

ENERGY COMMISSION (EFFICIENCY STANDARDS AND LABELLING) (LIGHT EMITTING DIODE AND SELF-BALLASTED FLUORESCENT LAMPS) REGULATIONS, 2017

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IN exercise of the power conferred on the Minister responsible for Energy, on the advice of the Board, by subparagraph (i) of paragraph (a) of section 56 of the Energy Commission Act, 1997 (Act 541), these Regulations are made this 15th day of November, 2017.

*Purpose and Application*

**Purpose**

1. The purpose of these Regulations is to provide for
  - (a) the enforcement of standards for minimum energy efficiency of
    - (i) Self-Ballasted Fluorescent Lamps prescribed in these Regulations and measured in accordance with the Ghana Standards GS 323: 2003 and GS 324: 2003 or as may be updated; and
    - (ii) Light Emitting Diode Lamps prescribed in these Regulations and measured in accordance with the Ghana Standard GS IEC 62612: 2014 and GS 1098:2014 or as may be updated; and
  - (b) the labelling of lamps.

**Application**

2. (1) These Regulations apply to lamps manufactured in the country or imported into the country for general lighting services in the country.
- (2) These Regulations do not apply to
  - (a) the rating plate or its equivalent plate affixed to a lamp for purposes of safety; and
  - (b) a lamp which is designed to use an energy source other than electricity.

*Duties and Requirements*

**Duty to comply with requirements**

3. A person who manufactures or imports a lamp for use in the country shall ensure that the lamp meets
  - (a) the Standards stipulated in regulation 1;

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- (b) the initial luminous efficacy of not less than the value indicated in Table 1 under Part One of the First Schedule;
- (c) minimum energy efficiency star rating for indoor and outdoor lighting specified in Table 2 under Part One of the First Schedule and measured in accordance with the Standards; and
- (d) the labelling requirements specified in the Second Schedule.

**Minimum performance requirements**

4. A person who manufactures or imports a lamp for use in the country shall ensure that the lamp has

- (a) a minimum rated life as specified in the Standards;
- (b) the minimum colour rendering index specified in the Standards; and
- (c) the Correlated Colour Temperature specified in the Standards.

**Information and labelling requirements**

5. (1) A person shall not manufacture, import, store, offer for sale, sell or supply a lamp for use in the country unless that lamp and its packaging meet the following requirements:

- (a) the information in respect of the lamp indicated on the package of the lamp shall be in the English language;
- (b) the information in respect of the lamp shall include the wattage and voltage of the lamp;
- (c) the label on a box containing a lamp shall contain information in the form specified in the Second Schedule and printed in colour;
- (d) the label on the carton that contains the boxes containing the lamps shall indicate conspicuously the information specified in the Second Schedule;
- (e) the labels on the carton and box shall include the following information:
  - (i) the energy efficiency star rating of the lamp, determined in accordance with the test procedures of the Standards specified in the First Schedule;

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- (ii) the luminous flux of the lamp in lumens, measured in accordance with the test procedures specified in the Standards;
  - (iii) efficacy performance measured in lumens per watt (lm/W) and in accordance with the Standards;
  - (iv) the input power or voltage of the lamp, measured in accordance with test procedures specified in the Standards;
  - (v) the average rated life of the lamp in hours measured in accordance with the test procedures specified in the Standards;
  - (vi) the number of stars corresponding to the star rating class in relation to the information referred to in paragraph (b) of regulation 3 and shaded in black; and
  - (vii) the country of origin;
- (f) the background of a label printed or posted on an individual box containing the lamps shall be gold in colour;
- (g) all the stars on the label shall be black in colour; and
- (h) the text shall be black in colour.

(2) Despite regulation 10, any updates to the Standards shall take precedence over the requirements specified in paragraph (e) of subregulation (1) and the First Schedule.

(3) Where a side of the packaging is not large enough to contain a label and the blank border, or where a label would cover more than fifty per cent of the surface area of the largest side of a packaging, the label and the blank border shall be reduced to not less than forty per cent of the largest side of the packaging and posted on the largest side of the packaging.

(4) A person shall not remove the label on the box containing a lamp before the first retail purchase of the lamp.

(5) For the purposes of this regulation, "first retail purchase" means purchase of a lamp by the first end user.

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(6) A person who contravenes a provision of this regulation commits an offence and is liable on summary conviction to a fine of not less than two hundred and fifty penalty units and not more than five hundred penalty units or to a term of imprisonment of not less than one year and not more than two years or to both.

