

## LED Testing to LM79/LM80/L70

Terms such as **LM79**, **LM80** and **L70** are often referred to when it comes to LED testing. Unfortunately, these standards can be misunderstood and misapplied. These were created by the IESNA (Illuminating Engineering Society of North America) to standardise testing and reporting procedures that allow comparison of products from different manufacturers using equivalent data.

What follows here is a brief and simple explanation of what these standards actually mean and how they relate to purchasing LED Luminaires and are relevant to product guarantees.



### What is LM79?

It is simply a standard for testing LED's which ensures that manufacturers can follow a prescribed procedure to get repeatable and accurate results.

#### What does it test for?

1. **Total flux** (Lumens)
2. **Electrical Power** (Watts)
3. **Watts efficacy** (Lm /Watt)
4. **Chromaticity** (Colour properties of the light)

### What is LM80?

This is another approved **testing method**. However, LM80 measures **light depreciation** over time which is also known as **lumen maintenance**. Whereas traditional lamps fail or 'burn-out', LEDs degrade to a point beyond where there is useful light output. **The test period is 6000 hours** but LM80 provides no estimation of expected life or lumen output beyond the test itself.

**Another standard called TM-21 takes the LM80 data to estimate the life of the LED.**

## LED light depreciation over time ...

### I have heard the term L70 being used but what does it mean?

L70 is the point at which the light output from a LED falls to 70% of its original output. Since LED's do not burn-out but instead fade over time, L70 has been adopted at the point which a LED could be considered as having failed.

### Why has 70% been chosen as the critical point?

This figure has been chosen as a measure of 'useful life'; research tells us that in most cases the **human eye is unable to distinguish a drop in light output until it falls below 70%**.

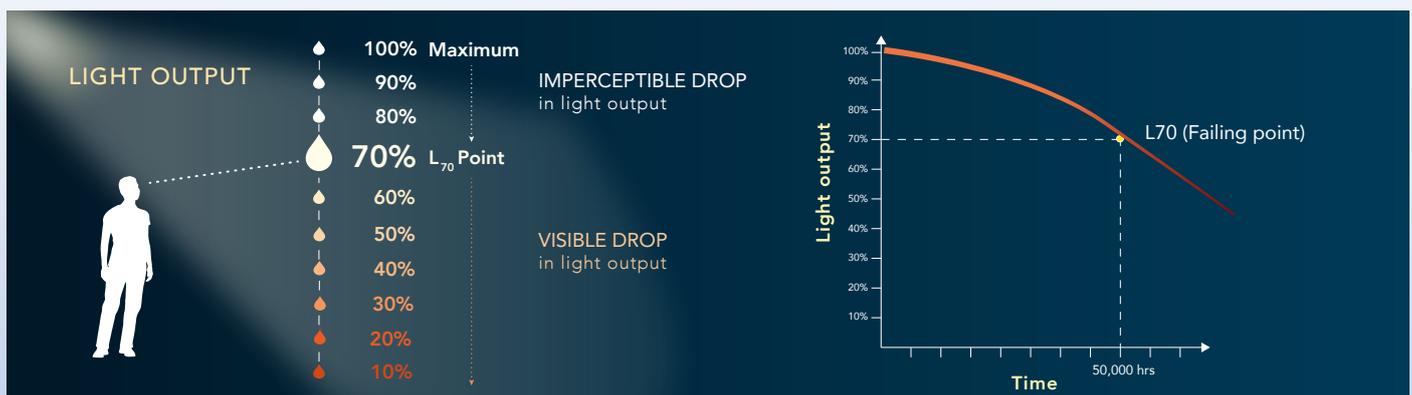


Figure 1. The picture depicts the percentage necessary for a human eye to distinguish a drop in light output. The curve shows a decrease in light output to L70 failing point.

# DOING YOUR COMMERCIAL DUE DILIGENCE ...

## What else do I need to know/do as an installer or buyer?

The tests outlined provide you with a good benchmark; revealing the provenance of a product, how it compares to others or what type of testing has been undertaken by the manufacturer. Whilst this might be considered as good 'technical due diligence', 'commercial due diligence' is of greater importance; determining whether the manufacturer will support you throughout installation and thereafter.

### TECHNICAL REQUIREMENTS – MET



### GUARANTEES ...



## What other issues do I need to be aware of?

Even with LED luminaires meeting testing standards installed, you need to consider the life span of external components such as drivers. In some cases the life of a luminaire is based on the life span of the actual LED chip, not necessarily taking account of the lifetime of internal components.

**Guarantees whilst helpful are not always full proof!**

## Advice on Guarantees: Step by Step Guide

### 1. Find out the guarantee period of the product

Will the product be available for the length of the guarantee?

### 2. Read the small print

Many guarantees may require you to register the product to qualify. Be careful you do not get caught out on the fine print as some products advertise these extended guarantee periods you may not be eligible for.

### 3. Find out if the guarantee be upheld?

Although a guarantee may be offered or extended on placement of an order, it is essential to find out if a guarantee will be upheld. Check the company's trading history as it is common that guarantees are provided for longer periods than the business has been in existence.

### 4. Take extra care with large contracts

For some very large contracts you must verify if the supplier would be able to afford upholding a guarantee. Although unlikely, in the event of a mass failure the manufacturer could dissolve to avoid the guarantee. For large contracts it is reasonable to request a company's accounts to make sure they can fulfil an order and uphold guarantees.

FOR FURTHER INFORMATION CONTACT: Technical Department, Electrical Contractors' Association  
Tel: 020 7313 4867 or visit the website [www.eca.co.uk](http://www.eca.co.uk)