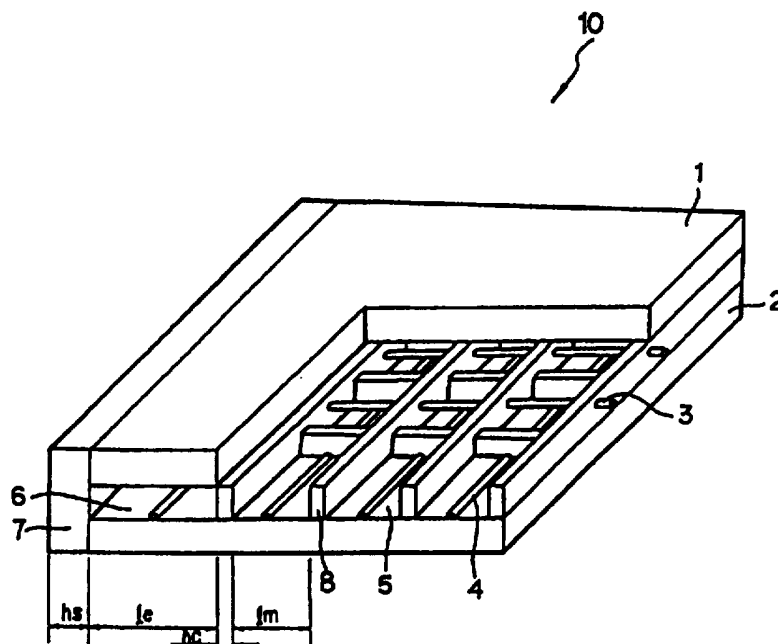




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<p>(21) International Application Number: PCT/KR94/00155 (22) International Filing Date: 4 November 1994 (04.11.94)</p> <p>(71) Applicants (for all designated States except US): ORION ELECTRIC CO., LTD. [KR/KR]; 165, Gongdan-dong, Gumi-shi, Kyung-sangbuk-do 730-030 (KR). SPC PLASMA CO. [RU/RU]; ul. Tsiolkovsky, 24, Ryazan, 390023 (RU).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): LEE, Chun, Woo [KR/KR]; Ah-206, Kangbyun Apartment, 28, Bisan-dong, Gumi-shi, Kyung-sangbuk-do 730-100 (KR). KWON, Hyuk, Chae [KR/KR]; 674-3, Manchon-1 dong, Susung-gu, Daegu 706-021 (KR). SAMORODOV, Vladislav Georguevich [RU/RU]; ul. Urizcogo, 18-17, Ryazan, 390023 (RU). POKRYVAILO, Anatoli Borisovich [RU/RU]; ul. Scmoroshinca, 15-2-44, Ryazan, 390006 (RU). NIKO-LAEBICH, Zhuralev Stanislav [RU/RU]; ul. Shedrina, 8a-6, Ryazan, 390006 (RU). MIHAILOVICH, Sokolov Vladimir [RU/RU]; ul. Timurovtsev, 11-1-27, Ryazan, 390037 (RU). GRUGOREBNA, Starynina Tachyana [RU/RU]; ul. Zubkova, 27-166, Ryazan, 390048 (RU).</p> <p>(74) Common Representative: ORION ELECTRIC CO., LTD.; 165, Gongdan-dong, Gumi-shi, Kyung-sangbuk-do 730-030 (KR).</p>		<p>(81) Designated States: JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p>Published With international search report.</p>

(54) Title: PLASMA DISPLAY PANEL FOR MULTI-SCREEN SYSTEM



(57) Abstract

This invention discloses a plasma display panel for multi-screen system. The plasma display panel (10) comprises the upper dielectric plate (1) and the lower dielectric plate (2). Cathode electrode (3) and anode electrode (4) are orthogonally located between said plates (1 and 2). These electrodes (3 and 4) form display cell (5 and 6), the cell (5) being formed between barrier ribs (8) and the cell (6) being adjacent to one side of sealing seam (7). The display cells (5 and 6) are separated by barrier ribs (8). The display cell (6) adjacent to the sealing seam are made of a size increasing in direction perpendicular to the sealing seam (7) with respect to the rest of the display cell (5).

