Scope of Coverage for a MEPS on General Service Lamps (GSLs)

FORTALECIMIENTO DE ESTÁNDARES DE EFICIENCIA ENERGÉTICA EN ILUMINACIÓN
Primera Reunión y Taller Presencial del Grupo Técnico de Eficiencia Energética (GTEE)

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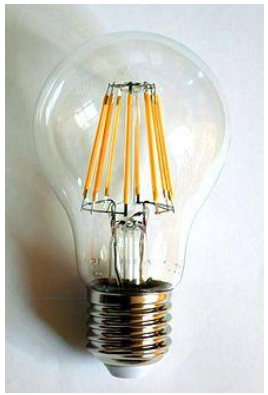
What is a general service lamp (GSL)?

Includes:

1) general service incandescent and halogen lamps (GSILs),
2) compact fluorescent lamps (CFLs);
3) general service light-emitting diode (LED) lamps;
4) organic light-emitting diode (OLED) lamps;
5) and any other lamps that are used to satisfy lighting applications traditionally served by GSILs; *e.g.* high intensity discharge (HID) lamps

GSLs are used in general lighting applications and can be operated directly on the mains electricity supply. GSLs account for the majority of installed lighting in the residential sector.



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Technology Neutral Scope of Coverage

Four common parameters to define a General Service Lamp:

A. Voltage input

B. Luminous flux light output

C. Color of light output

D. Lamp base types

A) Voltage and B) Luminous flux ranges

A. Capable of operating on a voltage up to 300V of either direct current or alternating current with a frequency of 50 or 60 Hz;

B. Emitting light with a total luminous flux of 60 to 3300 lumens

C) Colour of Light Output - Chromaticity Limits

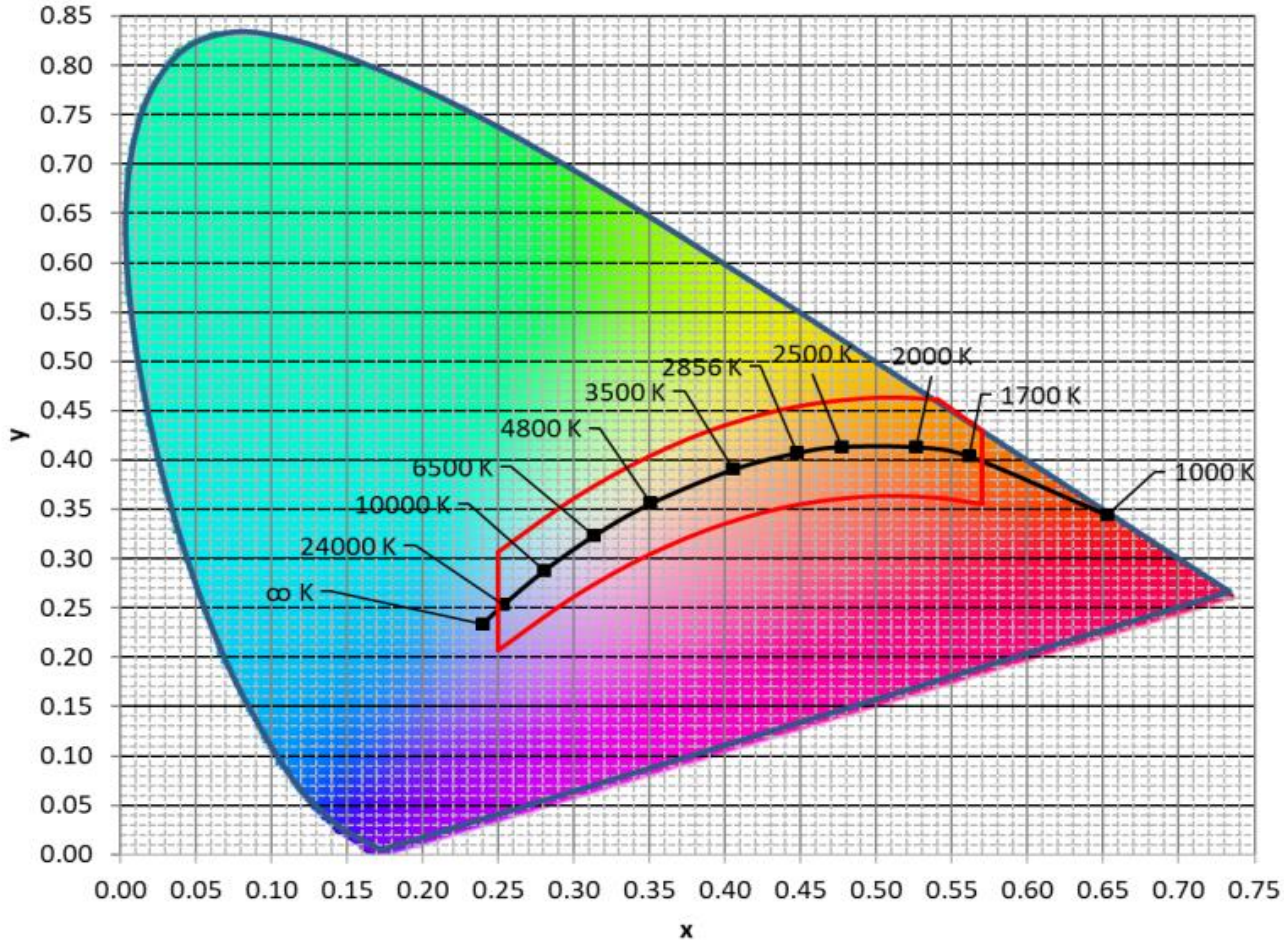
- **chromaticity:** the property of a colour stimulus defined by its chromaticity coordinates (x and y).

