
Technical Application Guide

# Philips Essential LED Bulb

## 3000K/6500K 220-240V

Philips Essential LED Bulb is a sustainable green light bulb to ensure direct replacement of GLS bulbs in indoor application.

With latest LED technology, Essential LED Bulb offers over 88% energy saving and lasts 10 years (if lit 2.7 hours per day across 365 days) to save your total investment cost.

From LED chips chosen to the final assembly, different kinds of professional quality control methods are adopted to guarantee the light quality consistency through product lifetime.

The product is professionally designed to endure surge and environmental tests to make sure it can be adapted into different indoor application situations.


88%
Energy cost saving

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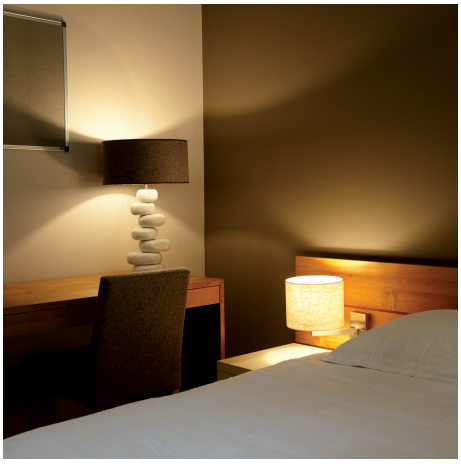
# Design highlights

- Form factor is designed as a direct retrofit into A60 fixtures
- Over 88% energy-saving compared with GLS
- Long lifetime of 10 years (if lit 2.7 hours per day across 365 days)
- Warm white CCT 3000K and cool daylight CCT 6500K available
- Environmental friendly, no Mercury or any other hazardous substances
- Low Carbon Footprint



# Application areas

The qualified light makes it suitable for general indoor applications such as:

- Elite shops
- Corridors / Stairways / Washrooms
- Lobby / Reception areas
- Hotel rooms / Bars
- Home

# Application notes

- Operating temperature range is between -20 °C and 45 °C ambient
- Only to apply in dry or damp locations and most of open fixtures with E27 lamp-holders that offer sufficient space (10 mm free air space)
- Not intended for use with emergency light fixtures or exit lights
- Not intended for enclosed luminaires

# Product features

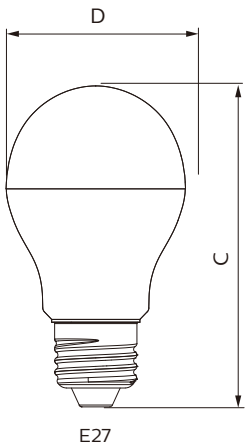
## Technical Specifications

| Product type | Voltage (V) | Wattage (W) | Replaced GLS Wattage (W) | Power Factor | Cap | Bulb shape | CCT (K) | Lumen (Lm) | Luminous efficacy (=lm/W) | Lifetime (hours) | CRI | Dimmable |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ESS LEDBulb 4W E27 3000K HV | 220-240 | 4 | 40 | >0.4 | E27 | A60 | 3000 | 320 | 80 | 10,000 | 70 | No |
| ESS LEDBulb 4W E27 6500K HV | 220-240 | 4 | 40 | >0.4 | E27 | A60 | 6500 | 350 | 88 | 10,000 | 70 | No |
| ESS LEDBulb 6W E27 3000K HV | 220-240 | 6 | 50 | >0.5 | E27 | A60 | 3000 | 500 | 83 | 10,000 | 70 | No |
| ESS LEDBulb 6W E27 6500K HV | 220-240 | 6 | 50 | >0.5 | E27 | A60 | 6500 | 540 | 90 | 10,000 | 70 | No |
| ESS LEDBulb 7.5W E27 3000K HV | 220-240 | 7.5 | 60 | >0.5 | E27 | A60 | 3000 | 680 | 91 | 10,000 | 70 | No |
| ESS LEDBulb 7.5W E27 6500K HV | 220-240 | 7.5 | 60 | >0.5 | E27 | A60 | 6500 | 720 | 96 | 10,000 | 70 | No |
| ESS LEDBulb 9W E27 3000K HV | 220-240 | 9 | 80 | >0.5 | E27 | A60 | 3000 | 900 | 100 | 10,000 | 70 | No |
| ESS LEDBulb 9W E27 6500K HV | 220-240 | 9 | 80 | >0.5 | E27 | A60 | 6500 | 950 | 106 | 10,000 | 70 | No |
| ESS LEDBulb 12W E27 3000K HV | 220-240 | 12 | 95 | >0.5 | E27 | A60 | 3000 | 1150 | 96 | 10,000 | 70 | No |
| ESS LEDBulb 12W E27 6500K HV | 220-240 | 12 | 95 | >0.5 | E27 | A60 | 6500 | 1250 | 104 | 10,000 | 70 | No |

