

D A R K S P A C E

EFFECTS OF LIGHTING ON ALCOHOL

IS THAT SEXY BOTTLE DISPLAY WORTH IT??

BY JACABE WOOD

D A R K S P A C E

With LED technology everywhere, many bars are embracing the ability to create some visually pleasing bottle displays. But is the display itself ruining your favourite \$27 shot of whiskey?

First coined by the French, Goût de Lumière[1] (google translated to 'light taste') more commonly known in English as 'Light Strike' is the process of Light Waves damaging the contents of your favourite alcoholic beverage.

Light Strike is certainly not a new issue.[2] Soon after glass manufacturing was used for bottling beer, it became apparent that beer stored in clear bottles, when left in the sun, would turn bad rather quickly. As an alternative, manufactures started using Amber glass; however, after WW2 when Amber glass became less available, Green glass was also adapted as a popular alternative.

Wine has been in Amber and Green bottles for centuries, with only short life wines, such as Rose', being sold in clear bottles, allowing the delicate colour of the liquid to be displayed[3]. Regardless of improvements in transportation, shelving and storage; manufactures and distributors are well aware of the risks involved when using clear bottles. The worth of the risk, however, is still disputed. Despite increased sales based on appearance and presentation, many restaurants, liquor stores and consumers are unaware that daylight will ruin a bottle of wine in less than an hour. [2]



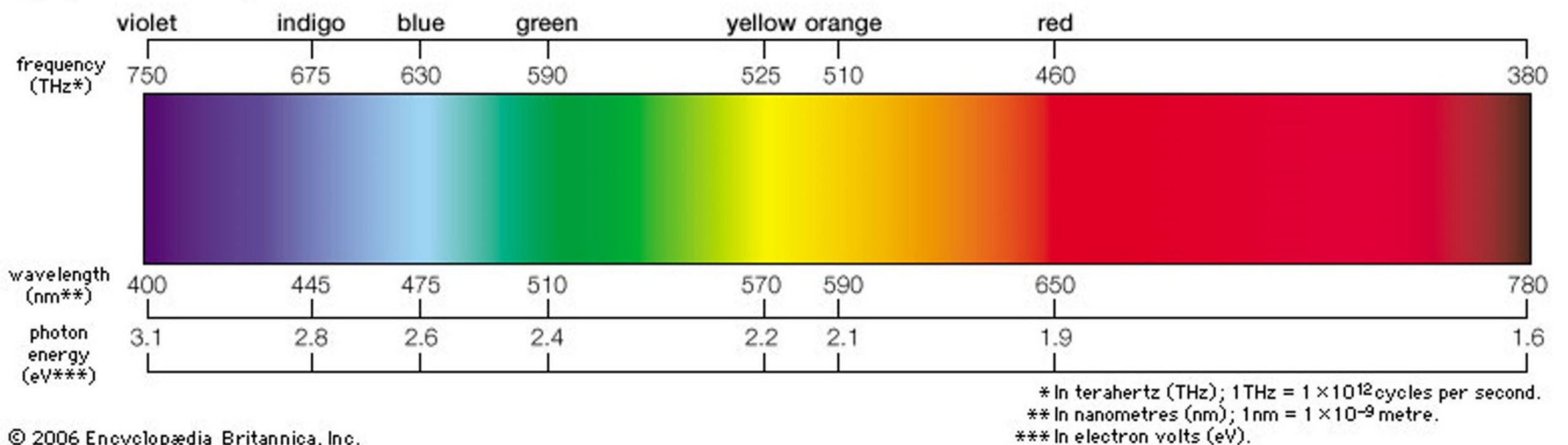
Spirits on the other hand, say a delicate Whiskey or Bourbon, come in a great variety of bottles, a lot of which are now clear to show off the delicious amber notes in the colour of the liquid. However, this could be a draw back. While transportation is normally in a box, which prevents any light damage, the trend of displaying these deliciously attractive spirits on led lit shelves is a potential for concern. Often exposed to incredibly close light sources for more than 12 hours a day, are we exposing our expensive drops to unnecessary damage?

D A R K S P A C E

During testing of wine bottles, temperature had less impact on the aging of wine than the presence of light if the bottles were clear or green; brown bottles however, are most effective in preventing light degradation. While clear glass bottles can filter out all of the harmful UVB and UVC, they won't filter all the UVA(315-400nm) or visible violet and blue(400-480nm) wavelengths of light that can still have harmful effects on the liquid. Manufacturers of the bottles are including additives or coatings and labels to some clear bottles in order to reduce light strike. This however, increases the expense of the bottle and as transportation costs rise, resources become more limited and the impact of recycling more prevalent. Additionally, glass bottles are also becoming thinner thus reducing their effectiveness of filtering out damaging light. [4]

Lights waves below 510nm, particularly between 370nm-442nm, [5] react with amino acids and transform them into sulphides (smelly compounds) and can also cause the beverage to lose colour and flavour through a photochemical reaction. There are a variety of articles I can find regarding this topic for beer and wine, but not for spirits.

