

# LED Light-Bulbs Recommendations

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I have been experimenting with LED bulbs available at Lowes and Home Depot. The best, in my opinion, are these Philips bulbs at Home Depot:

- Philips A19 dimmable 12.5-watts, 800 lumens, 25,000 hours, dimmable, \$25 (equivalent to 60-watts incandescent)
- Philips A21 dimmable 17-watts, 1100 lumens, 25,000 hours, dimmable, \$40 (equivalent to 75-watts incandescent)



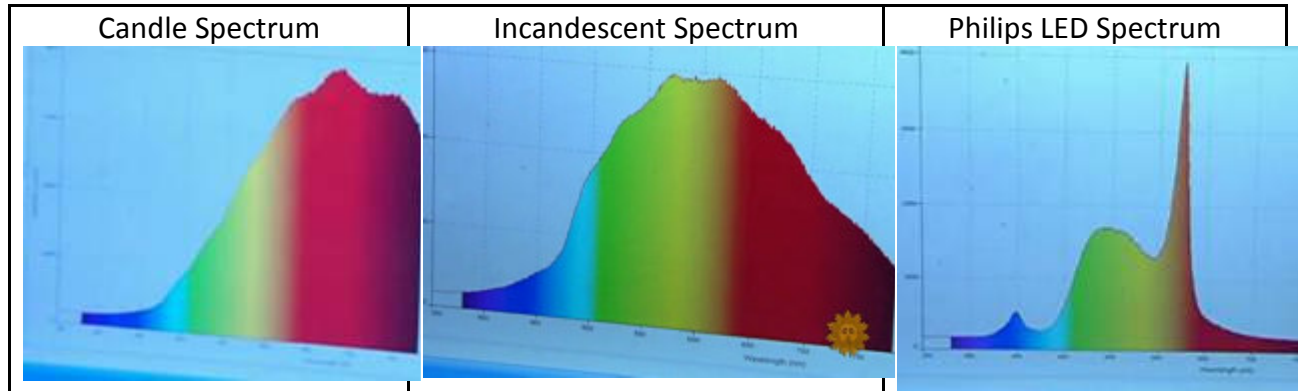
These are very rugged bulbs. Note the cooling fins, as LEDs last longer when not subjected to high temperatures. The yellow plastic cover is to make the light “warmer”.

These lights won the U.S. Department of Energy L prize (<http://www.lightingprize.org/>).

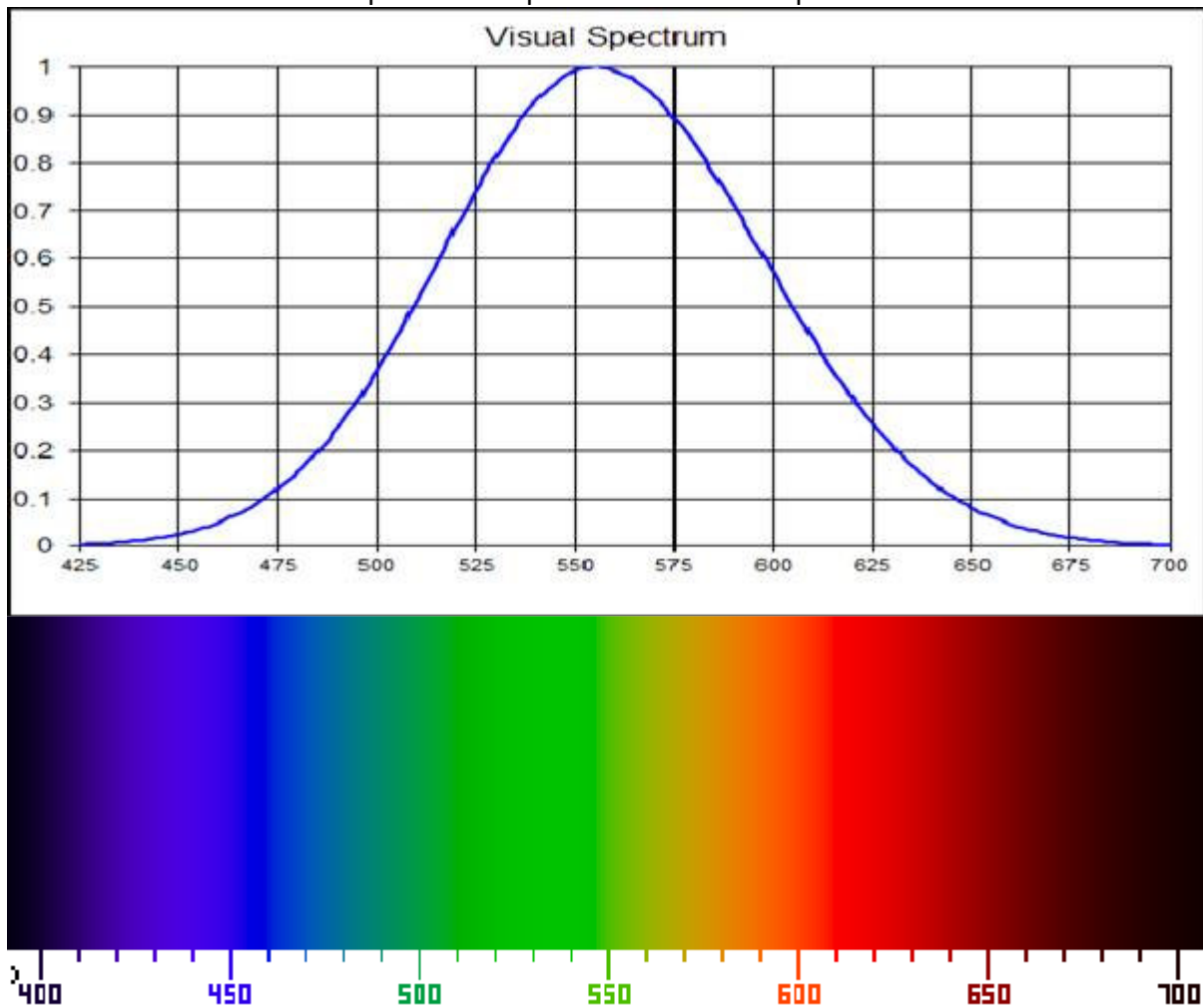
The 18 LEDs are actually blue:



