

CLUSTER ARRANGEMENT OF FIELD EMISSION MICROTIPS

Abstract of the Disclosure

The emitter plate 60 of a field emission flat panel display device includes a layer 68 of a resistive material and a mesh-like structure 62 of an electrically conductive material. A conductive plate 78 is also formed on top of resistive coating 68 within the spacing defined by the meshes of conductor 62. Microtip emitters 70, illustratively in the shape of cones, are formed on the upper surface of conductive plate 78. With this configuration, all of the microtip emitters 70 will be at an equal potential by virtue of their electrical connection to conductive plate 78. In one embodiment, a single conductive plate 82 is positioned within each mesh spacing of conductor 80; in another embodiment, four conductive plates 92 are symmetrically positioned within each mesh spacing of conductor 90. Also disclosed is an arrangement of emitter clusters comprising conductive plates 102 having a plurality of microtip emitters 104 formed thereon, or spaced therefrom by a thin layer of resistive material, each cluster adjacent and laterally spaced from a stripe conductor 100 by a region 106 of a resistive material. The conductive stripes 100 are substantially parallel to each other, are spaced from one another by two conductive plates 102, and are joined by bus regions 110 outside the active area of the display.

FIGURE 3

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