

LSI *Crossover*® Fixture Life Expectancy (Lumen Depreciation)

All LSI *Crossover* fixtures have an expected life of at least 60,000 hours in all applications, up to a continuous-use ambient temperature of 50°C. Rating life based on a maximum ambient frees the user from having to calculate life expectancy for each different application in different temperature zones.

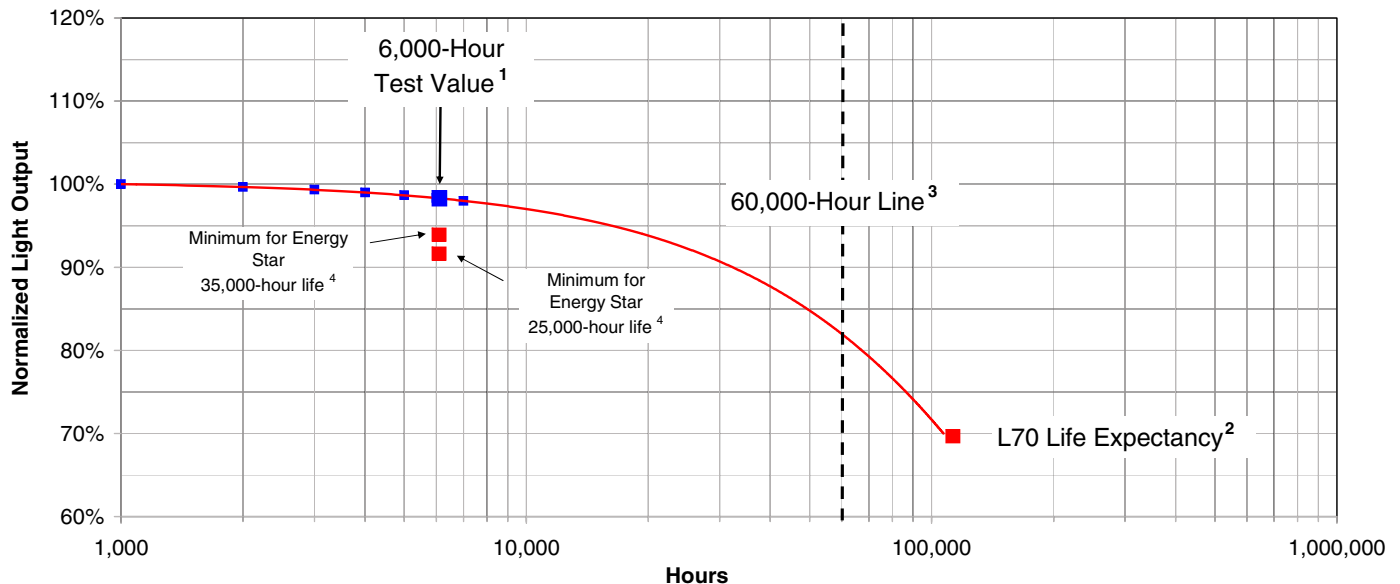
However, the vast majority of *Crossover* fixtures are used in outdoor and temperature-controlled indoor applications where the average ambient temperature is below 40°C. For most such standard installations, the life expectation is greater than 100,000 hours. (For extreme instances where average use temperatures exceed 40°C, contact LSI for a life expectancy analysis of the specific application.)

Fixture life estimates are developed based on lumen maintenance data generated by the LED manufacturer through actual life testing. Tests are conducted at 55°C, 85°C and one other junction temperature. LSI, as a fixture manufacturer, uses the data that most closely matches the maximum internal temperature of the fixture (in-situ temperature), in a standard 25°C ambient. LSI estimates are based on 85°C test levels (see graph below); however *Crossover* fixtures are designed with a significant safety margin, with a typical in-situ temperature of 65°C (specific temperatures are available from the factory for each different fixture).

LED Manufacturer's Accelerated Life Testing

85°C Junction Temperature / 350 mA

(Data Normalized to 1 at 1000 hours per TM-21-08 Draft)



1. Energy Star and LM-80 requirements are based on the test values after 6,000 hours of accelerated life testing.
2. Based on statistical trend analysis (curve-fitting), L70 life expectancy (the point where 50% of fixtures will be expected to have less than 70% lumen maintenance) exceeds 100,000 hours.
3. LSI recommends care be used above 60,000 hours, as any statistical prediction loses accuracy the further it is extended beyond actual test data.
4. *Crossover* lumen maintenance at 6,000 hours = 98.1%. For reference, Energy Star requires 94.1% for 35,000-hour life, 91.8% for 25,000 hours.