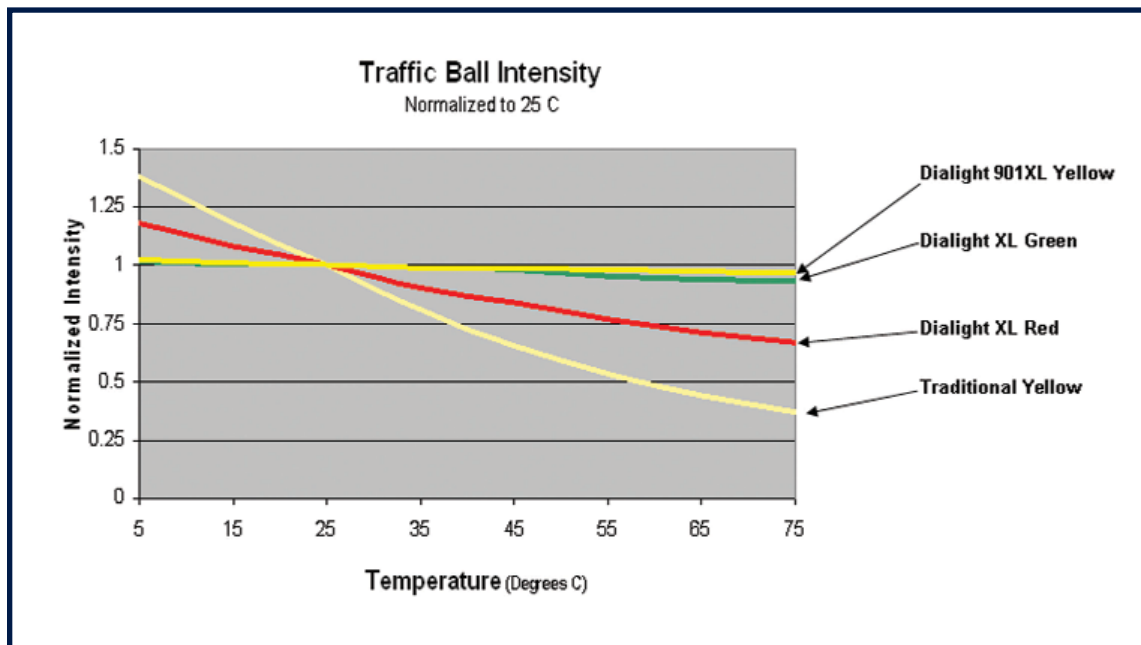


Why yellow LED signal indications are as important as red and green.....

- » They alert drivers that the right-of-way is about to change, hence the name *yellow change interval*.
- » Drivers sometimes get caught in *dilemma zone* when yellow signals illuminate. A bright yellow signal that is easily seen improves driver decision and reaction time.

When it comes to temperature, not all LEDs are created equal.

- » All LEDs are temperature sensitive and will lose intensity as their temperature increases, but in traffic signals, some yellow LEDs are more sensitive than others.



Note: -40°C = -40°F 25°C = 77°F 74°C = 165°F

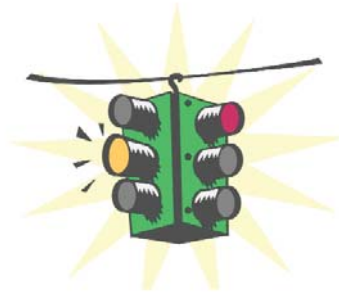
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Heat rise due to radiation from the sun is called **Solar Loading**.

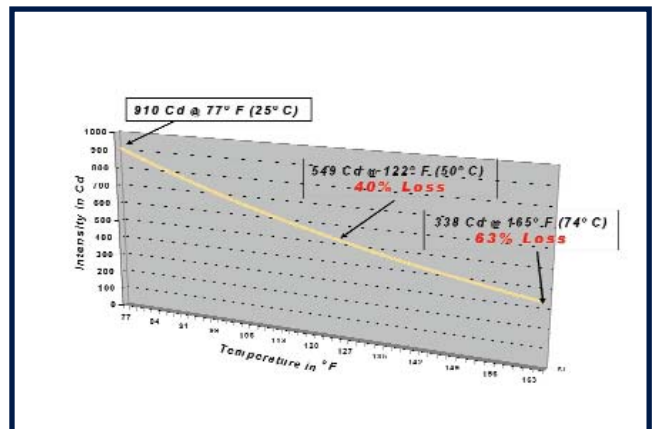


- » A traffic signal is a sealed enclosure, usually baking in the sun. Measurements have shown that on a sunny day, if the air temperature on the outside of the signal is 77°F (25°C), solar loading will drive the temperature inside the signal head to 122°F (50°C) or more. If the air temperature is 110°F (43°C) solar loading causes the internal temperature to rise to 165°F (74°C).
- » Heat rise associated with signal on-time is independent of solar loading, and is additional.
- » Without proper design and component selection, a yellow LED signal that is rated at 77°F (25°C) will lose 40% of its light output on a sunny spring day in New York. On summer days in Phoenix, it will lose 63% of its intensity.

- Does this matter?

Yes!!!

The NCHRP study completed in 2001 entitled "Visibility and Performance requirements for Vehicular Traffic Signals" defined the intensity requirements of traffic signals for **safe** operations. ITE considered these requirements along with other scientific research data when authoring its new LED traffic signal specifications. **Partially** compliant with new ITE specifications is **not** compliant. A yellow LED signal is **not compliant** to the new ITE specifications unless it meets **all** of the ITE requirements, including luminous intensity, throughout the **full** temperature range.



Tort Risk: There is no reasonable argument why yellow LED signals should not be required to perform across the same temperature range as red and green. Do **you** want to assume the tort-liability risk of non-conformance???