Explanatory Memorandum

Of the draft ministerial regulation on high efficiency double-capped fluorescent lamps

B.E. ...

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Principle

Definitions of high efficiency double-capped fluorescent lamps

Rationale

It is hereby deemed appropriate and necessary to define a double-capped fluorescent lamp that has an energy consumption value not lower than is specified in this ministerial regulation as a high efficiency double-capped fluorescent lamp. The objectives of this regulation are to conserve energy, to provide manufacturers and sellers of such products with the right to support and assistance from the Energy Conservation Promotion Fund, and to allow consumers to have the option to use high efficiency double-capped fluorescent lamps. This will promote the country’s energy consumption efficiency and reduce pollution.
Ministerial Regulation

Definitions of high efficiency double-capped fluorescent lamps

B.E. ...

In accordance with Section 6, Clause 2 and Section 23, Clause 1(2) and Clause 3 of the Energy Conservation Promotion Act, B.E. 2535, with amendments made to the Energy Conservation Promotion Act (Issue 2), B.E. 2550 containing a number of provisions related to the limitation of private rights and liberties as permitted in Section 29, together with Section 33, Section 41 and Section 43 of the Constitution of the Kingdom of Thailand – with the guidance of the National Energy Policy Committee – the Minister of Energy issues a ministerial regulation as follows:

1. In this ministerial regulation:

“Double-capped fluorescent lamp” means a hollow tube fluorescent lamp in a linear shape for general lighting that is used with separate receptacles, single phase alternating current at the maximum of 250 volts, and a frequency of 50 Hertz. Excluding: colour double-capped fluorescent lamps, or those generating invisible off-spectrum light; double-capped fluorescent lamps for colour matching where colour appears at one point of a black body locus; double-capped fluorescent lamps for use in industrial and agricultural processes; double-capped fluorescent lamps for medical purposes; and double-capped fluorescent lamps restricted by law to be used only in specific conditions other than general lighting and can be distinguished from those for general lighting, with sizes specified in this ministerial regulation.

“Energy consumption efficiency value” means the initial efficacy value, maintained efficacy value and general colour rendering index.

“Efficacy value” means the ratio of luminous flux over input power of a double-capped fluorescent lamp under a specified measurement state.

“Initial efficacy value” means the measured efficacy value of a new double-capped fluorescent lamp that has been in use for 100 hours.

“Maintained efficacy value” means the measured efficacy value of a double-capped fluorescent lamp that has been in use for 5 000 hours.

“General colour rendering index” means a relative value of object colour shift when illuminated from a specified light source to match an object’s colour that appears under a reference light source.
2. A high efficiency double-capped fluorescent lamp must have an energy consumption efficiency value not lower than that specified and announced by the Minister, considering the economic situation, the government’s energy policy, the readiness of double-capped fluorescent lamp manufacture and sales, and support, as well as support and assistance provided to the manufacturers and sellers of double-capped fluorescent lamps.

The energy consumption efficiency value must be defined in respect to the length and wattage power specified by the manufacturers as follows:

(1) The initial efficacy value

<table>
<thead>
<tr>
<th>Specified lamp length (mandatory) (millimetres)</th>
<th>Less than 550</th>
<th>From 550 to less than 700</th>
<th>From 700 to less than 1150</th>
<th>From 1150 to less than 1350</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power wattage specified by manufacturers (recommended) (watts)</td>
<td>Less than 16</td>
<td>16 to 24</td>
<td>17 to 40</td>
<td>28 to 50</td>
</tr>
<tr>
<td>Initial efficacy value (lumens per watt)</td>
<td>87.0-94.0</td>
<td>68.0-75.0</td>
<td>94.0-100.0</td>
<td>88.0-96.0</td>
</tr>
</tbody>
</table>

(2) The maintained efficacy value of a double-capped fluorescent lamp with length and power as specified in (1) must not be less than 90% of the initial efficacy value of a lamp with the same length and power.

(3) The general colour rendering index of a double-capped fluorescent lamp for all lengths as specified in (1) must not be less than 80%.

3. The formula for calculating the energy efficiency value of a double-capped fluorescent lamp is as follows:

(1) The initial efficacy value

\[ F_{100} = \frac{L_{\text{test.ref}}}{P_{\text{test}}} \]

where \( F_{100} \) means initial efficacy value. The unit is lumens per watt.

\( L_{\text{test.ref}} \) means luminous flux of a double-capped fluorescent lamp being tested with a reference ballast. The unit is the lumen.

\( P_{\text{test}} \) means wattage of a double-capped fluorescent lamp being tested. The unit is the watt.

(2) The maintained efficacy value is calculated by estimating the luminous flux value outside the linear range from the initial efficacy value past the luminous flux data point from more than 2000 hours to 5000 hours.
4. The test for determining the energy consumption efficiency value of a double-capped fluorescent lamp must be carried out by the organisations specified and announced by the minister.

5. The standard and methodology of the test for determining the energy consumption efficiency value of a double-capped fluorescent lamp must comply with the specifications as published by the minister.

Given on: B.E.

Minister of Energy