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(71) Applicant *(for all designated States except US)*: **APPLE INC.** [US/US]; 1 Infinite Loop, Mail Stop 3-PAT, Cupertino, California 95014 (US).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **AITKEN, Andrew P.** [GB/US]; Apple Inc., 1 Infinite Loop, Mail Stop 83-D, Cupertino, California 95014 (US).

(74) Agents: **FLETCHER, Michael G.** et al.; P.O. Box 692289, Houston, Texas 77269-2289 (US).

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(54) Title: ENHANCED RESOLUTION OF LUMINANCE LEVELS IN A BACKLIGHT UNIT OF A DISPLAY DEVICE

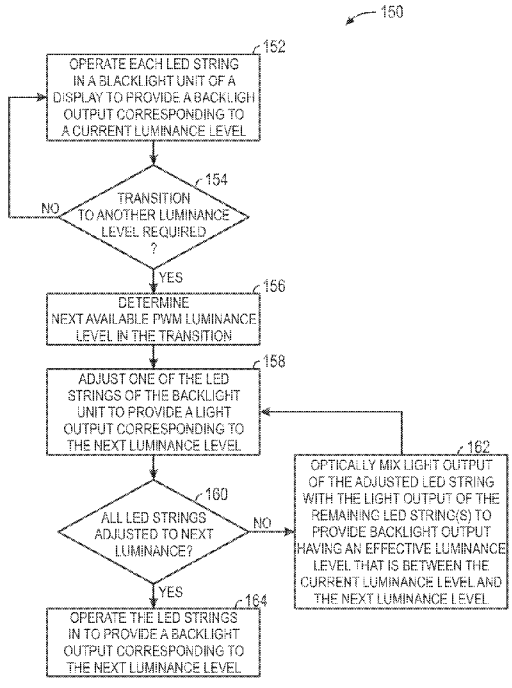

FIG. 12

(57) Abstract: Disclosed embodiments relate to techniques for enhancing luminance resolution in a backlight unit. A backlight unit may have light-emitting diode (LED) light sources arranged in strings. In one embodiment, a backlight controller provides enhanced luminance resolution by drive each LED string at either first or second consecutive luminance values corresponding to first and second duty cycles of a pulse width modulation (PWM) signal. The outputs of the LED strings are optically mixed to achieve intermediate luminance values between the first and second luminance values. In another embodiment, a reference voltage is adjusted using slight voltage offsets to achieve intermediate luminance values between the first and second luminance values.

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