**Technical documentation**

6. (1) A person shall not import, store, offer for sale, sell, distribute or discard a lamp unless that person has provided the Commission with sufficient technical documentation to enable the Commission ascertain the accuracy of the information contained in the information sheet or on the label.

(2) The technical documentation referred to in subregulation (1) shall include

- (a) the name and address of the supplier;
- (b) the description of the lamp, for purposes of identification;
- (c) relevant drawings on the main design features of the model and parameters of the lamp that affect the energy consumption of the lamp;
- (d) reports of relevant measurement tests carried out by an accredited independent laboratory;
- (e) details of calculations, extrapolations and tests carried out to verify the accuracy of calculations;
- (f) the installation and operating instructions; and
- (g) the period within which the model of the lamp was manufactured.

**Duty of supplier in respect of technical documentation**

7. (1) A supplier shall, on request by an enforcement authority, provide the enforcement authority with technical documentation for inspection.

(2) Where a supplier fails to provide technical documentation in respect of a lamp within forty-eight hours, the enforcement authority may seize the lamp.

(3) A supplier shall keep and maintain technical documentation in respect of each model of lamp for a period of not less than twenty-four months after the date of manufacture.

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**Duty of dealer in respect of technical documentation**

8. (1) A dealer shall, within forty-eight hours after a request by an enforcement authority, provide the enforcement authority with technical documentation in respect of a lamp for inspection.

(2) Where a dealer fails to provide technical documentation in respect of a lamp within forty-eight hours, the enforcement authority may seize the lamp.

(3) A dealer shall keep and maintain technical documentation in respect of a lamp for a period of not less than twenty-four months after the date of manufacture.

**Duty of supplier in respect of information sheet**

9. (1) A supplier shall keep and maintain an information sheet in respect of each lamp in the possession of the supplier.

(2) A supplier shall, on request by an enforcement authority, provide that enforcement authority with an information sheet which shall

(a) be in the English language; and

(b) be in the form specified in the Third Schedule.

**Access to information on technical documentation and information sheet**

10. (1) The information required under regulations 5, 6 and 7 shall be obtained in accordance with the test procedures specified in the Standards.

(2) Information obtained in a manner other than in accordance with subregulation (1) shall, for the purposes of these Regulations, be considered as invalid.

**Category of lamp**

11. The category of a lamp shall be determined in accordance with the categories specified in the Third Schedule.

**Energy efficiency star rating of lamp**

12. The energy efficiency star rating of a lamp shall be determined in accordance with the ratings specified in the First Schedule.

**Voltage and input power of lamp**

13. The rated voltage or input power of a lamp shall be printed on the base of the lamp.

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**Product brochure in respect of lamp**

14. (1) Where a supplier provides a product brochure in respect of a lamp, the brochure shall contain an information sheet which shall

- (a) be in the English language; and
- (b) be in the form specified in the Third Schedule.

(2) Where a supplier supplies a lamp without a product brochure, the supplier shall provide the information sheet in respect of the lamp in addition to any other relevant literature.

**Duty of supplier to ensure accuracy of information**

15. (1) A supplier shall ensure that the information indicated on an information sheet or on a label in respect of a lamp that the supplier supplies, is accurate.

(2) The duty imposed on a supplier under subregulation (1) does not affect any other right of action which a person may have by law against the supplier or any other person with respect to the inaccuracy of information on an information sheet or on a label.

*Information*

**Publication of information**

16. (1) Information provided by a supplier on the information sheet or on a label of a lamp is deemed public information.

(2) A supplier is deemed to have consented to the publication of the information indicated on an information sheet or on a label in respect of a lamp that the supplier deals in.

**Information in respect of mail order and other distance selling**

17. Where a person offers a lamp for sale to another person in the country through a medium of communication including a mail order or any other distance selling, that person shall provide information in respect of the lamp and the information shall

- (a) be in the English language,
- (b) include the information specified in the Third Schedule, and
- (c) be written in a manner that is legible.



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**Misleading information**

18. A person shall not display, on a rating plate, a label, mark, symbol or inscription which relates to the energy consumption of a lamp if the display is likely to be deceptive, misleading or false.

*Powers of Enforcement*

**Power of enforcement authority to demand technical documentation**

19. Where an enforcement authority has reasonable cause to believe that the information given in an information sheet or on a label is incorrect, that enforcement authority may, by notice served on the supplier or importer of the lamp, require the supplier or importer to, within ten days, furnish the enforcement authority with the technical documentation referred to in regulation 6.

