

**This sub-technology category has been removed as of 22nd March 2018.
Please see the new sub-technology category of Efficient White Lighting Units.**

High Efficiency Lighting Units

Date added to ETL 2001 (Revised 2015).

1. Definition of Technology

High efficiency lighting units are products that are specifically designed to provide efficient illumination.

2. Technology Description

High efficiency lighting units (HELUs) are a combination of a light fitting (or luminaire), one or more lamps, and associated control gear that have been assembled either into a single packaged unit or a luminaire with remote control gear. Neither light fitting, lamp or control gear alone can be said to 'comply with the ETL'. HELUs may also incorporate lighting control devices such as light regulation (dimming) and 'presence' controls.

HELUs have been included in the Enhanced Capital Allowance (ECA) scheme because they offer substantial energy and carbon savings. A wide variety of products are available with a range of performance levels. The ECA scheme aims to encourage the purchase of higher efficiency products that meet certain minimum design and performance standards.

The ECA Scheme covers four categories of products:

1. Amenity, accent and display lighting units
2. General interior lighting units
3. Exterior area lighting units
4. Exterior floodlighting units

Where:

- **Amenity lighting** is decorative lighting intended to enhance the appearance of a building or outdoor area in order to promote the activities of a business. It can include 'mood' lighting of hotels, bars and restaurants and other leisure activities; and decorative lighting for public areas of buildings and parts of buildings or the surrounding grounds (where such lighting is necessary to the enhancement of the business function). It does not include lighting to provide general illumination or circulation, or building lighting that would be present regardless of the type of business being carried out.
- **Display lighting** comprises lighting intended to highlight displays of exhibits, signs associated with the business function, or merchandise. It includes spot or projector lighting in shops, theatres, galleries and studios; and display case lighting.

- **Accent lighting** comprises lighting that is intended to provide additional light over a specific small area in order to carry out or promote the activities of a business. This may include lighting required for a particular task (e.g. medical or dental examination, supplementary lighting for fine machining work or critical inspection work). It does not cover general lighting for an entire room or a large part of a room.
- **General interior lighting** covers all other interior lighting.
- **Exterior area lighting** covers all exterior lighting which is intended to provide downward light onto horizontal or near horizontal surfaces, including roadways, car parks, paths, stairs, ramps, gardens and other open spaces. This includes illuminated bollards and post-top lanterns.
- **Exterior floodlighting** covers exterior lighting that is intended to light vertical or near vertical surfaces, including floodlighting of buildings, monuments and statues.

Investments in products containing high efficiency lighting units can only qualify for Enhanced Capital Allowances if the products meet the eligibility criteria set out below. The individual products purchased do not need to be named on the Energy Technology Product List.

3. Eligibility Criteria

To be eligible, products must:

- Include one or more lamps, a luminaire and associated control gear.
- Use lamps other than light emitting diodes i.e. solid state lighting devices. (Products that use light emitting diodes are covered under White Light Emitting Diode Lighting Units).
- Not be emergency lighting.

In addition:

- The luminaire, lamps and control gear must be CE marked.
- Where products incorporate fluorescent or compact fluorescent lamps, they must be controlled by non-dimmable 'warm start' or 'dimmable' (regulating) type, high frequency (HF) electronic control gear.
- Where products incorporate compact fluorescent lamps, they must be of the non-integral type (i.e. those types that do not incorporate the control gear in the lamp cap).
- Where products incorporate high intensity discharge lamps rated below 200W, they must use electronic control gear.

In addition, lamps and control gear must comply with the following performance standards (where relevant):

- Compact fluorescent lamps must comply with BS EN 60901:1996 (as amended), "Specification for single-capped fluorescent lamps. Performance specifications".
- Linear fluorescent lamps must comply with BS EN 60081:1998 (as amended), "Double-capped fluorescent lamps. Performance specifications".