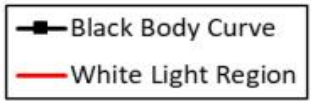
c) Light emission with the chromaticity coordinates (x, y) that are within the range (shown in Figure 1):

- $0.250 < x < 0.570$ and
- $-2.3172\,x^2 + 2.3653\,x - 0.2400 < y < -2.3172\,x^2 + 2.3653\,x - 0.1400$;

- Includes fixed white light sources as well as tuneable sources that are tuneable to within the white region specified by the chromaticity coordinates (x and y) above.

Illustration of the Chromaticity Limits





$0.250 < x < 0.570$ and

$-2.3172\,x^2 + 2.3653\,x - 0.2400 < y < -2.3172\,x^2 + 2.3653\,x - 0.1400$

Chromaticity Limits – Alternative (1 of 3)

- Consider using the definition of white-light to be based on u'v' uniform colour space

- CIE (1931) chromaticity coordinates (x,y) are complex equations, difficult to understand, not friendly for market surveillance – e.g., what CCT does the equation below represent?

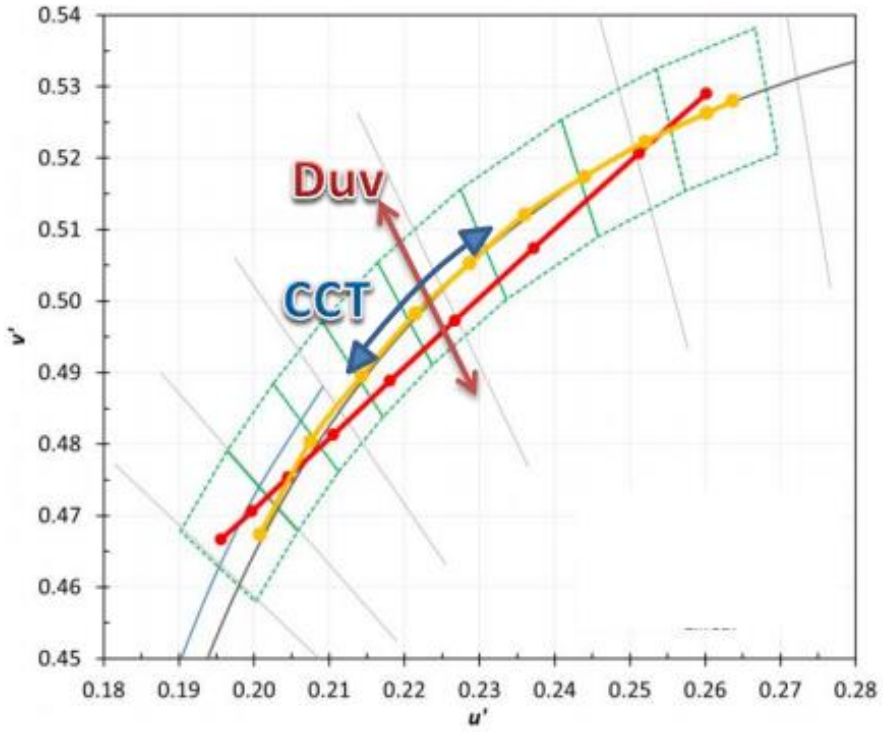
c) Light emission with the chromaticity coordinates (x, y) that are within the range (shown in Figure 1):

