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GEMS Regulator

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Greenhouse and Energy Minimum Standards (LED Lamps) Determination 2025

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Overview

- ▶ Requirements under the Greenhouse and Energy Minimum Standards (LED) Determination
- ▶ Lamps in and out of scope
- ▶ Registration
- ▶ Getting ready now
- ▶ Inclusions in the registration form
- ▶ Families of models to group registration
- ▶ How family categories can work
- ▶ Bulk uploads
- ▶ Helpful Resources

Requirements under the LED Lamp Determination

Sections 13, 15, 16 & 21

- ▶ MEPS
 - ▶ Minimum luminous efficacy in lm/W. With adjustments for CRI, directional/non-directional, colour-tuneable, anti-glare shield and high luminance lamps
- ▶ Packaging (labelling requirements)
 - ▶ Model number, luminous flux, on-mode power, efficacy, CCT, beam angle for directional lamps, cap type, rated life, standby power (if not zero), network standby power (if applicable and if not zero), dimmability and dimming compatibility, CRI (additional markings if < 80)
- ▶ Markings on the physical lamp
 - ▶ Lumens, CCT and beam angle if they can fit
- ▶ Other quality parameters
 - ▶ CRI, displacement factor, lumen maintenance and survival factor, colour consistency, flicker and stroboscopic effect, UV hazard and blue light hazard
- ▶ To establish above, all product testing should be carried out according to AS/NZS 5341 and/or any other equivalent tests specified in the LED determination

Determination Section 13: Requirements cont.

The lamp efficacy is calculated using the following formula

$$\eta_{\text{lamp.min}} = \left(\frac{F \times \eta}{C \times R} \right) \times \left[1 - \frac{(L \times F \times \eta)}{(L \times F \times \eta) + \Phi_{\text{use}}} \right]$$

where,

η - threshold luminous efficacy, 120 lm/W

L – end loss factor (different values for CLL and Other)

F – luminous efficacy factor (different values for NDLL and DLL; different values for DLLs depending on the beam angle)

C – correction factor (different values for DLL / NDLL and MLL / NMLL combinations; additional values for colour-tuneable, DLL with anti-glare shield and HLLL)

R – CRI factor (based on the Colour Rendering Index of the lamp)

Further details are provided in Section 13 of the LED determination.

Abbreviations:

CLL – Connected LED Lamp

NDLL – Non-directional LED Lamp

DLL – Directional LED Lamp

HLLL – High-luminance LED Lamps

MLL – LED Lamps that can be operated directly on the mains electricity supply

L_v – luminance of HLLL

NMLL – LED Lamps that require a separate power supply converter inserted between the power supply and the lamp to operate

connected lamp or
non-connected

Directionality

voltage range;
mains or other

Lamp type	L
Non CLL	1.5
CLL	2.0

Lamp type	F
NDLL	1.00
DLL (90° or 120° cone flux)	0.85
DLL (BA < 90°)	0.95
DLL (90° ≤ BA < 120°)	1.00

Lamp type	C
NDLL & NMLL	1.00
NDLL & MLL	1.08
DLL & NMLL	1.15
DLL & MLL	1.23

Special features	Add to C
Colour tuneable	+0.10
DLL with antiglare shield	+0.20
HLLL	+0.0058 x L_v - 0.0167

R
$R = (CRI+80)/160$

Lamps in scope

Section 10

- ▶ General Conditions:
 - ▶ contains one or more inorganic LEDs
 - ▶ has chromaticity coordinates within the specified range
 - ▶ has the initial luminous flux of < 500 lumen per mm^2 of projected light emitting surface area
 - ▶ has initial flux between 100 and 82,000 lumens
- ▶ Single-capped LED lamps with cap types:
 - ▶ BA15d, B15d, B22d, E11, E12, E13, E14, E17, E26, E27, E39, E40, GU10, GZ10, GX10, GU24, GX53, G9
 - ▶ Bi-pin lamp caps G4, GU4, GY4, GZ4, GU5.3, GX5.3, G6.35, GY 6.35, GU7, G53
- ▶ Double-capped LED lamps. LED lamps with a nominal length of 550mm to 1500mm with cap types:
 - ▶ G5 and G13 (LED retrofit and conversion lamps)
 - ▶ GX16t-5

Lamps out of scope

Section 11 and Schedule 1 (Lamps with cap types not on the previous slide)

► Aeronautical lamps

► Aircraft lamps satisfying requirements of,

- Airworthiness standards in sub regulations 23.001(1), 25.001(1), 27001(1) and 29.001(1) of the Civil Aviation Safety Regulations
- Section 3, Chapter 7 of the Defence Aviation Safety Design Requirements Manual

► Aeronautical ground lights. Does not cover LED lamps that:

- are designed as aeronautical ground lights (within the meaning of Part 139 (Aerodromes) Manual of Standards); and (b) meet the requirements that apply to such lights under either or both of the following:
- Part 139 (Aerodromes) Manual of Standards;
- Defence Aviation Safety Authority Regulation (DASR) 139 – Aerodromes.

