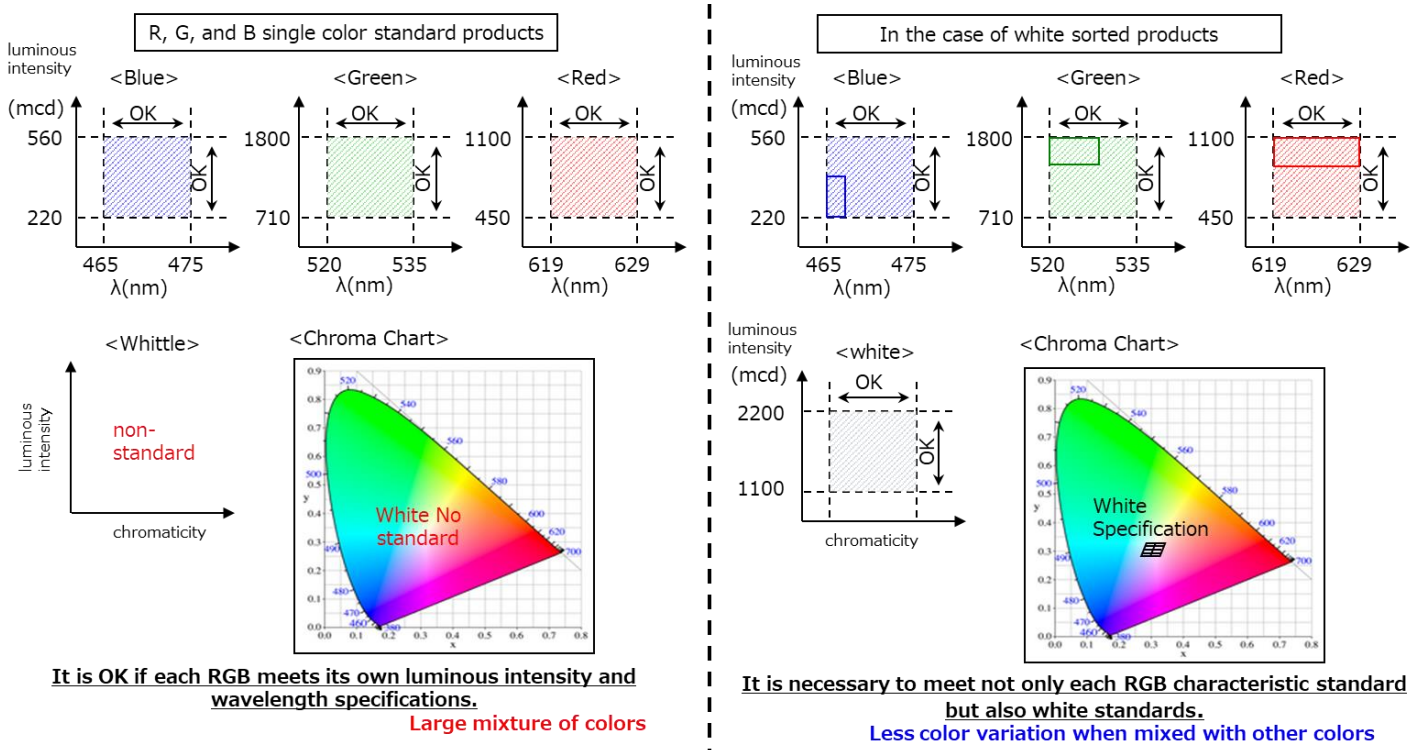**Chromaticity Classification for RGB Multicolor Lighting**

Chromaticity Classification for RGB Multicolor Lighting

By using RGB LEDs, it is possible to express a wide variety of colors and improve the design, functionality and productivity of applications. However, when using RGB LEDs, if multiple LEDs that are specified only for the brightness and wavelength range of each RGB color are used in a circuit, there is a large variation in color when mixing colors and it is difficult to use even if you want to use RGB LED. And if narrowing down the characteristics of the LEDs to reduce chromaticity variation, it would be costly and more difficult to use. Therefore, ROHM proposes easy-to-use RGB LEDs by combining devices and conducting chromaticity sorting when lighting mixed colors.

Introduction of White Sorting Conditions

Turning on RGB devices simultaneously at a specified current ratio and setting the characteristic standards for that time makes it possible to grantee color mixing. Since each RGB has to meet not only the individual standards but also the standards for simultaneous lighting, production is conducted considering the combination of RGB devices.