- "Warm start" high-frequency control gear (where fitted) for fluorescent lamps must comply with BS EN 60929:2011, "A.C. supplied electronic ballasts for tubular fluorescent lamps. Performance requirements".

Performance criteria

All products must:

- Have a luminaire efficacy (i.e. lighting efficiency) that is greater than, or equal to, the thresholds set out in either Table 1 or Table 2 (as relevant) below, when tested after 100 hours of continuous operation.
- Have a power factor that is greater than, or equal to, 0.7 at all levels of product light output.

In addition:

- General lighting units installed indoors must comply with the glare and angular exclusion zone recommendations in paragraph 94 of HSG 38 (1997).
- Individual control gear must have a standby power not exceeding 0.5 Watts when the lighting unit incorporates an electronically addressed dimming or switching circuit. If the product is not fitted with an automatic switching or dimming circuit, the product must not consume power when it is switched off.
- Fluorescent and compact fluorescent lamps in all categories, and all lamps used in amenity, accent and display lighting fittings must have a colour rendering index that is at least Ra 80. All other lamps must have a colour rendering index of at least Ra 20.
- If the product incorporates dimming control it shall be tested at its highest light output level.

Table 1 Minimum luminaire efficacies for high efficiency lighting units with CRI>=80 OR with lamp rated power <200 Watts per lamp

Category	Minimum luminaire efficacy (in luminaire lumens per circuit watt)
Amenity, accent and display lighting units	≥ 75
General interior lighting, using downlighting units (DLOR/LOR>=0.9)	≥ 82
General interior lighting using uplighting units (DLOR/LOR<0.1)	≥ 100
General interior lighting using combined up and down lighting units (DLOR/LOR>=0.1 and <0.9)	≥ 100 - (18 x DLOR/LOR)
Exterior area lighting units	≥ 82
Exterior floodlighting units	≥ 82

Table 2 Minimum luminaire efficacies for high efficiency lighting units with CRI<80 AND with lamp rated power >=200 Watts per lamp.

Product Category	Minimum luminaire efficacy (in luminaire lumens per circuit watt)	
	Lamp Watts >= 200 and < 500 per lamp	Lamp Watts >= 500 per lamp
Exterior area lighting units	>= 85	>= 105
Exterior floodlighting units	>= 85	>= 105

">=" means "greater than or equal to".

Where:

- Luminaire efficacy is defined in terms of lumens of light output emitted by the luminaire per circuit watt of electrical power consumed.
- The electrical power consumed (in circuit watts) is defined as the total power consumed by the whole lighting unit from main circuit connection point to lamp, including losses in the control gear (ballast).
- For amenity, accent and display lighting units, general interior lighting units, and exterior floodlighting units, light output is defined as:

Initial (100 hour) lamp lumen output x Light Output Ratio (LOR)

where the Light Output Ratio (LOR) is the ratio of the light emitted by the unit to that emitted by the bare lamp(s).

- For exterior area lighting, light output is defined as:

Initial (100 hour) lamp lumen output x Downward Light Output Ratio (DLOR)

where the Downward Light Output Ratio (DLOR) is the ratio of the light emitted by the unit in a downward direction to that emitted by the bare lamp(s) in any direction. Thus for this type of lighting, upward light emitted by the unit does not count towards its light output.

Required test procedures

All products must be tested in accordance with the procedures laid down in one of the following:

- BS EN 13032-1:2004 (as amended), "Light and lighting. Measurement and presentation of photometric data of lamps and luminaires. Measurement and file format".

Where lamp lumens are those obtained when operated with a specific control gear.

For the avoidance of doubt test data should be presented to zero decimal places. As an example, an efficacy of 74 lumens per circuit watt for a display lighting unit would be deemed to be a fail.

4. Scope of Claim

Withdrawn

Expenditure on the provision of plant and machinery can include not only the actual costs of buying the equipment, but other direct costs such as the transport of the equipment to site, and some of the direct costs of installation. Clarity on the eligibility of direct costs is available from [HMRC](#).

Withdrawn