

LED Lifetime Estimate (per TM-21)

IESNA TM-21-11, "Projecting Long Term Lumen Maintenance of LED Light Sources" is a newly developed Technical Memorandum which provides recommendations for projecting long term lumen maintenance of LEDs using data obtained when testing the LEDs per IESNA LM-80-08, "IES Approved Method for Measuring Lumen Maintenance of LED Light Sources." The TM-21 standard provides an industry-wide, standard and conservative method on which to base lumen maintenance of LEDs. Using TM-21, a projected "L70" value can be no greater than six times the actual test duration of the LM-80 data sets.

The TM-21 projections represent the anticipated lumen maintenance of the LEDs and does not account for reliability of all of the other components of the luminaire or of the luminaire as a system.

Cree currently has published 6048 hours of LM-80 data⁶ on the XLamp CXA2530 White where $I_f = 1212\text{mA}$ and $T_{sp} = 85^\circ\text{C}$. When using the TM-21 method to determine lumen maintenance of the CXA2520 based on a measured T_{sp} of 66°C , the reported L70 is 36,300 hours. This projection is limited by the 6X rule as defined in TM-21. This method also allows lumen maintenance for other L-values to be calculated. In this case, at L90(6K) the calculated lumen maintenance will also be $>36,300$ hours.

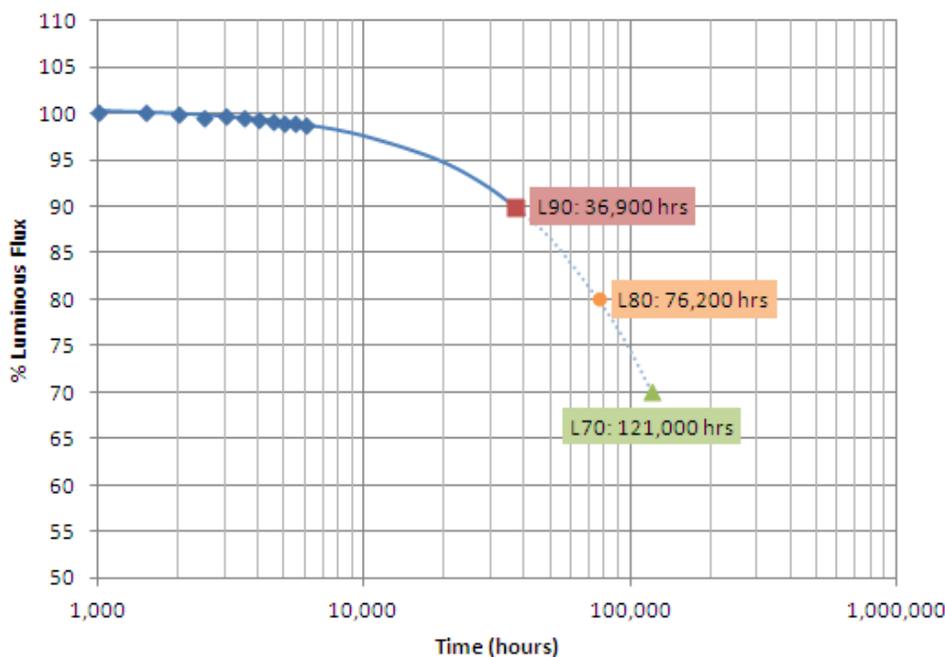


Chart 11: TM-21 projection chart