

EL202. Ballasts for Fluorescent Lamps **[EL202-1999/3/2012-36]**



1. Scope

The criteria shall apply to electronic and magnetic ballasts used to light up general fluorescent lamps at homes and offices.

2. Definitions

Note) Terminology used in this criteria, not specifically defined, follows the definitions of KS C 8008 (Glossary of lighting terms), KS C 8100 (AC supplied electronic ballasts for fluorescent lamps), and KS C 8102 (Magnetic ballasts for fluorescent lamps).

2.1

“Reference lamps” refer to a test sample run for a certain period of time in advance to reduce abrupt changes in characteristics. It should meet the criteria provided in the appendix 1 of KS C 8100 (AC supplied electronic ballasts for fluorescent lamps) or appendix of the KS C 8102 (Magnetic ballasts for fluorescent lamps).

2.2

“Suitable lamps” refer to the lamps complying with the KS C 7601 (Fluorescent lamps for general lighting service).

2.3

“Reference ballasts” refer to a choke-coil-type ballast, the reference for the test of ballasts, and the selection of a reference lamp. It should meet the criteria provided in the appendix 1 of KS C 8100 (AC supplied electronic ballasts for fluorescent lamps) or appendix of the KS C 8102 (Magnetic ballasts for fluorescent lamps).

2.4

“Luminous conversion efficiency” refers to the value found by dividing the measured total luminous flux of the concerned ballast by the input electricity (the amount of consumed electricity) of the ballast.

2.5

“Luminous flux change” refers to the change rate of luminous flux of reference lamp with changing input conditions such as voltage, etc. after connecting the reference into the ballast.

3. Certification Criteria

3.1 Environmental Criteria

3.1.1

The sound level of the lamps, which is on, shall be 22dB(A) or lower.

3.1.2

The energy consumption efficiency grade shall be more than 1.09, according to the efficiency management equipment operation regulations in the Energy Use Rationalization Act.

3.1.3

The durability of the electronic flashers of ballasts should be guaranteed for 30,000 times or more.

3.1.4

Halogenated compounds such as PVC shall not be used for producing plastic parts weighing 25g or more. Exempted from this requirement are electrical cables and electronic components.

3.1.5

PBBs (polybrominated biphenyls), PBDEs (polybromodiphenyl ethers), or short-chain chlorinated paraffins (C= 10~13) whose chlorine concentration is 50% or more shall not be used as flame-retardants for plastic parts of the case weighing 25g or more.

3.1.6

Separable plastic parts (weighing 25g or more and covering a flat surface of 200mm² or more) shall be visibly labelled to facilitate separation and collection in disposal.

3.1.7

Concerning shock-absorbing materials for packaging, recycled materials such as pulp mold shall be used . However, it will be regarded as the equivalent material in the following cases.

a) The package filler that is certified with “E-mark” as “Packing material (EL606),” among the certification criteria by E-mark target product.

b) The package filler that is made of more than 50% waste plastic.

c) The package filler made of synthetic resin foam, which uses a foaming agent with zero ODP.

d) Air cell packing bubble wrap that injects air into synthetic resin.

3.2 Quality Criteria

3.2.1

According to types, quality of each lamp should meet the respective standards of the KS C 8100 (AC supplied electronic ballasts for fluorescent lamps) or KS C 8102 (Magnetic ballasts for fluorescent lamps).

3.2.2

The power-factor of magnetic ballasts shall be 90% or higher.

3.2.3

Luminous flux change of electronic ballasts shall be $\pm 2\%$ or less when input voltage changes in the range of $\pm 10\%$.

3.3 Information for Consumers

Information on energy consumption efficiency

4. Test Methods

Certification Criteria	Test and Verification Methods
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Environmental Criteria	3.1.1	Test report by an accredited testing laboratory in accordance with the test method 4.1 and 4.2
	3.1.2	Test report by an accredited testing laboratory in accordance with the test method 4.1 and 4.3
	3.1.3	Test report by an accredited testing laboratory in accordance with the test method 4.1 and 4.4
	3.1.4~3.1.7	Verification of submitted documents
Quality Criteria	3.2.1	Test report by an accredited testing laboratory in accordance with the KS C 8100 (AC supplied electronic ballasts for fluorescent lamps) or KS C 8102 (Magnetic ballasts for fluorescent lamps) or certificate of equivalent
	3.2.2	Test report by an accredited testing laboratory in accordance with the test method 4.1 and 4.5
	3.2.3	Test report by an accredited testing laboratory in accordance with the test method 4.1 and 4.6
Consumer Information	Verification of submitted documents	

4.1 General Matters

4.1.1

Five test samples shall be required for each applied product.

4.1.2

Test samples shall be collected at random by a certification institute from products in market or those in storage at the production site.

4.1.3

The final evaluation of the test results for all samples shall comply with the certification criteria.

4.1.4

General test conditions such as power source, equipments, etc. shall comply with the KS C 8100 (AC supplied electronic ballasts for fluorescent lamps) or KS C 8102 (Magnetic ballasts for fluorescent lamps) by lamp types.

