



Independent Pricing and Regulatory Tribunal
New South Wales

Lighting Requirements Guide

Commercial Lighting Energy Savings Formula

Energy Savings Scheme

March 2020

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1 About this document

The NSW Energy Savings Scheme (**ESS**) seeks to reduce energy consumption in NSW by creating financial incentives for organisations to invest in energy saving projects.

The other objects of the ESS are to:

- ▼ assist households and businesses to reduce energy consumption and energy costs
- ▼ make the reduction of greenhouse gas emissions achievable at a lower cost, and
- ▼ reduce the cost of, and need for, additional energy generation, transmission and distribution infrastructure.¹

Electricity retailers and other mandatory participants (**Scheme Participants**) are obliged to meet energy saving targets. Energy savings can be achieved by installing, improving or replacing energy saving equipment. Persons that become Accredited Certificate Providers (**ACPs**) can create energy savings certificates (**ESCs**) from these activities and then sell those ESCs to Scheme Participants. The Independent Pricing and Regulatory Tribunal of NSW (**IPART**) is both the Scheme Administrator and Scheme Regulator of the ESS.²

This document provides guidance about the equipment requirements that apply to lighting equipment under the Commercial Lighting Energy Savings Formula of the Deemed Energy Savings Method (**Commercial Lighting Method**), and how to apply to have lighting equipment accepted as meeting these requirements. A tabular summary of the requirements is provided in Appendix A of this document.

This document should be used by persons seeking to have lighting equipment accepted as meeting those requirements. This includes Accredited Certificate Providers (**ACPs**), and other persons such as businesses that manufacture, supply or distribute lighting equipment in NSW for the purposes of use in implementations under the ESS (**Non-ACPs**).

1.1 Legislative requirements

This document is a guide only and is not legal advice. The legal requirements for ACPs participating in the ESS are set out in:

- ▼ Part 9 of the *Electricity Supply Act 1995* (**Act**)
- ▼ Part 6 of the *Electricity Supply (General) Regulation 2014* (**Regulation**), and
- ▼ the *Energy Savings Scheme Rule of 2009* (**ESS Rule**).

ACPs are also required to meet any additional accreditation conditions as set out in their Accreditation Notice.

¹ *Electricity Supply Act 1995*, section 98(2).

² *Electricity Supply Act 1995*, sections 153(2) and 151(2).

1.2 Related documents

The following documents provide further information on the Commercial Lighting Method:³

- ▼ Commercial Lighting - Method Guide -
- ▼ Commercial Lighting - Evidence Manual
- ▼ Commercial Lighting - Evidence Pack, and
- ▼ Commercial Lighting - Calculation Tool.

2 Applying for product acceptance

2.1 How equipment requirements apply

Different equipment requirements apply depending on the equipment class of the lighting equipment, as defined by the ESS Rule.

If the lighting equipment is classed as 'standard' equipment, as listed and defined in Table A9.1 of Schedule A of the ESS Rule, you do not need to apply for product acceptance. This includes linear fluorescent lamps, compact fluorescent lamps, metal halide lamps and high pressure sodium lamps.

All other lighting equipment (emerging lighting technologies, or **ELTs**), as listed and defined in Table A9.3 of Schedule A of the ESS Rule, has to be accepted by IPART as meeting the equipment requirements before ESCs can be created for the installation of the lighting equipment⁴. This includes the following types of lighting equipment:

- ▼ Light Emitting Diode (**LED**) lamps and luminaires
- ▼ induction luminaires, and
- ▼ other emerging lighting technologies that do not fall into one of the listed categories.

The detailed equipment requirements are outlined in section 3 of this document.

We publish a list of all lighting equipment that we have accepted as meeting the equipment requirements for the Commercial Lighting Method (the **Public List**). The Public List can be viewed on our website⁵ and in the ELT Portal, which is our web based system for managing lighting equipment acceptance for the Commercial Lighting Method.⁶

ACPs accredited for the Commercial Lighting Method may use any of the products on the Public List in their commercial lighting activities.

³ Refer: www.ess.nsw.gov.au/Home/About-ESS/Energy-savings-calculation-methods/Commercial-Lighting-Energy-Savings-Formula.

