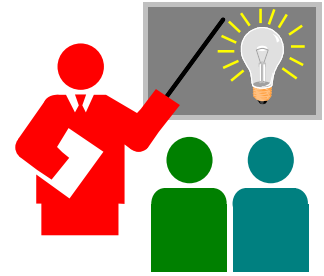




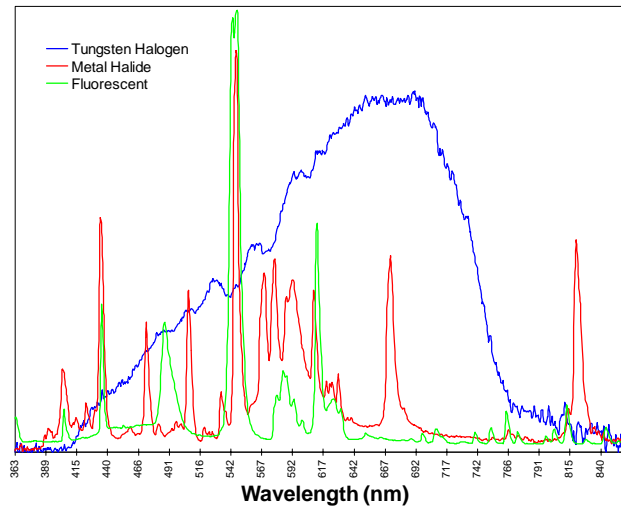
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# Technical Note: **105**

## Question:

What are the differences between various “white light” sources and why is one better than the other ?



## Answer:

The graphs above show the output versus wavelength for three standard white light sources. While each of these sources look very white to the human eye, it can easily be seen that they are quite different in their composition. To a CCD camera, the output of each of these sources will produce differing results. The Tungsten Halogen output is shown with our standard IR filter, and shows a smoothly varying function without any spikes or dips. Both of the discharge type lamps have spikes and voids which can produce undesired results. In addition, the stability of arc lamp systems are subject to shifts in temperature and age making them difficult to stabilize for vision applications.

## Result:

The human brain does a great job of “filling in the blanks” when it comes to white light. In fact our brain tricks us into thinking a lot of things are white that really are limited color representations. The RGB mixture on a standard TV is a good example. An object under inspection can only reflect light, therefore if the incoming spectrum is void of a particular wavelength, a feature of that wavelength may be misinterpreted or missed all together.

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