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PLASMA DISPLAY PANEL FOR MULTI-SCREEN SYSTEM

TECHNICAL FIELD

5 The present invention relates to a structure of a plasma display panel and more particularly, to a structure of a plasma display panel for multi-screen system in which the display cells adjacent to the sealing seam of the panel are made of a size increasing in direction perpendicular to the sealing seam with respect to the rest of the display cells thereby reducing a distortion of information displayed on the screen.

BACKGROUND ART

15 The most similar prior art in technical essence to this invention is the plasma display panel disclosed in USSR Patent No. 1074301 (March 30, 1982). This plasma display panel comprises upper and lower plates and systems of mutually orthogonal electrodes, in which display cells adjacent to the sealing seam are formed by hollows or grooves, and an external sealing element is separated from internal cell volume by a light-translucent element with a round cross-section inserted into the hollow and located around the edges.

20 However, the drawbacks of the USSR patent is in loss of a pitch at the place of joint of panels because of large thickness of the sealing seam and it results in information distortion displayed on the screen.

DISCLOSURE OF THE INVENTION

30 Accordingly, in consideration of the drawbacks of said described patent, the main object of the present invention is to provide improvement of information quality displayed in the at the expense of elimination of information distortion at the place of panel sealing parts.

35

To accomplish the object, the present invention comprises upper and lower dielectric plates, cathode and anode electrodes orthogonally located between said plates, display

cells defined by said electrodes, barrier ribs for separating and defining display cells from each other and sealing seam for sealing edge parts of said two plates, in which the display cells adjacent to the sealing seam are made
 5 of a size increasing in direction perpendicular to the sealing seam with respect to the rest of the display cells.

BRIEF DESCRIPTION OF DRAWINGS

10 Fig. 1 is a schematic view depicting the plasma display panel for PDP multi-screen system.

DETAILED DESCRIPTION OF THE INVENTION

In Fig. 1, PDP (10) comprises the upper dielectric
 15 plate(1) and the lower dielectric plate (2). Cathode electrode(3) and anode electrode(4) are orthogonally located between said plates (1) and (2). These electrodes (3) and (4) form display cell (5) and (6), the cell (5) being formed between barrier ribs (8) and the cell (6) being adjacent to
 20 one side of sealing seam (7). The display cells (5) and (6) are separated by barrier ribs (8).

As depicted, the horizontal length of display cell (6) adjacent to sealing seam (7) is more long than the horizontal
 25 length of display cell (5) being formed between barrier ribs (8) and that the following ratio should be observed :

$$0.5 (h_s - h_c) + l_m \leq l_e \leq (h_s - h_c) + l_m$$

30 l_e : size of cell (6) adjacent to the sealing seam (7);
 l_m : size of cell (5)
 h_s : width of sealing seam (7);
 h_c : width of barrier rib (8) between cells (5);

35 For example, if size of cell(5) is 1.2 x 2 mm, width of sealing seam (7) is 1.5 mm and width of barrier ribs (8) between cells (5) is 1.5 mm, size of cell (6) adjacent to the sealing seam (7) becomes 2.7mm.

Increasing of size of cell (6) adjacent to the sealing seam (7) within the limits of given ratio results in keeping of specific light flux constant in the centre of panels and the place of their joints and it assists to create more favourable conditions for an operator to read the screen information.

When making size of cells (6) adjacent to the sealing seam (7) $l_e \geq (h_s - h_c) + l_m$, an intensified light occurs in the region of the sealing seam being provoked by light flux increase of more than 30 % and resulting in information perception with distortion.

When making size of cells (6) adjacent to the sealing seam (7) $l_e \leq (h_s - h_c) + l_m$, a loss of information takes place as a result of light flux reduction coming from cell adjacent to the sealing by more than 30%.

$\pm 30\%$ is permissible limit of screen non-uniform light for DC-type plasma display panels required for normal perception of information on the screen.

As above mentioned, this invention allows to eliminate video-information distortion in multi-screen system in places of panel joints and it results in quality improvement of information displayed.

CLAIMS:

1. A plasma display panel for multi-screen system comprising:
5 upper and lower dielectric plates;
cathode and anode electrodes orthogonally located between said plates;
display cells defined by said electrodes;
10 barrier ribs for separating and defining display cells from each other; and
sealing seam for sealing edge parts of said two plates, wherein the display cells adjacent to the sealing seam are made of a size increasing in direction perpendicular to the sealing
15 seam with respect to the rest of the display cells.