Here is a comparison of the spectra for a candle, an incandescent bulb and the Philips LED bulb:



Compare these spectra to the visual spectrum

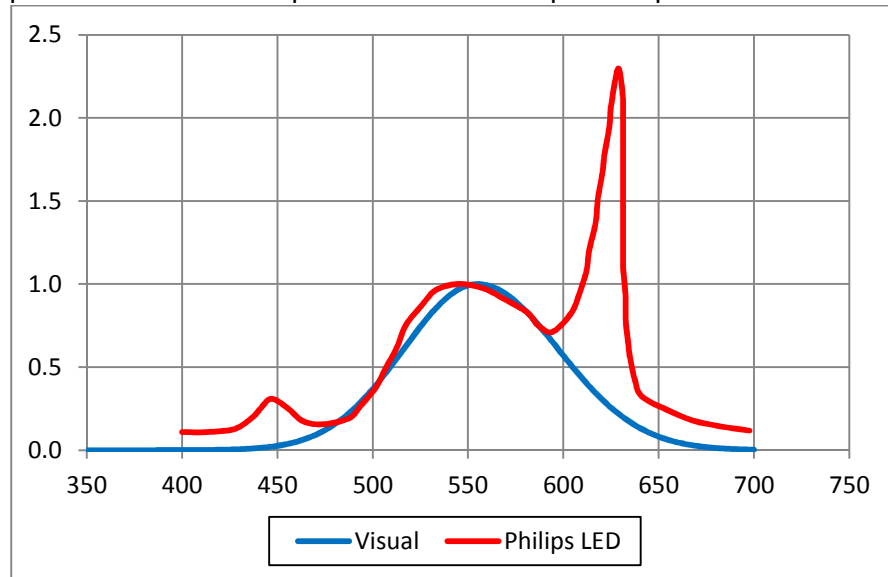


<http://www.roperld.com/science/electromagneticspectraoflightbulbs.pdf>

The visual spectrum peaks in the region between green and blue and falls off rapidly in the red. So the Philips LED spectrum matches the visual spectrum better than the candle and the

incandescent. The candle spectrum peaks too high and both candle and incandescent have too much red.

Here is a comparison of the visual spectrum to the Philips LED spectrum:



The fact that they match well in the peak region is important.

Here is a picture that shows two lamps: one with a 100-watts incandescent bulb and one with the 12-watts Philips bulb. Can you pick out which is which?



Home Depot also sells an EcoSmart LED indoor/outdoor flood light, \$30 (14-watts, 800 lumens, 25,000 hours, dimmable):



I use four of these outside.

There is also a 16-watts version: an EcoSmart LED indoor/outdoor flood light, \$35 (16-watts, 950 lumens, 25,000 hours, dimmable).

All Home Depot orders over \$45 ship free with minimal extra packing, because the bulbs are already packaged well. If you recycle the box and bulb packing you may save energy over driving to the nearest Home Depot to buy them.

A friend recommends Cree light bulbs: <http://www.creeledlighting.com/Products/Lamps.aspx>

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Since a 1500-lumens LED bulb is about 5 times as energy efficient and has about 50 times the life span as an incandescent bulb, it could cost 250 times more than an incandescent bulb to make it have the same energy and longevity value.

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