It is OK if each RGB meets its own luminous intensity and wavelength specifications.
Large mixture of colors

It is necessary to meet not only each RGB characteristic standard but also white standards.
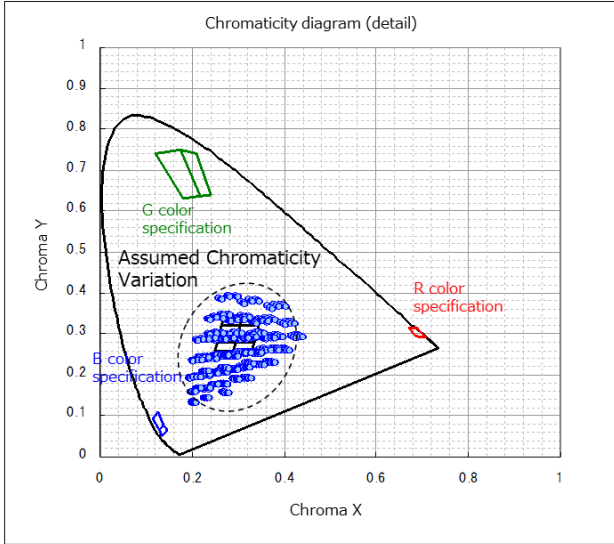**Less color variation when mixed with other colors**

Effect of Introducing White Sorting Conditions

Products with White Sorting

R, G, and B single color standard products	In the case of white sorted products
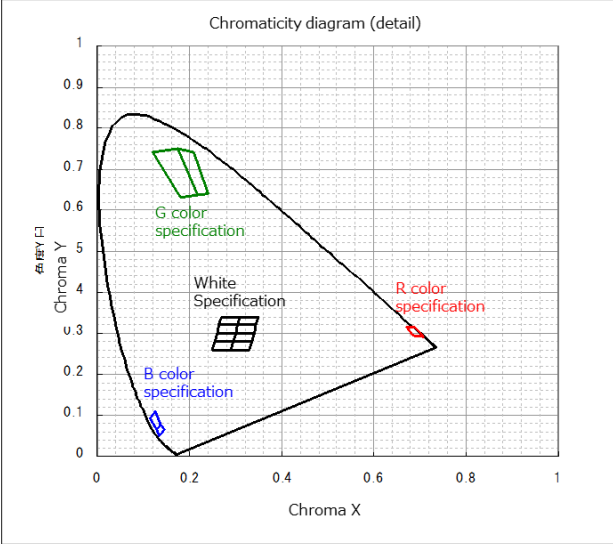
Since only RGB characteristics are judged for each RGB, the worst-case scenario for white lighting is assumed to be the above-mentioned chromaticity variation.

On the other hand, if you introduce white sorting, you can improve color mixing because only products of the above mentioned white standards are accepted.

The chromaticity classification at the time of lighting of mixed colors

SMLVN6RGB   MSL0104RGB   MSL0402RGB

When using RGB LEDs to display white color, the color variation in the same set can be reduced by
The current value specified for each product to reduce
Some of the products are classified according to the chromaticity at the same point in time at

    SMLVN6RGB Red 12mA, Green 15mA, Blue 12mA
    MSL0104RGB Red 8mA, Green 14mA, Blue 18mA
    MSL0402RGB Red 20 mA, Green 20 mA, Blue 10 mA

In order to reduce the chromaticity variation in mixed colors, we recommend a product compatible with chromaticity classification in mixed colors.

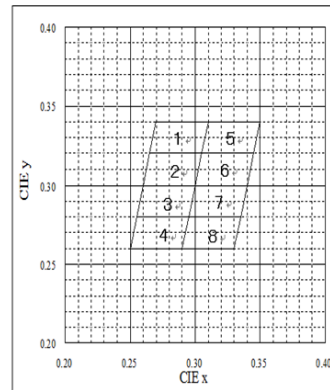Chroma Classification Example
SMLVN6RGB Colorimetric Classification

Chroma classification Ta=25℃
    IF=12mA(Red)
    IF=15mA (Green)
    IF=12mA (Blue)
Light up at the same time

The chromaticity sorting is a value at the time of lighting in mixed colors according to the current value specified for each product.
Unlike white LEDs, which are made with a blue element and a fluorescent agent, RGB LEDs can change coloration by setting the current flowing to each LED element or the ON time for pulse lighting.

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