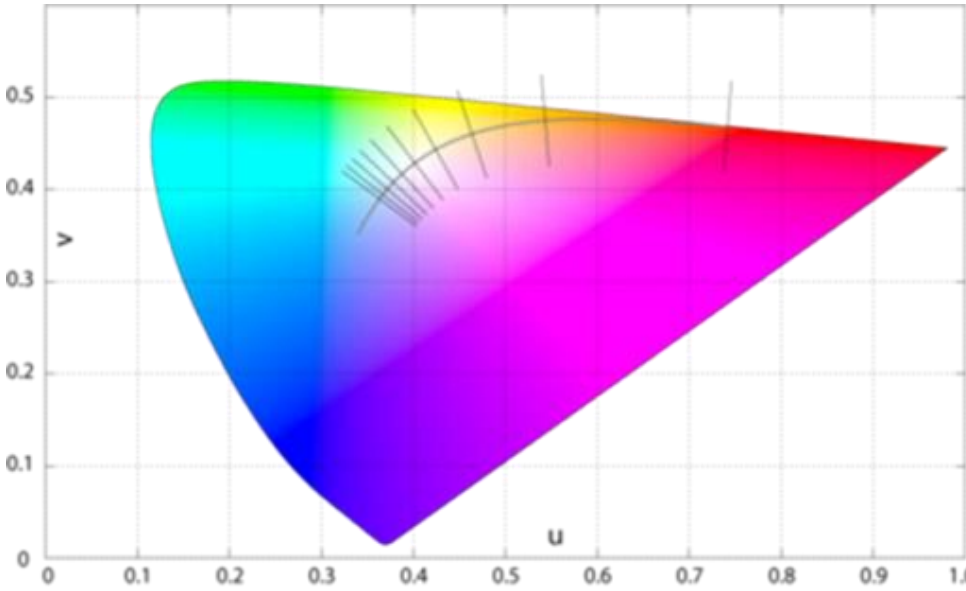
- $0.250 < x < 0.570$ and
- $-2.3172\,x^2 + 2.3653\,x - 0.2400 < y < -2.3172\,x^2 + 2.3653\,x - 0.1400$;

- CIE (1960) uniform colour space much clearer – you simply define the range of CCT you want to cover and the distance from the blackbody locus. (see next slide)

Chromaticity Limits – Alternative (2 of 3)

- Just declare your range of CCT and the distance above and below the blackbody locus in the CIE uniform colour space…





Chromaticity Limits – Alternative (3 of 3)

- Just declare your range of CCT and the distance above and below the blackbody locus in the CIE uniform colour space…