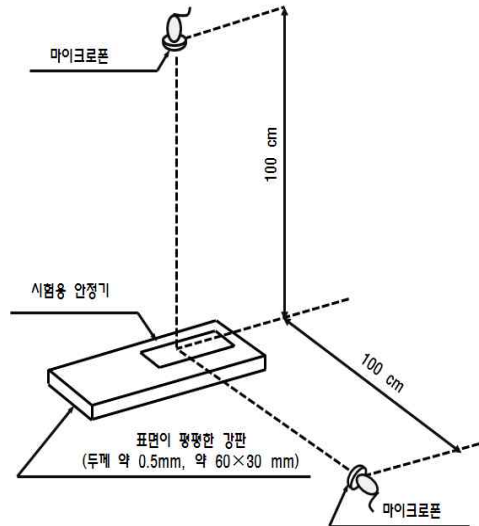
4.1.5

Test result shall be numerically set according to KS Q 5002 (Statistical interpretation method of the data – Part 1: Statistical description of the data).

4.2 Test method to measure noise level (sound pressure level)

4.2.1

The test shall be proceeded in accordance with the general test items stipulated in KS C 8100 (Electronic ballasts for fluorescence lamps) or KS C 8102 (Magnetic ballasts for fluorescent lamps) by lamp types unless test conditions are specified here.



4.2.2

Install the testing device to measure ballast noise as shown in the figure, and apply the rated input voltage of the rated frequency to the input terminal of the test lamp.

4.2.3

Install a sound level meter defined in KS C 1502 in the testing device at two places (to the horizontal or vertical direction), and measure noise with the A characteristic of the weighting network used in sound level meter and accept the average as the noise value.

4.2.4

If the place is not an anechoic room, the distance between the wall and test product should be wide enough to be able to ignore reflected sound, and background noise should be smaller than measured noise by 10 dB (A) or more.

4.3 Test method of energy consumption efficiency grade

4.3.1

The room temperature shall be adjusted to $(25\pm 1)^{\circ}\text{C}$.

4.3.2

After connecting the test ballast to the reference lamp, apply the rated input power. Measure the input power and total luminous flux in a stabilized condition.

4.3.3

Connect the reference ballast to the reference lamp and apply the rated input power. When it stabilizes, measure the input power and the total luminous flux.

4.3.4

The luminous conversion efficiency shall be calculated by the following equation.

$$\text{Luminous conversion efficiency} = \frac{\text{measured total luminous flux [lm]}}{\text{input power when measuring the total luminous flux [W]}}$$

4.3.4

The energy consumption efficiency grade shall be calculated by the following equation.

The energy consumption efficiency grade

$$= \frac{\text{Luminous conservation efficiency of the tested ballast [lm/W]}}{\text{Luminous conservation efficiency of the reference ballast [lm/W]}}$$

4.4 Test method of durability of ballast flasher

4.4.1

The room temperature shall be adjusted to $20\sim 30^{\circ}\text{C}$.

4.4.2

Connect the compatible lamp to the test ballast and apply the rated input power. Then, operate 30,000 times of lighting on for 25 seconds and lighting out for 35 seconds.

4.4.3

When the test ballast is connected to the compatible lamp after 30,000 of on-off test, it shall be lighted on without any malfunction.

4.5 Test method of power-factor

Connect the test ballast to the reference lamp and apply the rated input power to the ballast. Determine the input current and input power, and the power-factor shall be calculated by the following equation.

$$\text{Power-factor} = \frac{\text{input power [W]}}{\text{input volatge [V]} \times \text{input current [A]}}$$

4.6 Test method of lumen flux change

After connecting to the reference lamp, at the input voltage corresponding to the rated voltage, 90% of the rated voltage, and 110% of the rated voltage, measure each lumen flux [lm], and calculate the lumen flux change [%] divided by the rated voltage.

5. Reasons for Certification

“Power-saving, low noise, less wastes”

Common Criteria, Notice No. 2012-36, the Ministry of Environment

1. Eco-label products must follow the following provisions with regard to the proper treatment of environmental pollution substances, such as air and water wastes and noxious chemical substances emitted in the process of manufacturing or service operation.

A. When first applying for certification, the product manufacturer should observe the environment related laws and agreements pertaining to the region where the production factory or the place of service operation is located for a period of one year prior to the date of application. Any case of violation of the penalty clause will be verified by confirming documents involved during a period of one year to the date of application. Regarding any violation not related to the penalty clause, confirmation will be made on the completion of appropriate measures.

B. A person who has received a certification of eco-labeling shall observe the environment related laws and agreements pertaining to the region where the production factory or the place of service operation is located during the period of certification. However, regarding any violation besides a penalty, confirmation will be made on the completion of appropriate measures.

2. As a general rule, information for consumers shall be indicated on the surface of the product in such a way not to be easily erased. However, in case that indication on the surface of the product is impossible or undesirable, it can be indicated on the appropriate part such as product packaging, product guidebook and user's manual that consumers can recognize. However, the service information should be indicated inside and outside of the place of service operation. In case that indication inside and outside of the place of service operation is impossible or undesirable, it can be indicated on the appropriate part such as an agreement, letter of delivery, letter of guarantee, and PR materials that consumers can recognize.

3. In order to establish fair trade and to protect consumer, the applicant for eco-label and the holder of eco-label license shall observe the Act on the Fairness of

Indication and Advertisement with respect to the environmental aspects of the product.

4. For Various standards referred in the certification criteria by target product, the latest revised edition applies at the date of application, if not specified otherwise.

5. In applying the quality related criteria for each target product, if no standard is available that can be applied as the quality criteria, the president of Korea Environmental Industry & Technology Institute (KEITI) (hereafter referred to as "president of KEITI") may establish and operate the quality criteria for the product involved after review by a competent committee.