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(54) **COLOR MIXING ILLUMINATION LIGHT UNIT AND SYSTEM USING SAME**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 291 days.

(Continued)

This patent is subject to a terminal disclaimer.

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(51) **Int. Cl.**

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(57) **ABSTRACT**

(52) **U.S. Cl.** **362/609**; 362/231; 362/601; 362/607; 362/611; 362/612; 362/613; 349/63; 349/65

An illumination light unit includes at least two light sources that generate light at different wavelengths. The illumination light unit also includes a reflecting cavity having one or more reflectors and a controlled transmission mirror disposed at an output of the reflecting cavity. The controlled transmission mirror includes an input coupling element, an output coupling element and a first multilayer reflector disposed between the input and output coupling elements. At least some of the light from the light sources is reflected within the reflecting cavity by the one or more reflectors and is mixed. Light passes out of the reflecting cavity through the controlled transmission mirror. The illumination light unit may be used for illumination purposes, or as part of a backlight for illuminating a display.

(58) **Field of Classification Search** 362/231, 362/293, 601, 604, 607, 609, 611–613; 349/63, 349/65

See application file for complete search history.

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31 Claims, 15 Drawing Sheets