⁴ Clause 5.4(a) of the *ESS Rule* lists end-user equipment that is not eligible.

⁵ Refer: www.ess.nsw.gov.au/Home/About-ESS/Lighting-equipment-requirements/Commercial-lighting-requirements.

⁶ Refer: www.elt.ess.nsw.gov.au/Login. To access the ELT Portal, you must have an account, which can be setup via the above weblink.

Products listed in Table A9.3 must be accepted by the Scheme Administrator as meeting the requirements before ESCs can be created from the use of the product in a lighting upgrade (ie, the product must be on the Public List when the ESCs are created).⁷

2.1.1 Accepted products that are withdrawn or amended

In some cases, acceptance of a particular product may be withdrawn or amended by the Scheme Administrator. A list of products that have had their acceptance withdrawn or amended can be found here:

www.ess.nsw.gov.au/Home/Document-Search/Reports/ELTs-Acceptance-Withdrawn/ELTs-Acceptance-Withdrawn

2.2 Applying for acceptance of lighting equipment

2.2.1 Overview

The application process varies depending on:

- ▼ whether you are an ACP or a Non-ACP, and
- ▼ whether the lighting equipment is approved for use in the Victorian Energy Upgrades (VEU) program.

The VEU program is similar in design to the ESS and has similar requirements for lighting equipment. It is administered by the Victorian Essential Services Commission (ESC).

2.2.2 ACP vs Non-ACP – sponsorship requirement

An application for acceptance of an ELT product can be submitted by either an ACP, or a Non-ACP (persons such as businesses that manufacture, supply or distribute lighting equipment in NSW for the purposes of use in lighting upgrades under the ESS).

Where the application is submitted by a Non-ACP, it must be sponsored by at least two ACPs to confirm that the application relates to products that will genuinely be installed as part of an ESS lighting upgrade. To sponsor an ELT product, an **authorised representative** of an ACP must complete the [Commercial Lighting - Application Form – ELT product sponsorship](#) for the relevant ELT product(s) and the Non-ACP must then submit the completed form with their application.

⁷ An exception applies for previously accepted products that subsequently had their acceptance withdrawn. In this case, ACPs may create ESCs if the product was accepted as at the implementation date (refer clause 6.5C of the ESS Rule).

2.2.3 Applying for acceptance via the VEU program pathway

If your equipment is currently approved by the ESC as meeting the requirements of Activity 34 of the VEU program⁸, you may submit an application for ESS product acceptance via our VEU pathway. It is a more streamlined process than our standard application pathway, due to the commonality between the ESS and the VEU program.

To submit an application for ESS product acceptance via the VEU program pathway send an email to veetprocess@ipart.nsw.gov.au and include “VEU program product application” as the subject.

The application must include:

- ▼ the brand and model number,
- ▼ the VEU program product category of the lighting equipment, and
- ▼ a specification sheet for the lamp and driver (if declared) , and
- ▼ applicants that are Non-ACPs must also include evidence that the relevant ELT product has been sponsored by at least two ACPs (refer section 2.2.2).

Generally the requirements for lighting equipment in the VEU program are the same as the ESS, except that:

- ▼ LED tube (lamp only) and T5 adaptors with T5 linear fluorescent lamps are not eligible in the ESS.

We will assess your application to check that it meets the following criteria:

- ▼ the product is listed on the VEU Product Register as being currently approved⁹ and the product is not an LED tube or a T5 adaptor.

If we decide after assessing the application that the product meets the equipment requirements, it may be accepted for use in the ESS and added to the Public List.

2.2.4 Applying for acceptance via the standard pathway

Applications for ESS product acceptance via the standard pathway must be made through the online ELT Portal:

- ▼ ACPs using the Commercial Lighting method will have received account details at the time of accreditation.
- ▼ Non-ACPs may create an account via the ELT Portal login page: www.elt.ess.nsw.gov.au/Login.

⁸ The requirements of Activity 34 are outlined in VEU's Building Based Lighting Upgrade Activity Guide, which is available at: www.esc.vic.gov.au/victorian-energy-upgrades-program/activities-offered-under-veu-program/building-based-lighting-upgrades#toc-building-based-lighting-upgrades-eligibility.