## Dimensions

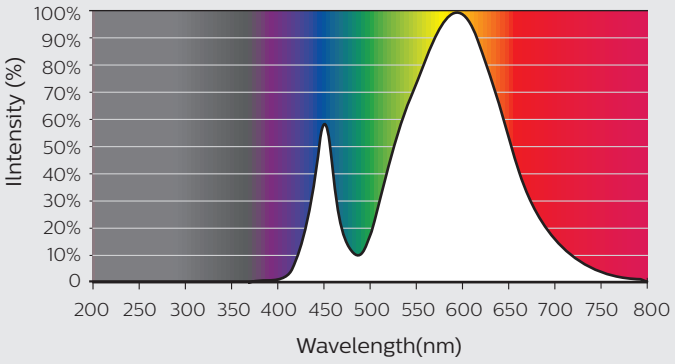
| Type | C typical Overall Length (mm) | D typical Diameter (mm) |
|---|---|---|
| ESS LEDBulb 4W E27 3000K HV | 104 | 58 |
| ESS LEDBulb 4W E27 6500K HV | 104 | 58 |
| ESS LEDBulb 6W E27 3000K HV | 104 | 58 |
| ESS LEDBulb 6W E27 6500K HV | 104 | 58 |
| ESS LEDBulb 7.5W E27 3000K HV | 104 | 58 |
| ESS LEDBulb 7.5W E27 6500K HV | 104 | 58 |
| ESS LEDBulb 9W E27 3000K HV | 104 | 58 |
| ESS LEDBulb 9W E27 6500K HV | 104 | 58 |
| ESS LEDBulb 12W E27 3000K HV | 104 | 58 |
| ESS LEDBulb 12W E27 6500K HV | 104 | 58 |

