

INDO Lighting - CLO testing methodology

INDO Lighting has developed products that use constant light output (CLO). For products with this feature, it is built into the firmware of the product, and typically starts at 80% output, building up to 100% output at end of life.

The way in which the firmware applies this is to apply a dim factor on top of any other required dimming such that:

$$\text{Output} = \text{CLO factor} * \text{Desired Dim factor}$$

Therefore, a customer using a product with CLO, otherwise dimmed to 50% output would see an output as calculated below at the beginning of life:

$$\text{Output} = 0.8 * 0.5 = 0.4 \text{ (40\%)}$$

At the end of life, the CLO factor rises to 1.0, meaning the output is:

$$\text{Output} = 1.0 * 0.5 = 0.5 \text{ (50\%)}$$

The testing methodology for the purpose of UMSUG is detailed below:

- 1) Test a sample of production units, as required by Elexon, for the "beginning of life". With the CLO algorithm, this will automatically start at 80% output from the CLO factor.
- 2) Re-programme the firmware of the above tested samples to deactivate the CLO feature, such that no dim factor is applied. In this case, the CLO factor is set to 1.0, which yields the same result as testing the unit at the end of life.
- 3) Populate the W and VA readings for beginning of life and end of life, for each sample, at each proposed dim level and submit to Elexon for approval.