► Other Exclusions. LED Lamps with:

- Specific effective ultraviolet power >2 mW/klm or
- Peak radiation between 180 and 280 nm
- Radiation power emitted within specified ranges
- Photosynthetic efficacy is within the specified range
- Fixed beam angle of less than 10^0
- Colour-tuneable lamps, other than LED lamps that contain phosphor materials for light conversion that can be set as specified.

Registering LED Lamps - what you need to know

- ▶ Once a product is in-scope of a GEMS Determination which has commenced, it becomes a regulated product.
- ▶ Regulated products must be registered before they can be supplied or sold.
 - ▶ Must be fully registered to supply by 3 March 2022
 - ▶ noting the assessment process may take up to 14 days, or longer during peak application periods
- ▶ Use the LED Lamp Registration Form (available now) for single models and standard family of models
- ▶ Use the LED Lamp Registration Form (form)
- ▶ The registration fee for an LED application will be \$440

Registration period

- Product registrations will last for five years. They must be re-registered before the expiration date to continue to be able to be supplied.

Exemptions

- The GEMS Regulator can exempt products from all or parts of the relevant Determination but does not have the power to exempt products from the requirement to register.

Fees

- Fees must be paid to register or vary the registration of products in Australia, to cover the costs of registration assessment and compliance monitoring.

Get Ready Now

Review the
Greenhouse and
Energy Minimum
Standards (LED Lamps)
Determination 2025

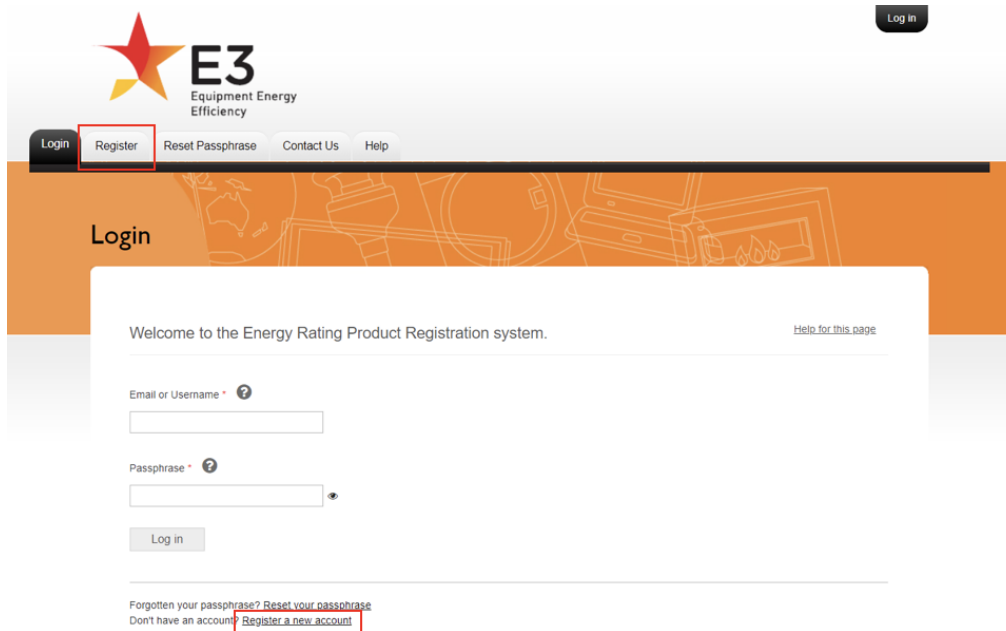
Review Product
Catalogue for in scope
products

Seek legal advice if
required

Review Product Test
Reports – for in scope
lamps, consider health
performance
requirements (e.g. UV
Hazard, Blue Light
Hazard)

Create your account in
the Energy Rating
Product Registration
system (details on next
slide)

Get Ready Now: Create Your Account



E3
Equipment Energy Efficiency

Login Register Reset Passphrase Contact Us Help

Login

Welcome to the Energy Rating Product Registration system. [Help for this page](#)

Email or Username * ?

Passphrase * ?

Log in

Forgotten your passphrase? [Reset your passphrase](#)
Don't have an account? [Register a new account](#)

- ▶ To register a product, you will need to create an account for the Energy Rating Product Registration system
- ▶ To register a new user account:
 - ▶ Enter <https://reg.energyrating.gov.au>
 - ▶ Select either “Register” at the top of the page **or** the “Register a new account” at the bottom of the page
 - ▶ Fill in your details and follow the email instructions to activate your user account and log into the system.
- ▶ **Note:** If you have an existing account with energyrating.gov.au, you do not need to create a new account.