**LEDbulb**

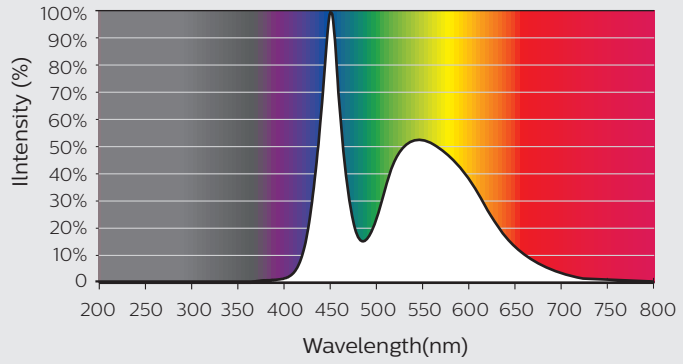


# Spectral Power Distribution

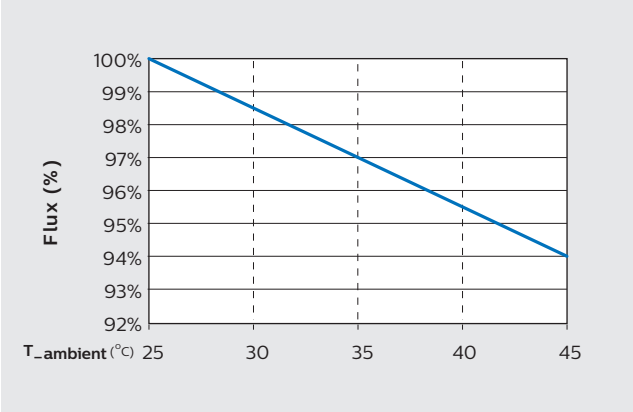
Spectrum Essential LED Bulb 3000K

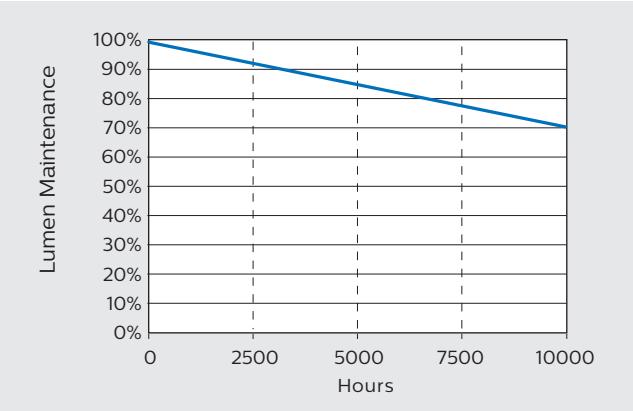



Spectrum Essential LED Bulb 6500K




# Temperature





Tc point

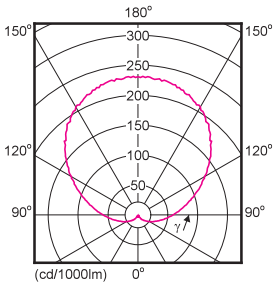
| | |
|---|---|
| 320/350 lm | Tc Max: 50 °C |
| 500/540 lm | Tc Max: 50 °C |
| 680/720 lm | Tc Max: 55 °C |
| 900/950 lm | Tc Max: 76 °C |
| 1150/1250 lm | Tc Max: 80 °C |

# Photometric Diagrams

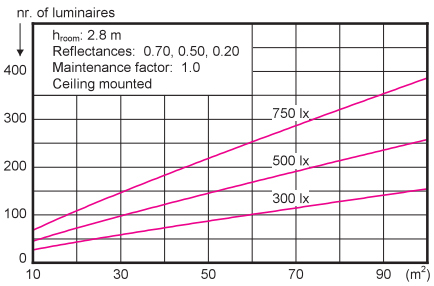
## ESS LEDBulb 4W E27 3000K — 1 x 320 lm

| | | | |
|---|---|---|---|
| Light output ratio | 1.00 | CIE flux code | 4 20 51 15 100 |
| Service upward | 0.85 | | |
| Service downward | 0.15 | UGRcen (4Hx8H, 0.25H ) | 15 |

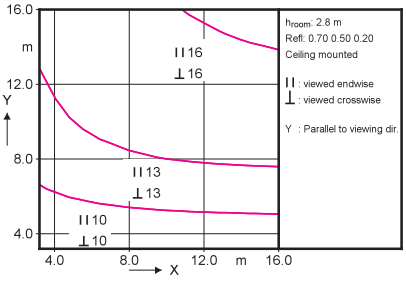
### Polar intensity diagram




### Quantity estimation diagram



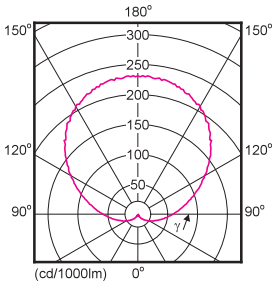

### UGR diagram



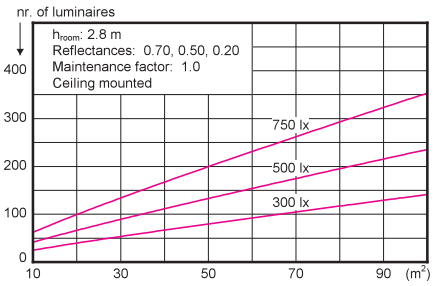

## ESS LEDBulb 4W E27 6500K — 1 x 350 lm

| | | | |
|---|---|---|---|
| Light output ratio | 1.00 | CIE flux code | 4 20 51 15 100 |
| Service upward | 0.85 | | |
| Service downward | 0.15 | UGRcen (4Hx8H, 0.25H ) | 15 |

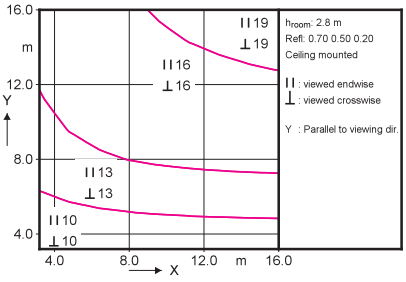
### Polar intensity diagram




### Quantity estimation diagram



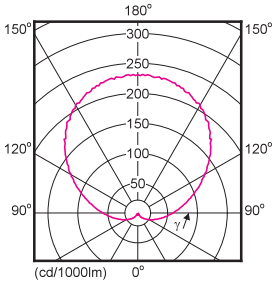

### UGR diagram



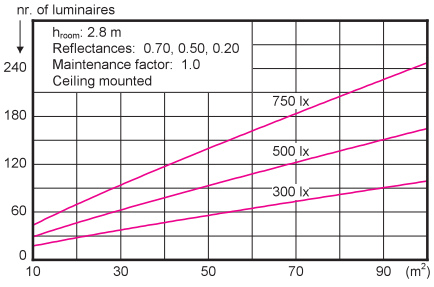

## ESS LEDBulb 6W E27 3000K — 1 x 500 lm

| | | | |
|---|---|---|---|
| Light output ratio | 1.00 | CIE flux code | 4 20 51 15 100 |
| Service upward | 0.85 | | |
| Service downward | 0.15 | UGRcen (4Hx8H, 0.25H ) | 16 |