**Power of enforcement authority to inspect premises**

20. An enforcement authority may, at any reasonable time, enter any premises if that enforcement authority has reason to believe that the premises is being used for a purpose to which these Regulations apply to inspect the premises to ensure that the provisions of these Regulations are being complied with.

**Power of enforcement authority to seize document or lamp**

21. (1) Subject to these Regulations, where an enforcement authority has reasonable cause to believe that an offence has been committed or is being committed, that enforcement authority may

- (a) at any reasonable time enter premises other than a dwelling place, and conduct an inspection;
- (b) require a person engaged in a business or employed in connection with a business to produce a record in respect of a lamp;
- (c) seize a lamp that is
  - (i) not labelled,
  - (ii) not properly labelled, or
  - (iii) labelled in a deceptive or misleading manner;

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- (d) seize a lamp that is imported without technical documentation which justifies the label affixed on the lamp;
- (e) seize and detain a lamp to enable tests to be carried out;
- (f) seize and retain a record to be used as evidence in proceedings in respect of an offence under these Regulations;
- (g) cause a container to be opened for the purpose of inspection; and
- (h) break open a container where compliance with paragraph (g) is not practicable.

(2) Despite subregulation (1), where an enforcement authority has reasonable cause to believe that an offence has been committed or is being committed in a dwelling place, that enforcement authority shall obtain a court order for purposes of inspection of the dwelling place.

(3) For the purposes of paragraphs (b) and (f) of subregulation (1), the enforcement authority may require information stored electronically to be made available to the authority in printed form.

**Power of enforcement authority to test lamp**

22. (1) An enforcement authority may obtain, remove and test a lamp or authorise the testing of a lamp to ascertain whether a provision of these Regulations has been contravened.

(2) A person who suspects that a lamp which is manufactured, imported, stored, offered for sale, sold or supplied does not comply with the provisions of these Regulations, may lodge a complaint with an enforcement authority.

(3) The enforcement authority may, upon receipt of a complaint under subregulation (2), seize, detain and test the lamp.

(4) The test to be conducted in respect of a lamp purchased, obtained or seized under regulation 21 shall be carried out, within fourteen days, in accordance with the test procedures specified in the Standards.

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**Order to access information or obtain lamp**

23. An enforcement authority may, under the following circumstances, apply to a court for an order to enter a premises to seize, detain or inspect a lamp, if the enforcement authority has reasonable grounds to believe that a lamp or document on the premises may assist in the disclosure of evidence of the commission of an offence under these Regulations:

- (a) the enforcement authority is refused entry into the premises;
- (b) a notification to enter the premises by the enforcement authority would defeat the object of the entry;
- (c) the premises to be entered is unoccupied; or
- (d) the occupier of the premises to be entered is temporarily absent.

**Procedure for seizure of lamp**

24. (1) Where an enforcement authority seizes a lamp, that lamp may be kept in a warehouse or other secure location reserved for the purpose.

(2) An enforcement authority that exercises a power of seizure under regulation 21 shall, within three days after the seizure, give a written notice to the person against whom the power has been exercised.

(3) The written notice shall state

- (a) precisely, what has been seized;
- (b) the reason for the seizure; and
- (c) where and within what period a petition against the seizure may be brought under regulation 26.

(4) The owner of the lamp may be required to pay a deposit to cover the cost of destruction, in the event that the lamp does not meet the minimum performance requirements as defined in regulations 3 and 4.

(5) Where a lamp is kept within a premises that is under the control of the owner of the lamp, the owner shall pay a security deposit against breach of the seizure order.

(6) A security deposit under subregulation (5) shall be forfeited in the event of a breach of the seizure order, including the sale or discard of the lamp which has been seized.

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**Procedure for re-labelling of seized lamp**

**25.** (1) Subject to these Regulations, where an enforcement authority seizes a lamp from a supplier under paragraph (e) of subregulation (1) of regulation 21 that enforcement authority shall

(a) within two days of the seizure, submit a sample of the lamp for testing, and

(b) within two days of receipt of the test results, notify the supplier of the lamp to properly label the lamp if the minimum energy efficiency standards have been complied with.

(2) The notice under paragraph (b) of subregulation (1) shall require a lamp to be re-labelled in the required manner or exported out of the country within twenty-eight days.

(3) Where a supplier is required under subregulation (2), to re-label a lamp, the supplier shall re-label the lamp under the supervision of an officer authorised for the purpose by the Commission or the Standards Authority.