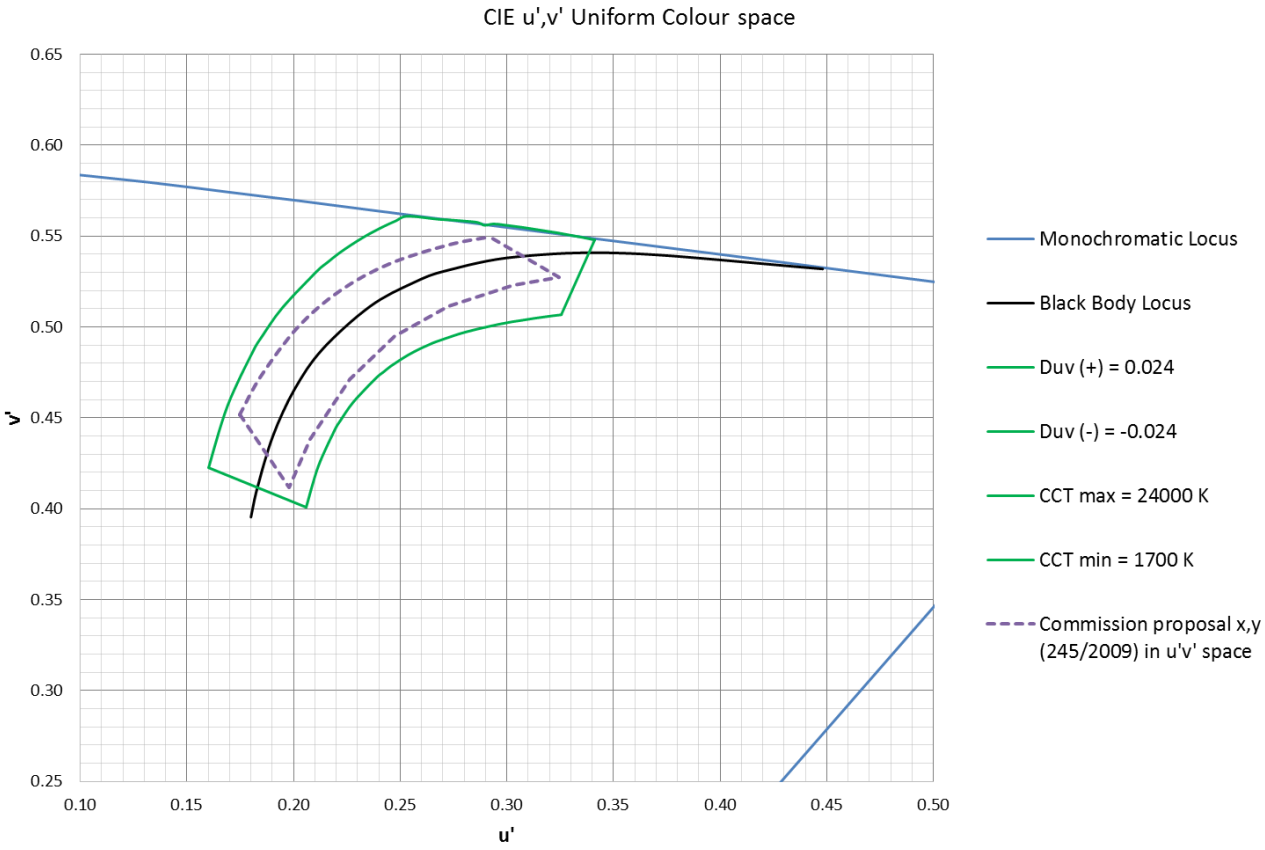
x,y chromaticity

$0.250 < x < 0.570$ and

$-2.3172\,x^2 + 2.3653\,x - 0.2400 < y < -2.3172\,x^2 + 2.3653\,x - 0.1400$

u'v' chromaticity

$1700K \leq CCT \leq 24000K$
$Duv(+) = 0.024$
$Duv(-) = -0.024$



D) Lamp base types

E10, E11, E12, E14, E17, E26, E27, B15, B22, R7, G4, GX5.3/GU5.3, G6.35, GX53, GU9, G9, GU10 or GZ10 base, or alternative base type that can be connected to these sockets by using commercially available passive adaptors.

Lamp bases

Passive Adapters

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Exclusions (1 of 3)

- The primary purpose of the lamp is not general illumination and the product packaging is prominently marked as such, for example but not limited to:

  I. emission of light as an agent in chemical or biological processes (other than human visual perception), for example but not limited to: UV light for curing/hardening/drying, horticulture, aquarium e.t.c

  II. signalling, for example but not limited to:

  - railway-signalling
  - marine-signalling,
  - road-signalling and traffic control, and
  - air traffic-signalling and airfield lamps

Exclusions (2 of 3)

- The spectral distribution of the light is adjusted to the specific needs of particular technical equipment, in addition to making the scene or object visible for humans, for example but not limited to:
  - studio lighting,
  - performance special effects lighting, and
  - theatre lighting;
- The scene or object lit requires special protection from the negative effects of the light source, for example but not limited to:
  - lighting with dedicated filtering for photosensitive patients, and
  - lighting with dedicated filtering for photosensitive museum exhibits;

Exclusions (3 of 3)

- Requiring ambient temperatures above 120°C and this exemption only applies to incandescent and halogen lamps with the following characteristics:
    - an overall length of maximum 60 mm,
    - a rated power of maximum 25 W,
    - a base type of E14 or B15, and
    - a rated luminous flux of maximum 225 lm; and
- Lamps for national measurement institute reference standards.

Other Lighting Products Not Covered

- Tube lights including linear LEDs, LFL
- Luminaires
  - Streetlights
  - Planar luminaires
  - Portable luminaires like lampstands
  - Rope lights

clasp

1 Types of GSLs

2 Inclusions

3 Exclusions

4 Q&A

Thank you, any questions?

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