⁹ You may not apply for ESS product acceptance via the VEU pathway if the product was previously approved under the VEU program, but the approval has since been withdrawn or suspended.

To submit an application,¹⁰ follow the step-by-step application process, which includes detailed instructions. The process involves entering information about your product and submitting certain supporting documents to demonstrate that the product meets the equipment requirements.

Applicants must check that the documents they submit meet the requirements, and that the information is consistent, ie, all documents are for the same brand name and model numbers.

If the application includes documents from third parties (eg, laboratory test reports), applicants must also take steps to check the veracity of these documents. Some laboratories' websites allow you to check the veracity of reports. Applicants may also contact the author of a report to check that it is valid.

Applicants that are Non-ACPs must also include evidence that the relevant ELT product has been sponsored by at least two ACPs (refer section 2.2.2).

To confirm that the application is complete and all documents have been thoroughly checked by the applicant, all applications must also include a signed [Commercial Lighting – Form - ELT Application Checklist](#) (refer section 3.6).

2.3 Processing applications

If the Scheme Administrator accepts the equipment as meeting the relevant requirements, you will receive notification that the product has been accepted, and it will have an “accepted” status in the ELT Portal. We will also include that equipment on the Public List. The published information will include the accepted LCP, which ACPs will need to calculate the energy savings for the relevant implementation.

Should we require additional information to assess your application, we will send you a request for further information (**RFI**) in the ELT Portal. You must provide the additional information to us by uploading it to the relevant section of the ELT Portal. As we conduct all ELT assessment in the ELT Portal, we do not accept any documents via email or in hardcopy.

We will send a maximum of two RFIs before the Scheme Administrator makes a decision whether to accept the product based on the information provided to that point. If the information does not meet the requirements, the application for acceptance may be refused by the Scheme Administrator. A new application may then be submitted (once all documents are in order).

Responses to RFIs must be submitted within 90 days. If an applicant does not respond to an RFI within 90 days then the application may be withdrawn by the Scheme Administrator. A new application may then be submitted.

¹⁰ Please check that the product is **not** already on our Public List before submitting an application for ESS product acceptance.

3 Equipment requirements

This section outlines the documents that must be submitted as part of an application submitted via the standard pathway outlined in section 2.2.4.

The equipment requirements cover both product safety and performance, and include requirements for:

- ▼ Lamp Circuit Power (LCP)
- ▼ Lamp Life
- ▼ Electrical Safety
- ▼ Electro-Magnetic Compatibility (EMC), and
- ▼ Power Factor.

The equipment requirements are outlined in detail below.

3.1 Lamp Circuit Power

Compliance with the LCP requirements must be demonstrated by providing a test report from a NATA accredited laboratory (or equivalent)¹¹ that evidences both the testing and result.¹²

If you are applying for acceptance of a product under the 'LED Lamp Only - ELV' equipment class, the evidence only needs to show the brand and model of the lamp, and the nominal lamp power.

For all other equipment classes, the evidence must show the brand and model of all the lighting equipment, including the control gear/driver. Similarly, the LCP value must represent the input power to the whole luminaire, not just the output power from the control gear.

3.2 Lamp Life

ELTs must have a lamp life of at least 30,000 hours to be accepted under the ESS. You must supply evidence of the lighting equipment lamp life, as outlined below.

3.2.1 Lamp life for induction lamps

For induction lamps, you must provide a manufacturer's datasheet showing the nominal lamp life.

¹¹ An equivalent laboratory is a laboratory accredited by an organisation included in the Mutual Recognition Agreement (MRA) Network published by NATA.

¹² You must supply evidence of the laboratory's appropriate accreditation to perform that test. A statement/mark of accreditation on the test report is sufficient.

3.2.2 Lamp life for LEDs

LED lamps and LED luminaires contain an LED chip which produces the light. The Illuminating Engineering Society (**IES**) has two standards that are used to estimate the operating life of an **LED chip** used in lighting equipment:

- ▼ LM-80-08: This specifies the process for testing the degradation of light output from an LED chip over a limited period (eg, 6,000 to 10,000 hours), and
- ▼ TM-21-11: This specifies how to extrapolate the results of the LM-80-08 test to forecast the operating life of the LED chip.

