



# Standard for White Color LED Lighting Fixtures

## **Purpose**

This document outlines a proposed definition of standard for white color LED lighting fixtures manufactured by ATG Electronics and the way for mass production of orders.

This document was published on our web site [www.atgelectronics.com](http://www.atgelectronics.com), under category “White Papers” of “Technical Education” and related product page with white color LED lighting fixtures.

The standard is implemented strictly by the R&D department and Manufacturing department, and shall apply to all orders placed with our company unless specific requests are accepted in the contracts.

## **Background**

The solid-state lighting industry is a fast growing industry; while a lack of standards in this industry especially white color standards has already resulted in confusion and frustration to both manufacturers and customers.

As a leading LED Lighting Fixture manufacturer, ATG Electronics has dedicated itself to supply high quality, energy saving, high efficient, long lifespan and environment friendly LED lighting products to customers all over the world. To define the color temperature standard for white color LED lighting fixture is one of the objects we are pursuing.


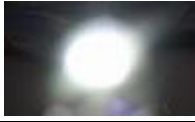



### Definition

Color Temperature is a measurement in degrees Kelvin that indicates the temperature of an ideal black body radiator at which the color of the light source and the black body are identical. (A black body is a theoretical radiator and absorber of energy at all electromagnetic wavelengths.)

Color Temperature is a standard method of describing white color for use in a range of situations and with different equipment. BUT NOTE THAT THE TERM DEGREES KELVIN IS NOT TECHNICALLY CORRECT.

The white color standard is defined within C.I.E. 1931 chromaticity diagram by coordinate-x and coordinate-y, degrees Kelvin only as a reference measurement.

Color	Coordinate-X	Coordinate-Y	Color Temperature (Kelvin)	Related Color Source [*]
Warm White	0.395±0.015	0.405±0.025	3,600K~4,000K	
Natural White	0.32±0.015	0.33±0.025	5,000K~6,500K	
Cold White	0.295±0.015	0.305±0.025	7,000K~10,000K	

\* Above related color source may differ from different computer monitors.

### Mass Production Solutions

According to above standard, we basically accept orders without specific color temperature request and within above color temperature range.

All the procedures from component sourcing to manufacturing, testing and aging, will strictly implement this standard. For specific order, we limit the color temperature to a certain range, and do the best to assure the color consistency:

- 1) All the Warm White LED fixtures of the same order will be in the range  $\pm 50K$ ;
- 2) All the Natural White LED fixtures of the same order will be in the range  $\pm 200K$ ;
- 3) All the Cold White LED fixtures of the same order will be in the range  $\pm 500K$ .

If possible, we preferentially choose the same range of LEDs to ensure the color is uniform and not unlike.



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Generally we do not accept orders with specific color temperature request OR out of above range. If the customer insists on using a specific color temperature for his order and the quantity is big enough, higher price will be charged.

NOTE THAT COLORS BETWEEN DIFFERENT ORDERS EVEN ON THE SAME PRODUCT MAY STILL HAVE COLOR DISCREPANCY.

### **Company Profile**

ATG Electronics Corp., established in 1999 and formed partnerships with companies in California, designs, produces, distributes and licenses lighting emitting diode (LED) controllable digital decoration and illumination lighting systems.

With a strong R&D team and patented technologies, ATG Electronics enables customers' energy saving, highly efficient, long lifespan and environment friendly benefits.

Web site: [www.atgelectronics.com](http://www.atgelectronics.com)

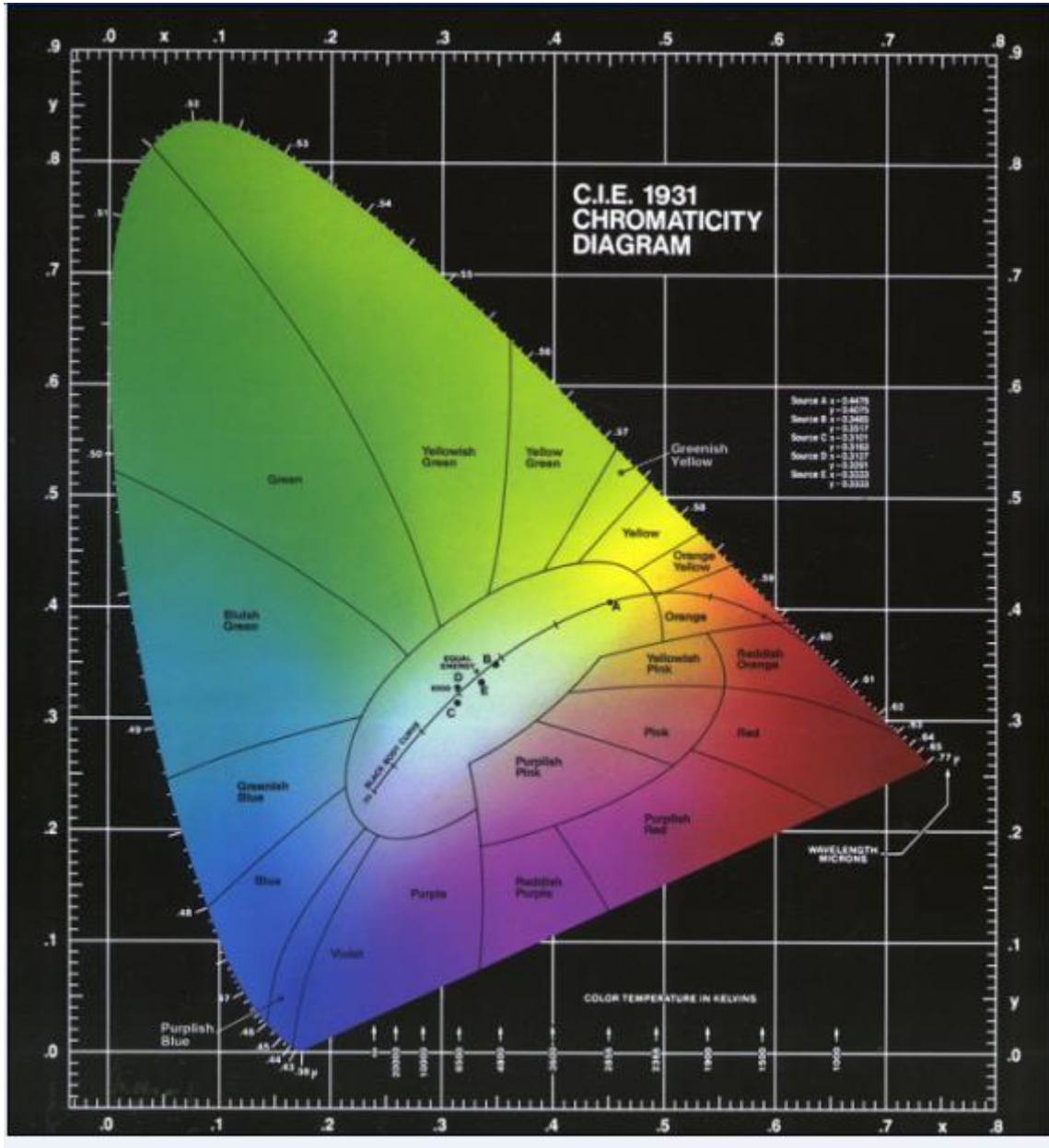
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Attachment: C.I.E. 1931 chromaticity diagram



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