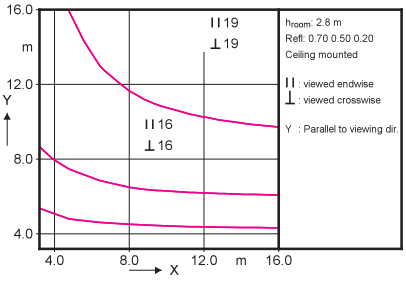
### Polar intensity diagram




### Quantity estimation diagram



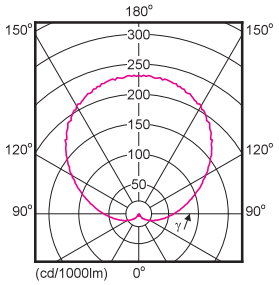

### UGR diagram



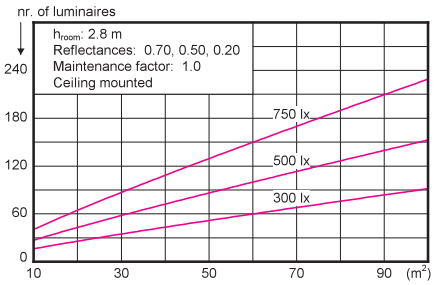
## ESS LEDBulb 6W E27 6500K — 1 x 540 lm

| | | | |
|---|---|---|---|
| Light output ratio | 1.00 | CIE flux code | 4 20 51 15 100 |
| Service upward | 0.85 | | |
| Service downward | 0.15 | UGRcen (4Hx8H, 0.25H ) | 17 |

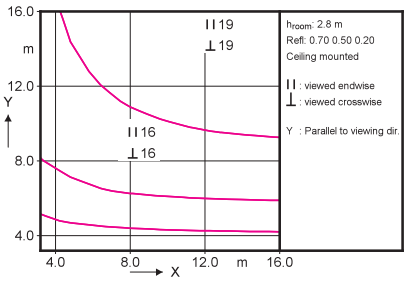
### Polar intensity diagram




### Quantity estimation diagram



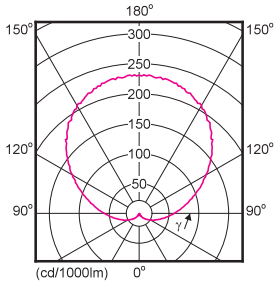

### UGR diagram



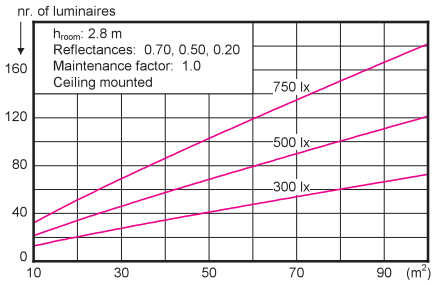

## ESS LEDBulb 7.5W E27 3000K — 1 x 680 lm

| | | | |
|---|---|---|---|
| Light output ratio | 1.00 | CIE flux code | 4 20 51 15 100 |
| Service upward | 0.85 | | |
| Service downward | 0.15 | UGRcen (4Hx8H, 0.25H ) | 18 |