For the LED chip you must provide:

- ▼ Item 1 - an IES LM-80-08 test report issued by a laboratory accredited by NATA (or equivalent¹³) to test against IES LM-80-08, and
- ▼ Item 2 - evidence of the laboratory's accreditation with NATA or an equivalent accreditation body (which must show the name of the laboratory, the accreditation organisation, and show that the laboratory is accredited to test against IES LM-80-08), and
- ▼ Item 3 - an IES TM-21-11 test report using the results from the LM-80-08 report. This report is usually included as an appendix or section of the LM-80-08 report or contained in an In-situ Temperature Measurement Test (ISTMT) report.

For the lamp or luminaire you must provide:

- ▼ Item 4 - a declaration from the lamp or luminaire manufacturer and / or a test report from a laboratory (eg, an ISTMT report) that states:
 - the brand and model of your lamp or luminaire and the brand and model of all LED chips used in your lamp or luminaire
 - the in-situ case temperature of the LED chip in the product when it is installed in the lamp or luminaire and operating normally, and
 - the in-situ drive current of the LED chip in the product when it is installed in the lamp or luminaire and operating normally.

You must enter the 'lamp lifetime' in the ELT Portal, and this figure must be either:

- ▼ the 'Reported L70' in the TM-21-11 report for the test condition with a case temperature and drive current equal to or greater than the case temperature and drive current of the LED chip in your lamp or luminaire, or
- ▼ the 'Reported L70' from the 'interpolation'¹⁴ in the TM 21-11 report using your actual case temperature.

Additional guidance and a worked example is provided in Appendix C.

¹³ An equivalent laboratory is a laboratory accredited by an organisation included in the Mutual Recognition Agreement (MRA) Network published by NATA.

¹⁴ The 'interpolation' from a TM-21-11 report further refines a 'projected' lifetime between two of the case temperatures tested in the LM-80-08 report using the specific in-situ case temperature and in-situ drive current of the LED chip(s) when installed in the luminaire.

3.3 Electrical safety

You must demonstrate that your product complies with the NSW electrical safety requirements. There are **three options** that could apply. Choose the option that is appropriate for your product.

1. If the control gear being used with the product is a declared article (refer below) you must attach an *Australian Certificate of Approval* for the control gear/driver/lamp that is produced by either NSW Fair Trading or another certification body listed as a Recognised External Approval Scheme (REAS).¹⁵ Please note that we do not accept certificates of approval or approval marks that are issued outside Australia.
2. If the control gear being used with the product is **not** a declared article, you must attach an *Australian Certificate of Suitability* for your luminaire. We will accept either:
 - a Certificate of Suitability issued by NSW Fair Trading or another certification body listed as a REAS, or
 - a JAS-ANZ endorsed Certificate of Suitability that complies with JAS-ANZ's *Policy 06/13 – Certification of Non-Declared Articles classified as Emerging Lighting Technologies in the ESS*.¹⁶
3. If you are only applying for acceptance of an Extra Low Voltage (ELV) lamp, and the application does not include the control gear/driver, you do not need to supply an electrical safety certificate.

Declared articles are as per the published NSW electrical safety requirements for a power supply.¹⁷ A power supply (eg, control gear) is a declared article if it:

- ▼ provides an output not exceeding 50 volts a.c. or 120 volts ripple free d.c., and
- ▼ is a type to provide supply to separate luminaires.

The control gear is considered separate to the luminaire if:

- ▼ a person can easily separate the electrical connection between the control gear and the luminaire, and
- ▼ a person can easily separate the physical connection between the control gear and the luminaire.

Therefore, if the control gear provides an output not exceeding 50 volts a.c. or 120 volts ripple free d.c., and is of a type to supply separate luminaires, the control gear is a declared article and you will also need to supply a Certificate of Approval for the control gear.

3.4 Electro Magnetic Compatibility (EMC)

You must provide documentation showing that your lighting equipment meets the EMC requirements of the *Radio Communications Act 1992*. This is administered by the Australian

¹⁵ Refer: www.fairtrading.nsw.gov.au/help-centre/online-tools/approved-electrical-articles-register.