2. A plasma display panel according to claim 1 wherein a size ratio between display cells adjacent to the sealing seam and the rest of the display cells is expressed by the following
20 equation:

$$0.5 (h_s - h_c) + l_m \leq l_e \leq (h_s - h_c) + l_m$$

l_e : size of cell adjacent to the sealing seam;

l_m : size of cell;

h_s : width of sealing seam ;

- 25 h_c : width of barrier rib between cells ;

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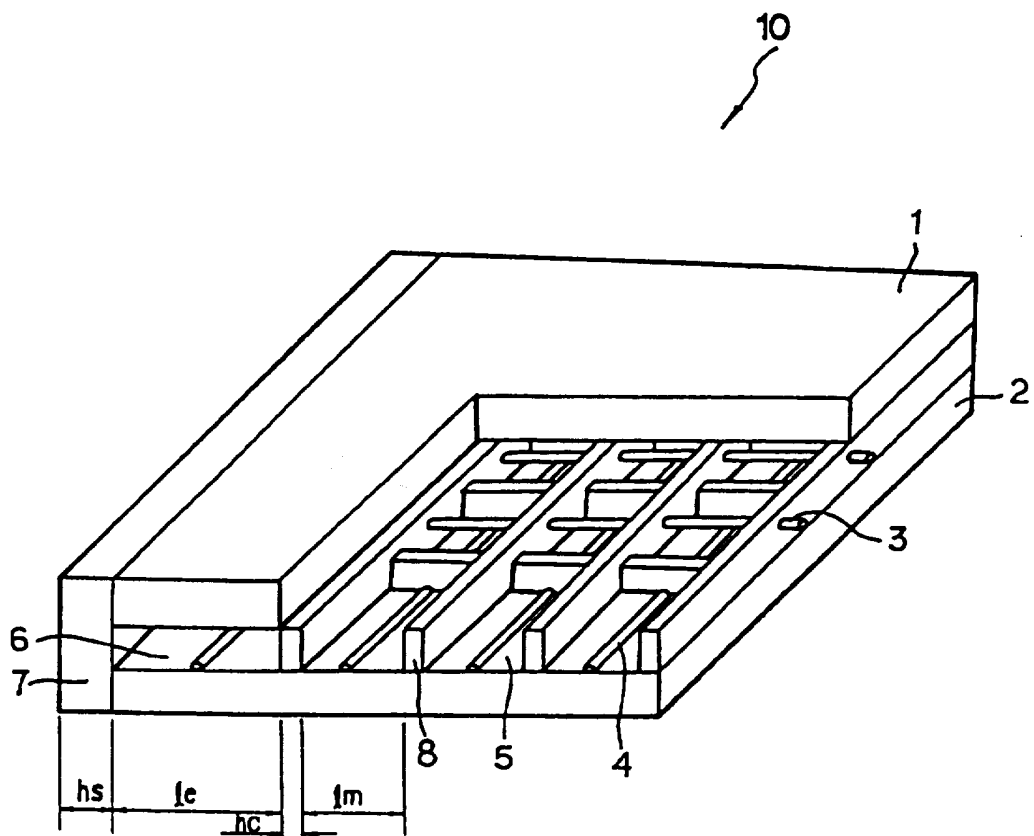


FIG. 1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR 94/00155

A. CLASSIFICATION OF SUBJECT MATTER

IPC⁶: G 09 F 9/313

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁶: G 09 F 9/313, 9/00; H 01 J 17/49, 17/34, 17/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 26 96 867 A (MITSUBISHI) 15 April 1994 (15.04.94) fig. 1,12,16-20; page 32, line 15 - page 33, line 11; claims 1,2.	1
A	fig. 1,12,16-20; page 32, line 15 - page 33, line 11; claims 1,2.	2
X	Soviet Inventions Illustrated, section EL, week 8826, Derwent Publications Ltd., London, S25, SU 1074301 (BALAKIN) fig.; abstract;	1
A	fig.; abstract.	2
A	US 5099 173 A (KIM) 24 March 1994 (24.03.94), fig. 2-5; column 3, line 11 - column 4, line 51; claim.	1,2
A	US 4 562 434 (AMANO) 31 December 1985 (31.12.85) fig. 4,5,16,17; column 2, line 50 - column 3, line 14; column 7, lines 12-24; claims.	1,2

Further documents are listed in the continuation of Box C.

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