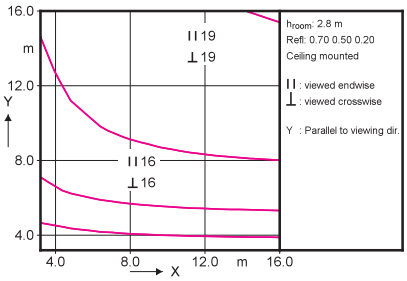
### Polar intensity diagram




### Quantity estimation diagram



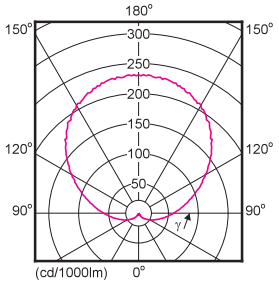

### UGR diagram



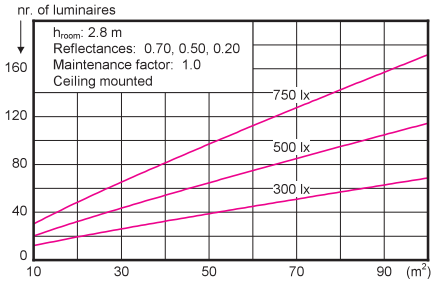

## ESS LEDBulb 7.5W E27 6500K — 1 x 720 lm

| | | | |
|---|---|---|---|
| Light output ratio | 1.00 | CIE flux code | 4 20 51 15 100 |
| Service upward | 0.85 | | |
| Service downward | 0.15 | UGRcen (4Hx8H, 0.25H ) | 18 |

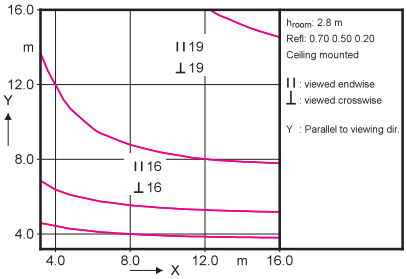
### Polar intensity diagram




### Quantity estimation diagram



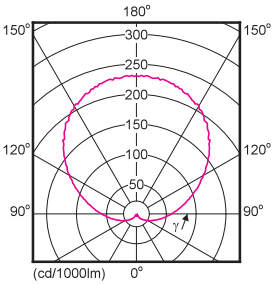

### UGR diagram



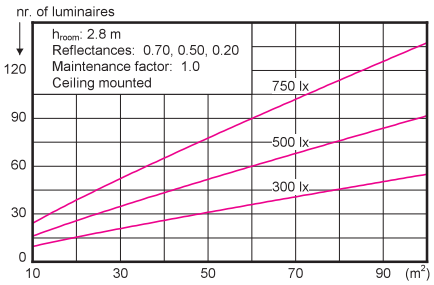
## ESS LEDBulb 9W E27 3000K — 1 x 900 lm

| | | | |
|---|---|---|---|
| Light output ratio | 1.00 | CIE flux code | 4 20 51 15 100 |
| Service upward | 0.85 | | |
| Service downward | 0.15 | UGRcen (4Hx8H, 0.25H ) | 18 |

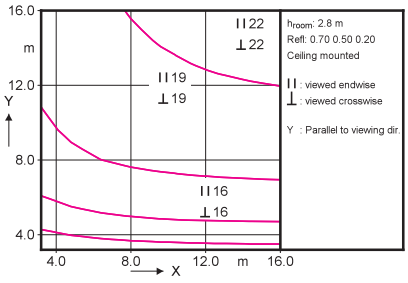
### Polar intensity diagram




### Quantity estimation diagram



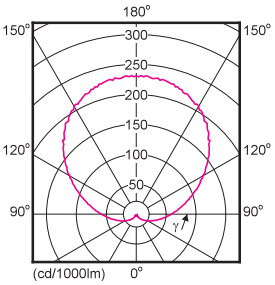

### UGR diagram



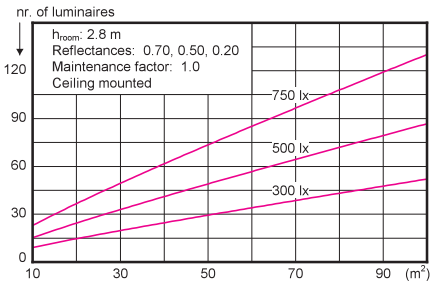

## ESS LEDBulb 9W E27 6500K — 1 x 950 lm

| | | | |
|---|---|---|---|
| Light output ratio | 1.00 | CIE flux code | 4 20 51 15 100 |
| Service upward | 0.85 | | |
| Service downward | 0.15 | UGRcen (4Hx8H, 0.25H ) | 19 |

