060412; JP 3595336 B2 20041202; JP H08508846 A 19960917

DOCDB simple family (application)  
**US 9400602 W 19940201**; AU 6163494 A 19940201; DE 69430568 T 19940201; EP 94908603 A 19940201; JP 51805294 A 19940201