Explanatory Memorandum

Of the draft ministerial regulation on high efficiency electronic ballasts
for fluorescent lamps

B.E. …

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Principle

Definitions of high efficiency electronic ballasts for fluorescent lamps

Rationale

It is hereby deemed appropriate and necessary to define an electronic ballast for a fluorescent lamp that has an energy consumption value not more than is specified in this ministerial regulation as a high efficiency electronic ballast for a fluorescent lamp. The purpose of this regulation is to conserve energy and to promote the use of energy-efficient materials. This will provide manufacturers and sellers of such products with the right to support and assistance from the Energy Conservation Promotion Fund. It will encourage the manufacture and sale of this type of ballast. Consumers will be able to use energy economically and efficiently, and will have the option to use high efficiency electronic ballasts. This will promote the country’s energy consumption efficiency and reduce pollution.
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Ministerial Regulation
Definitions of high efficiency electronic ballasts for 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 in the Energy Conservation Promotion Act (Issue 2), B.E. 2550 containing a number of provisions related to the limitation of private rights and liberty 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:

“Ballast” means an electronic ballast for a fluorescent lamp with a capacity as specified in this ministerial regulation.

“Fluorescent lamp” means a hollow tube fluorescent lamp either in a linear or circular shape that can be used with a single-phase alternating current of 220 volts, with a frequency of 50 Hertz, excluding fluorescent lamps that generate visible off-spectrum light for exit signs and illumination in hazardous areas.

“Energy consumption value” means the total power input of a ballast-lamp circuit being tested, after correction for reference state.

“Ballast-lamp circuit” means an electric circuit or part of an electric circuit composed of ballast and lamp, usually as part of a light fitting.

“Reference lamp” means a fluorescent lamp selected for testing. When connected to the reference ballast under specified conditions, the lamp will have electrical characteristics similar to those specified for the standard for each lamp type according to IEC 60921 or IEC 60929 or Industrial Standards 1506.

“Reference ballast” means a special ballast designed to be used as a standard for the ballast being tested, and for selecting the reference lamp. This reference ballast must have the necessary characteristics including the required frequency, a stable ratio of voltage over power input, and must be unaffected by electric current fluctuation, surrounding temperature and magnetic fields in accordance with Industrial Standards 2319 or Industrial Standards 1506 or IEC 60929.
2. High efficiency ballasts must have an energy consumption value not more than as specified in the ministerial regulation, considering the economic situation, the government’s energy policies, the readiness of ballast manufacture and sales, as well as support and assistance provided to manufacturers and sellers of ballasts.

The energy consumption value must be defined in respect to the fluorescent lamp power specified by the manufacturers as follows:

<table>
<thead>
<tr>
<th>Fluorescent lamp power (watts)</th>
<th>Energy consumption value (watts)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 (linear shape)</td>
<td>19.0 – 16.0</td>
</tr>
<tr>
<td>32 (circular shape)</td>
<td>35.0 – 30.0</td>
</tr>
<tr>
<td>36 (linear shape)</td>
<td>36.0 – 34.0</td>
</tr>
</tbody>
</table>

3. The formula for calculating the ballast energy consumption value is as follows:

\[
P_{\text{tot.cor}} = P_{\text{tot.test}} \times \left( \frac{P_{\text{rated}}}{P_{\text{ref.}}} \right) \times \left( \frac{1}{B L F} \right)
\]

where

- \( P_{\text{tot.cor.}} \) means the energy consumption value which is the total power input of the ballast-lamp circuit being tested, after correction for reference state. The unit is the watt.

- \( P_{\text{tot.test}} \) means the electric power input of a ballast-lamp circuit which is connected to the reference lamp and the tested ballast. The unit is the watt.

- \( P_{\text{rated}} \) means the specified electric power or specific power of the reference lamp at high frequency, based on the lamp information table. The unit is the watt.

- \( P_{\text{ref.}} \) means the electric power of the reference lamp that can be measured when connected to the reference ballast. The unit is the watt.
\[ BLF \] means the ratio of light output of the tested system (tested ballast-reference lamp) over the light output of the reference system (reference ballast/reference lamp) that can be calculated from the formula:

\[ BLF = \frac{L_{\text{test}}}{L_{\text{ref}}} \]

where \( L_{\text{test}} \) is the light output of the reference lamp when connected to a tested ballast. The unit is the lumen.

\( L_{\text{ref}} \) is the light intensity from the reference lamp when connected to the reference ballast. The unit is the lumen.

4. The test for determining the energy consumption value of the ballast 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 value of the ballast must comply with the specifications as published by the minister.

Given on: B.E. ...

Minister of Energy