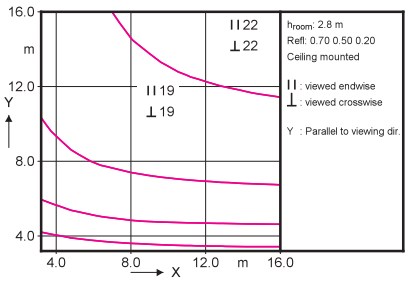
### Polar intensity diagram




### Quantity estimation diagram



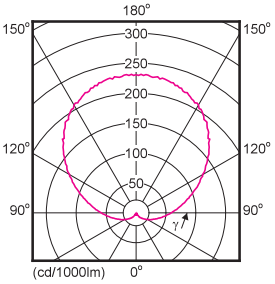

### UGR diagram



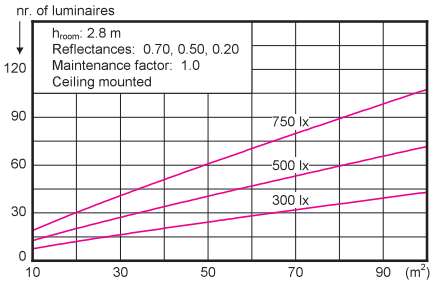

## ESS LEDBulb 12W E27 3000K — 1 x 1150 lm

| | | | |
|---|---|---|---|
| Light output ratio | 1.00 | CIE flux code | 4 20 51 15 100 |
| Service upward | 0.85 | | |
| Service downward | 0.15 | UGRcen (4Hx8H, 0.25H ) | 19 |

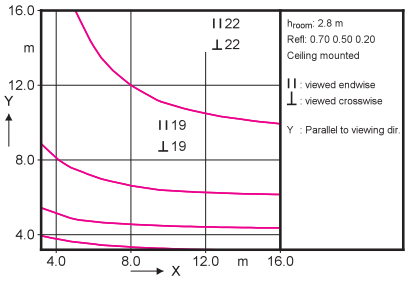
### Polar intensity diagram




### Quantity estimation diagram



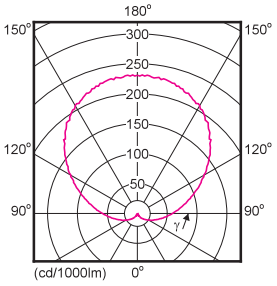

### UGR diagram



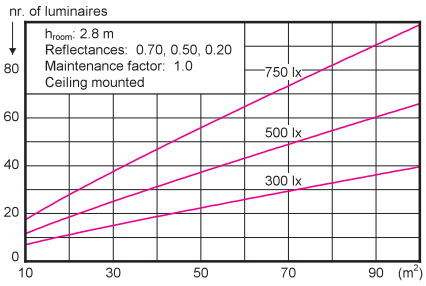
ESS LEDBulb 12W E27 6500K 1 x 1250 lm

| | | | |
|---|---|---|---|
| Light output ratio | 1.00 | CIE flux code | 4 20 51 15 100 |
| Service upward | 0.85 | | |
| Service downward | 0.15 | UGRcen (4Hx8H, 0.25H ) | 20 |

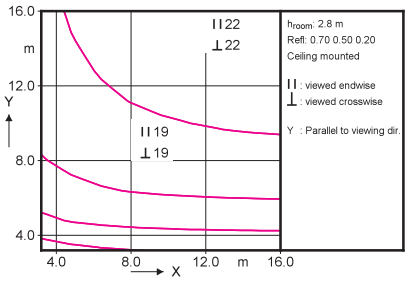
Polar intensity diagram




Quantity estimation diagram

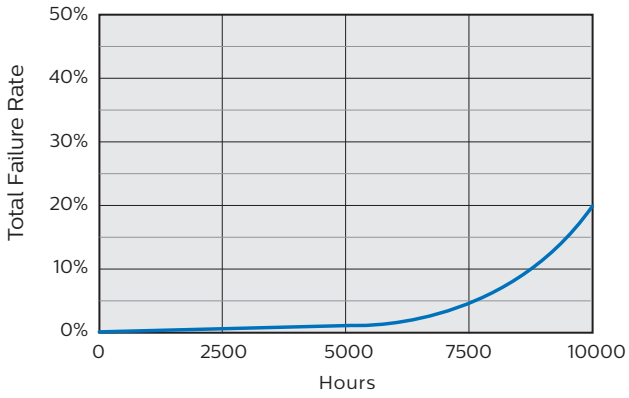



UGR diagram




# Lifetime + Sustainability

Failure Rate Curve of Essential LED bulb 3000K/6500K




**Essential LED Bulb has a lifetime exceeding 10,000 hours defined as (F50L70), where:**

- F50L70, meaning 50% in total of whole population of lamps either fail without light output or lumen maintenance lower than 70% of initial value
- Lifetime estimation based on the application environment condition: at room temperature (25°C), free air burning, baseup burning position, and at rated voltage.



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