New LED Lamp Registration form

- ▶ Registration form creation:
 - ▶ What is required under the GEMS Act
 - ▶ What is required by the determination
 - ▶ Any additional information required by the GEMS Regulator
 - ▶ How to minimise the burden on industry

Inclusions in the registration form

Standard inclusions across all products regulated by GEMS	Determination specific inclusions to standard LED registration form
Registration Type	Application Details: Product Scope, model characteristics, family characteristics, format of information
Regulatory Authority	Data Import: New page that generates a CSV template for bulk upload function (more detail to come)
Applicant and Contacts	Efficacy – identification of lowest efficacy model , test reports, compliance
Models and Manufacturer	Model Information: • Declared (tested) information • Testing information • Other requirements such as impact on human health ○ UV Hazard ○ Blue Light Hazard • Product packaging details • Labelling requirements
Exemption	
Public Website	
Declaration & Notes	
Payment	
Summary & Submission	

- The registration forms will include standard pages that are applied across all products regulated by GEMS and new pages that are specific to the GEMS (LED Lamps) Determination 2025.

Families of models to group registration

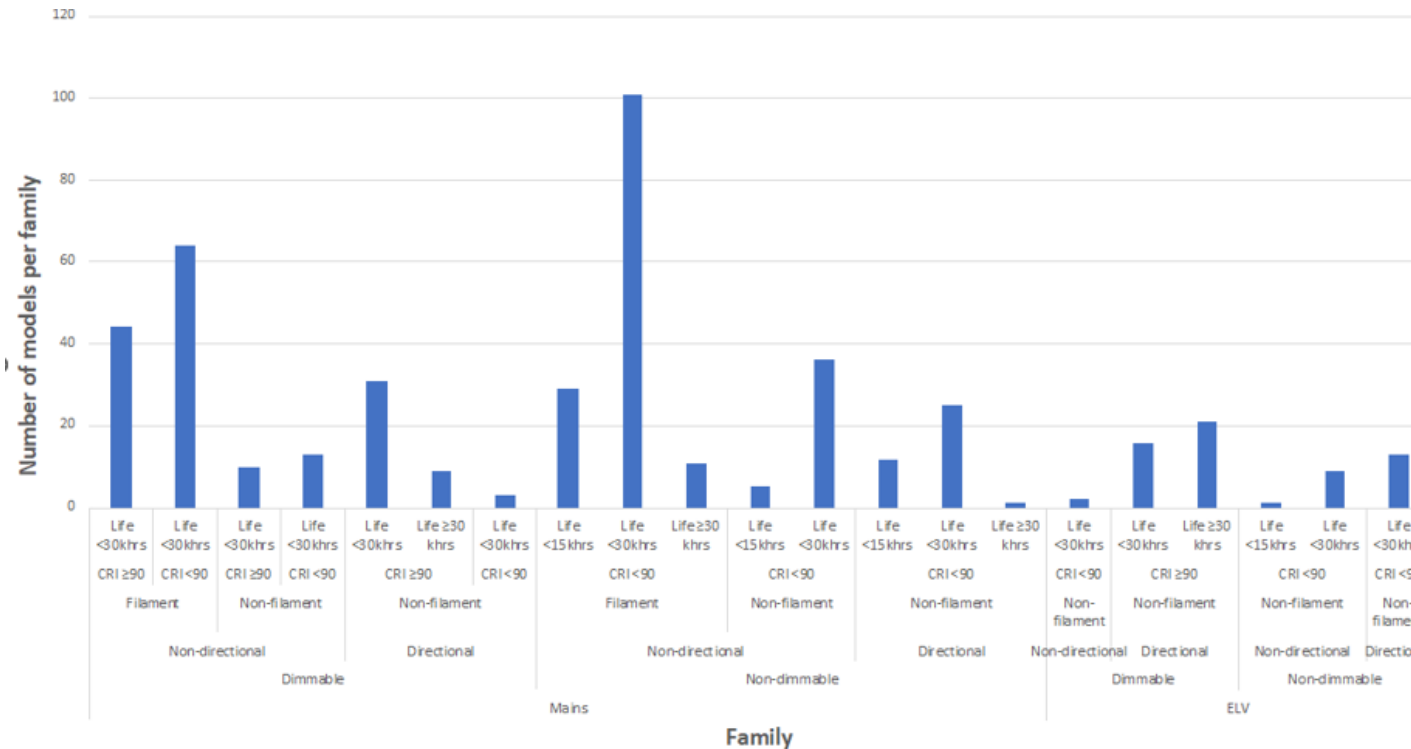
Section 7

- ▶ **Products with similar technical characteristics can be in one family (up to 100 models)**
 - ▶ it is not compulsory to have all similar products in one family
 - ▶ additional models can be added later (within 100 model cap)
- ▶ **You must include evidence (the test report) for:**
 - ▶ the least efficient model in the family
 - ▶ If a Blue Light Hazard test is required, a test report must be provided for the model with the highest correlated colour temperature (CCT), either for the maximum luminance or for a blue light hazard test. Likewise, if a UV Hazard test is required, a test report for the model with the highest UV radiation output must be provided.