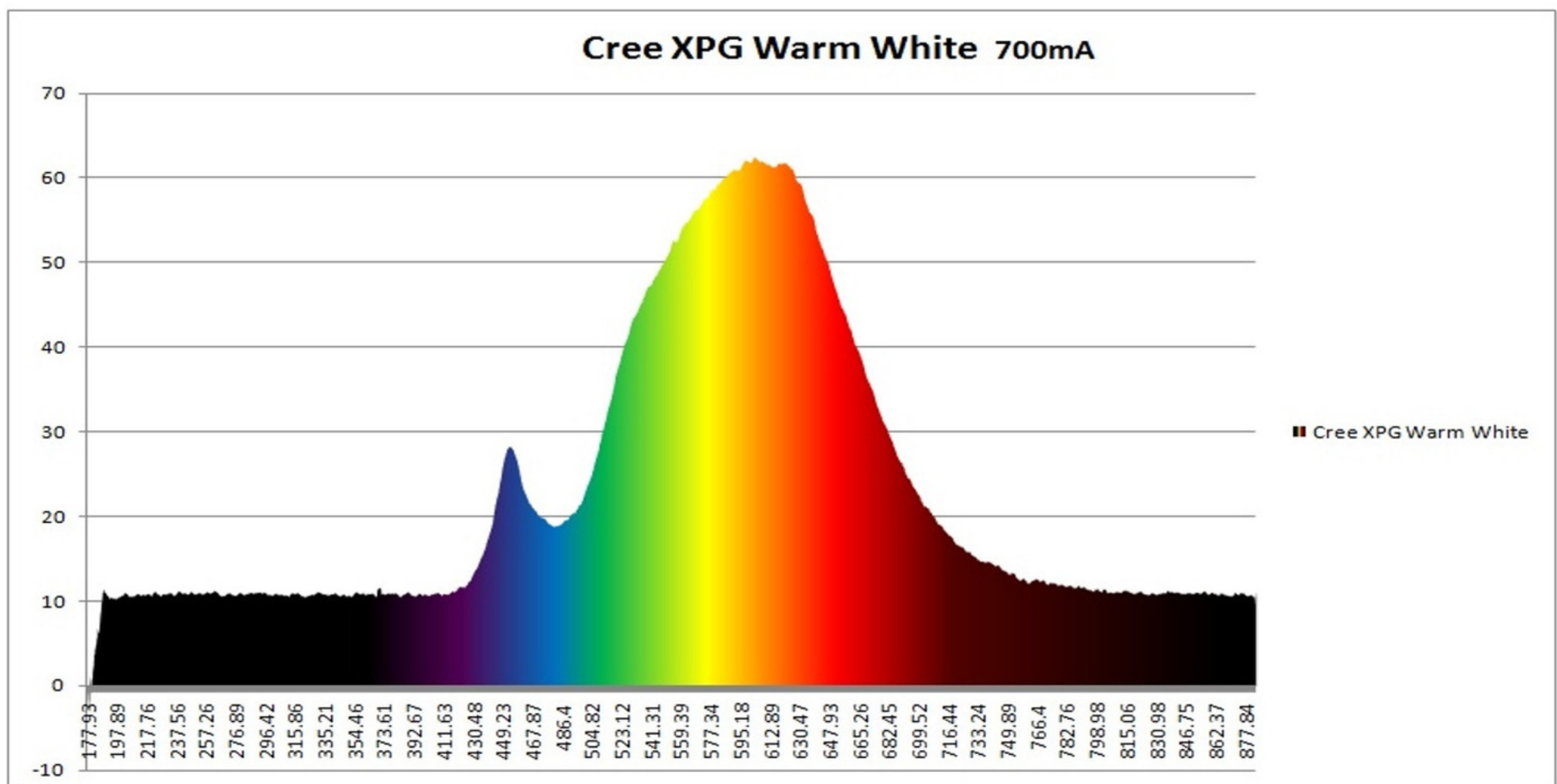
Light, the visible spectrum



LED strip lights, while hugely versatile and popular, are often cheap, and little information on their spectral outputs are provided or known (depending on the manufacturer). With a quick search and prior knowledge, I am aware that many LEDs have a large output of blue light, even in warmer tone LED's such as Warm White 3000k. The whiter or Bluer the LED light, the higher the Blue content, and higher the risk of degradation. The Cree Warm White Led shown below, clearly displays the spike in blue output (Approx 449nm) which is consistent for most LED chips and falls just outside the peak harmful area of 370-442nm but certainly below 510nm.

D A R K S P A C E

Little is available on the effects of light on spirits specifically, as much of the testing in this area is conducted by the manufacturers and kept very much to themselves. Wine is more widely documented. However, it is well known that spirits should be kept in the dark for this vary reason. So how long does it take for blue light to ruin a whiskey and at what exposure? I am yet to determine. So for now, I will personally be moving my top shelf to the bottom shelf, behind a door and away from the display lighting.



References

1. D'Auria, M., et al., On the origin of "Goût de Lumiere" in champagne. Vol. 158. 2003. 21-26.
2. Jefferys, H., The Importance of Light Strike Awareness Day. Master Of Malt Whiskey Blog, 2018.
3. Areni, C.S. and D. Kim, The influence of in-store lighting on consumers' examination of merchandise in a wine store. International Journal of Research in Marketing, 1994. 11(2): p. 117-125.
4. Chris Holcroft, G.E., Protection from Lightstrike in Lightweight Glass Beer Bottles. GTS, 2008.
5. Barril, C., et al., Light-induced changes in bottled white wine and underlying photochemical mechanisms AU - Grant-Preece, Paris. Critical Reviews in Food Science and Nutrition, 2017. 57(4): p. 743-754.