

ABSTRACT

5 An improved backlighting apparatus comprising a slab waveguide that
accepts light rays generated by a light source and transmits the light rays via total
internal reflection. Attached on one face of the slab waveguide is an array of
microprisms, with each microprism having an light input surface parallel to a light
output surface and at least one sidewall tilted at an angle from the direction normal
to the surface of the waveguide such that light rays escape from the slab waveguide,
10 reflect off the tilted sidewall and emerge from the microprism as a light source
substantially perpendicular to the light output surface. An array of microlenses may
be positioned to accept the output of the microprisms so that the light exiting from
the microlenses is substantially more perpendicular. The backlight apparatus is
advantageously used as a backlighting means for flat panel electronic displays.

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