- ▶ **Special purpose family**
 - ▶ low volume, end of product line, can't otherwise be put into a family group
 - ▶ you must provide a test report for every model in the family under subsection 7(4)(b) of the determination
 - ▶ up to 10 models in each product class
 - ▶ per supplier: no more than one special purpose family in any product class (i.e. maximum of two special purpose families per registrant; one for single capped lamps, another for double capped lamps)

- Product class: single capped OR double capped
- Voltage: mains voltage OR non-mains voltage
- Light direction: directional OR non-directional
- Dimmability: dimmable OR non-dimmable
- Filaments: with filament OR without filament
- $L_{70}B_{50}$ lifetime – 3 bands
- Colour Rendering Index (CRI) – 3 bands
- Reference control settings (if applicable)

How family categories can work



- ▶ Case Study: Large supplier: 456 models that are in scope
- ▶ 21 families were grouped and identified. One family exceeded 100 models, so an additional family is needed and the supplier will need to register 22 families.
- ▶ There may be business or risk management reasons to reduce the number of models in a family
- ▶ GEMS Section 54
- ▶ Note: If one model in a family registration is cancelled by the Regulator due to a non-compliance, all models in that family will be cancelled.

Bulk uploads (data import)

- ▶ When undertaking a registration application, you can use the bulk upload process when you have several models within the same Family that meet the same Model Characteristics:
 - ▶ Product Class: single capped OR double capped
 - ▶ Voltage: mains voltage OR non-mains voltage
 - ▶ Light Direction: directional OR non-directional
- ▶ How will this work?
 - ▶ A CSV template is automatically generated based on the selected Family Model Characteristics, containing tailored questions aligned to the inputs provided.
 - ▶ After completing the CSV and uploading it to the form, the CSV file will prefill the data for the Model & Manufacturer page and the Model Information page for each model included in the data import.
 - ▶ Each bulk upload can have up to 100 models in each Family registration.

Helpful resources

- ▶ Register a new user account on the [Energy Rating Product Registration](#) system
- ▶ There is information to help you use the registration system. Visit: [Help](#)
- ▶ The GEMS Act 2012 and Greenhouse and Energy Minimum Standards (LED Lamps) Determination 2025 are available to view and download any time from [Home Page - Federal Register of Legislation](#)
- ▶ Refer to Part 6 – Testing Requirements of the Determination for check testing AS/NZ5341 or, in the case of AS/NZS 5341

Before You Get Started	
Registering a product with the Regulator	Glossary of terms
Account Registration and Access	
Register a new user account	Manage email
Log in and log out of your account	View or update personal details
Unlock your account	Change Password via Account Management
Security Requirements for the Registration System	Manage email notifications
Reactivate your account	Manage My Applicants
Applicant Management	
Create an Applicant	Filling in Your application
Join an Applicant	Registration type
Agents registering on behalf of an Applicant	Regulatory Authority
Setting Up Your Applicant for Product Applications (for first time users only)	Applicant and Contacts
Change to another applicant	Models and Manufacturer
Using the Dashboard	Labs and Test Reports
Manage Your Applicant's Contacts	Exemption
Manage Your Applicant's Brands	Label screen
Manage Your Applicant's Test Labs	Public website
Manage Your Applicant's Manufacturers	Declaration and Notes
Manage Your Applicant's Authorised Representatives	Payment
Accept an invitation	Summary and Submit Registration
Manage Your Applicant's Authorising Officers	Bulk application for registration
Request a Change to Applicant Details	Recalling or Withdrawing an Application
Example Letter of Authorisation	What happens after you've submitted an application?
Application/Registration Management	
Edit an application	Errors warnings and messages
View and Edit Notes and Change History	Rules for registering new products
Renew an existing registration	Uploading files
Request a variation to a registration: change request	Reset your password
Request a variation to a registration: add a model to a family of models	Frequently Asked Questions - Security Requirements
Searching for applications or registrations	
Update product details on the Public Registration Database	
Actions in an application or registration	
The Public Registration Database	
The Public Registration Database	Contact
	Contact the regulator



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