¹⁶ Refer: www.jas-anz.org/australian-and-new-zealand-electrical-equipment-safety-system-equipment-safety-rules.

¹⁷ Refer: www.fairtrading.nsw.gov.au/help-centre/online-tools/approved-electrical-articles-register.

Communication and Media Authority (ACMA). The Electrical Regulatory Authorities Council (ERAC) maintains the Database of Responsible Suppliers.¹⁸

Information accepted as evidence of compliance with electrical safety and EMC regulatory arrangements is:

- ▼ a Responsible Supplier Code issued by ERAC, and
- ▼ an ACMA Declaration of Conformity

It is a mandatory record keeping requirement under the *Radio Communications Act 1992* for the responsible supplier to keep a *Declaration of Conformity*. For this reason, and to simplify the assessment process, this is the only piece of evidence we will accept.

You are **not** required to provide the actual EMC test report on which the *Declaration of Conformity* is based.

3.5 Power Factor

You must supply evidence of the true power factor of the lighting equipment in a test report from a NATA accredited laboratory (or equivalent)¹⁹ that evidences both the testing and result (this is usually on the same report as the LCP).²⁰

3.6 ELT Application Checklist

To confirm that you have undertaken the above steps, all applications submitted via the ELT Portal must include a completed and signed *ELT Application Checklist*, which can be downloaded from:

www.ess.nsw.gov.au/Home/Document-Search/Forms/Commercial-Lighting-Form-ELT-Application-Checklist/Commercial-Lighting-Form-ELT-Application-Checklist-V1.2

¹⁸ Refer: equipment.erac.gov.au/Public/.

¹⁹ If the test report is issued by a non-Australian laboratory, you must supply evidence of the laboratory's appropriate accreditation to perform that test.

²⁰ True power factor means power factor that includes both the phase distortion due to inductance and capacitance and harmonic distortion.



Appendices

A Summary of requirements

Required Documentation		Specifications	LCP/NLP /Output Voltage	Lifetime			Electrical Safety		Electromagnetic Compatibility (EMC)		Power Factor
Category	Relevant Australian Standard	Data/Specification Sheet (N.B required for each product or component)	Laboratory Test Report	Lifetime Test Report - LM-80-08 and TM-21 (L ₇₀ ≥ 30,000 hrs)	Manufacturer's chip declaration or ISTMT	Data / Specification Sheet	Australian Certificate of Approval	Certificate of Suitability	ERAC Responsible Supplier Code	ACMA Declaration of Conformity	Laboratory Test Report
LED Lamp only-ELV		Yes	NLP	Yes	Yes						PF ≥ 0.9 ³
LED Lamp only-240V Self Ballasted	AS/NZS 62560	Yes	NLP	Yes	Yes		lamp		Yes	Yes	PF ≥ 0.55
Induction Luminaire	AS/NZS 60598.1	Yes	NLP			Yes		for luminaire ¹	Yes	Yes	PF ≥ 0.55
LED lamp and driver	AS/NZS 61347.1 and IEC 61347.2.13	Yes	LCP	Yes	Yes		for control gear, if control gear is a declared article ²	for luminaire ¹ , if control gear is not a declared article ²	Yes	Yes	PF ≥ 0.55
Modified Luminaire - LED Linear Lamp	AS/NZS 60598.2.1 or AS/NZS 60598.2.2										
LED Luminaire-fixed type	AS/NZS 60598.2.1										
LED Luminaire - Linear Lamp	AS/NZS 60598.2.1 or AS/NZS 60598.2.2										
LED Luminaire-floodlight	AS/NZS 60598.2.5										
LED Luminaire-recessed	AS/NZS 60598.2.2										
LED Luminaire-high/lowbay	AS/NZS 60598.2.1										

Required Documentation		Specifications	LCP/NLP /Output Voltage	Lifetime			Electrical Safety		Electromagnetic Compatibility (EMC)		Power Factor
Category	Relevant Australian Standard	Data/Specification Sheet (N.B required for each product or component)	Laboratory Test Report	Lifetime Test Report - LM-80-08 and TM-21 (L ₇₀ ≥ 30,000 hrs)	Manufacturer's chip declaration or ISTMT	Data / Specification Sheet	Australian Certificate of Approval	Certificate of Suitability	ERAC Responsible Supplier Code	ACMA Declaration of Conformity	Laboratory Test Report
LED Luminaire-streetlight	AS/NZS 60598.1 and AS/NZS 1158.6 or IEC 60598-2-3	Yes	LCP	Yes	Yes		for control gear, if control gear is a declared article ²	for luminaire ¹ , if control gear is not a declared article ²	Yes	Yes	PF ≥ 0.55
LED Luminaire-emergency lighting ⁴	AS/NZS 60598.2.22										
LED Luminaire-hospital use	AS/NZS 60598.2.25										
Voltage Reduction Unit	AS/NZS 60335.1	Yes	Output Voltage					Yes	Yes	Yes	

LCP	Lamp Circuit Power is the combined power consumption of a lamp and its driver (control gear).
Electrical Safety	All electrical goods sold in NSW must meet the requirements of the Electricity (Consumer Safety) Act 2004 and be safe to use.
Laboratory Test Report	The Test Report should be completed by an independent testing laboratory, a NATA accredited laboratory (or equivalent). If you submit a Test Report from a non-Australian laboratory, you also need to submit evidence of the laboratory's appropriate accreditation. Tests are to be completed with the lamp and ballast as one unit.
Australian Certificate of Approval	A certificate confirming that a Declared Article meets Australian safety standards. A recognised certificate (which could be a State Approval Number, or from a recognised independent certifier) must be submitted.
Certificate of Suitability	A certificate from a state or territory Government Safety Regulator (e.g. Fair Trading NSW), or a JAS-ANZ endorsed certificate to evidence the electrical safety of Non-Declared Articles. A JAS-ANZ endorsed certificate is a certificate issued by a JAS-ANZ accredited certification body that displays the JAS-ANZ symbol. The certificate must reference the relevant standard.
ERAC Supplier Code	Supplier Code issued by ERAC. You must either supply a screenshot or registration receipt showing details of supplier, date of expiry and ERAC code.
Lifetime Test Report	IES LM-80-08 and IES TM-21-11 test reports issued by an independent testing laboratory, accredited by NATA (or equivalent) to perform IES LM-80-08 testing. If you submit a Test Report from a non-Australian laboratory, you must also submit evidence of the laboratory's accreditation. The L70 value used must be at the temperature specified by the manufacturer of the Lamp.

Notes

1. A luminaire is defined as an apparatus that distributes, filters or transforms the light emitted from a light source, including Lamps, Control Gear and all components necessary for fixing and protecting the Lamps, including the troffer.
2. The control gear is a declared article under the published NSW electrical safety requirements if it provides an output not exceeding 50 volts a.c. or 120 volts ripple free d.c., **and** is a type to provide supply to separate luminaires.
3. The Power Factor Test must be conducted on a transformer designed for ELV Halogen Lamps (minimum 35W). The reported power factor must be the "true" power factor (eg, include the effects of Harmonic distortion).
4. Emergency Lighting with multiple power modes must be tested at full output power.

B Additional guidance on LED lamp life

B.1 LED lamp life tests

The following provides further detail about the IES test standards that relate to the estimation of LED lamp life, and how the test results need to be applied when submitting an ESS ELT product application.

LM-80-08: Measuring Lumen Maintenance of LED Light Sources:

- ▼ LM-80-08 is a test method for measuring the degradation of light output (measured in lumens) from an LED chip over time (lumen maintenance).
- ▼ The measurement period is typically between 6,000 and 10,000 hours.
- ▼ Tests are done for different case temperatures and drive currents. LM-80 requires only two test temperatures, one of which must be either 55°C or 85°C.
- ▼ The outputs of the LM-80-08 report are used in the TM-21-11 calculations.

TM-21-11: Projecting Long Term Lumen Maintenance of LED Light Sources:

- ▼ TM-21-11 specifies the process for using the results from the LM-80-08 test to project a lifetime for a lamp or luminaire using the LED chip tested.

Value for lamp life:

The value you enter must be the 'Reported L_{70} '²¹ from the TM-21-11 report for the test conditions that correspond to the operation of the same LED chip in your lamp or luminaire, namely the test conditions where:

- ▼ the drive current tested is greater than, or equal to the in-situ drive current,²² and
- ▼ the case temperature tested is greater than, or equal to the in-situ case temperature.²³

To be accepted for use in the ESS, the lamp life must be at least 30,000 hours.

²¹ The TM-21-11 method applies limitations to the 'calculated' and 'projected lifetime' based on the number of samples in the LM-80-08 test. For example, a test with 20 or more samples is limited to six times the duration of the LM-80-08 test. As such, a test of 20 samples for 6,000 hours is limited to (6,000 hours x 6 = 36,000 hours). This limited lifetime is the 'Reported L_{70} '. For the 'Reported L_{70} (Dk)' result, (L_{70} refers to 70% lumen maintenance, Dk relates to the duration of the LM-80-08 test eg, 6k is a 6,000 hour test).

²² The in-situ drive current is the current delivered to each individual LED chip when it is installed in the lamp or luminaire and operating normally (and not the total current delivered to the lamp or luminaire). An increase in the drive current decreases lamp life.

²³ The in-situ case temperature is the case temperature of each individual LED chip when it is installed in the lamp or luminaire and operating normally (and not the case temperature from the LM-80-08 test). An increase in the case temperature decreases lamp life.

B.2 Lamp life requirements - example

An applicant applies for acceptance in the ELT Portal of an LED floodlight Australian Highbays, model HB-0150W that uses the following LED chip:

- ▼ Brand: LED Chips International and Model: LCI -2150.

The applicant uploads to the ELT Portal:

- ▼ an LM-80-08 report for the LED chip
- ▼ evidence that laboratory performing the LM-80-08 test was accredited by an accreditation body to conduct such a test
- ▼ a TM-21-11 report which references the LM-80-08 report, and
- ▼ a manufacturer's declaration from the floodlight manufacturer stating:
 - the brand and model of the floodlight (Australian Highbays, HB-0150W),
 - the brand and model number of the LED Chip used in the floodlight (LED Chips International LCI-2150),
 - the in-situ case temperature of the chip, as tested in the floodlight: 60°C, and
 - the in-situ drive current of the chip, as tested in the floodlight: 120mA.

Lamp life

The TM-21-11 report lists results for a minimum of two case temperatures, one of which must be either 55°C or 85°C:

Case temperature	Drive current	'Reported L ₇₀ '	Applicability of result for this floodlight
55 °C	150 mA	>42,000 hours	Invalid, as the case temperature tested is less than the in-situ case temperature of 60°C
85 °C	150 mA	>36,000 hours	Valid
105 °C	150 mA	27,000 hours	

The applicant enters a value of 36,000 hours in the Lamp Life field in the ELT Portal, corresponding to the LM-80-08 test at 85°C case temperature and 150mA drive current.

Checks for lamp life evidence

The applicant checks the following information before submission of the application:

- ▼ The luminaire in the manufacturer's declaration matches the product in its ESS application.
- ▼ The LED Chip in the luminaire matches the LED chip in the LM-80-08 test.
- ▼ The laboratory producing the LM-80-08 report is accredited to NATA or equivalent to conduct LM-80-08 tests.
- ▼ The TM-21-11 test uses results from the LM-80-08 report provided in the application.

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- ▼ The in-situ case temperature and drive current in the manufacturer's declaration are for each individual LED chip when it is installed in the luminaire and operating normally (and not the case temperature and drive current at which the LM-80-08 test was conducted).
 - ▼ The test drive current is greater than, or equal to the in-situ drive current.
 - ▼ The test case temperature is greater than, or equal to the in-situ case temperature.
 - ▼ The reported Lamp Life in the ELT Portal is the 'Reported L₇₀' value not the 'Calculated L₇₀' or 'Projected L₇₀'.
 - ▼ A valid 'Reported L₇₀' value has been reported in the Lamp Life field of the ELT Portal.
 - ▼ The valid 'Reported L₇₀' result is equal to or greater than 30,000 hours.