(4) Where a supplier fails to re-label the lamp or export the lamp within twenty-eight days of the notice given under subregulation (2), the Commission may discard the lamp in a manner determined by the Commission.

*Petition and Compensation*

**Petition against seizure**

**26.** (1) Subject to these Regulations, a person whose lamp is seized may, within seven days after receipt of the written notification specified in subregulation (2) of regulation 24, petition the Commission for the release of the seized lamp.

(2) The Commission shall, within seven days after receipt of a petition under subregulation (1), confirm the seizure or release the seized lamp to the petitioner on a specific day.

(3) A person who is dissatisfied with a decision of the Commission under subregulation (2), may lodge a complaint with the Minister, within seven days of receipt of the decision.

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(4) The Minister shall within thirty days of receipt of a complaint under subregulation (3) take a decision on the complaint.

(5) A person who is dissatisfied with a decision of the Minister, or where the Minister does not make a decision within thirty days, may apply to the court.

**Compensation for loss of appliance or record seized**

27. (1) Where an enforcement authority exercises power under these Regulations to seize a lamp or record, that enforcement authority is liable to pay compensation to the owner of the lamp or record for a loss or damage caused by the exercise of the power if

- (a) these Regulations have not been contravened in relation to the lamp or record; and
- (b) the loss or damage is not attributable to the neglect or default of that person.

(2) The compensation payable by the Commission under subregulation (1) shall be equivalent to the declared landed value of the lamps seized.

(3) The Board shall, at the request of a person who disputes the amount of compensation payable under subregulation (2), refer the matter for arbitration in accordance with the Alternative Dispute Resolution Act, 2010 (Act 798).

*Restriction, Forfeiture and Disposal of Lamps*

**Restriction on disclosure of information**

28. (1) A person shall not disclose information which consists of a secret manufacturing process or trade secret that was obtained by that person in the course of the exercise of a power or duty conferred on that person by these Regulations.

- (2) Despite subregulation (1), a person may disclose information if
- (a) the information is public; or

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- (b) the disclosure is made
- (i) for the purpose of facilitating the exercise of power by an enforcement authority under these Regulations or any other enactment;
  - (ii) in connection with the investigation of a criminal offence; or
  - (iii) for the purpose of a civil or criminal proceeding.

**Forfeiture and destruction of seized lamp**

29. (1) A lamp which does not meet the minimum performance requirements as specified in regulations 3 and 4 is liable to forfeiture and destruction.

(2) The Commission may destroy the forfeited lamp.

**Recovery of expenses by enforcement authority**

30. (1) The owner of the lamp shall bear the costs associated with the seizure, testing, or destruction of a lamp which

- (a) is not labelled,
- (b) is not properly labelled,
- (c) does not meet the minimum energy efficiency requirements of these Regulations, or
- (d) is not accompanied by the required technical documentation.

(2) Where an enforcement authority seizes, tests, supervises the re-labelling or destruction of a lamp which

- (a) is not labelled,
- (b) is not properly labelled,
- (c) does not meet the minimum energy efficiency requirements of these Regulations, or
- (d) is not accompanied by the required technical documentation,

that enforcement authority may surcharge the supplier of the lamp.

(3) Despite subregulations (1) and (2), where a court convicts a person of an offence in respect of the contravention of a provision of these Regulations, the court may, in addition to any order the court may make as to costs and expenses, order the person convicted, to reimburse the enforcement authority for expenditure incurred by the enforcement authority in connection with the seizure.

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*Miscellaneous Provisions*

**Offence by individual**

31. (1) An individual who

- (a) manufactures, imports, stores, offers for sale, sells or distributes a lamp that
  - (i) is not labelled,
  - (ii) is not properly labelled,
  - (iii) is labelled in a deceptive or misleading manner,
  - (iv) does not meet a requirement in respect of the minimum energy efficiency standard, or
  - (v) is not accompanied by the required technical documentation,
- (b) fails to comply with a labelling or re-labelling requirement,
- (c) fails to provide technical documentation contrary to regulation 6,
- (d) fails to provide an information sheet contrary to regulation 9,
- (e) provides inaccurate information contrary to regulation 15,
- (f) fails to comply with regulation 17,
- (g) provides misleading information contrary to regulation 18,
- (h) obstructs or interferes with an enforcement authority in the exercise of the powers of that authority, or
- (i) violates a seizure order,

commits an offence.

(2) An individual who commits an offence under subregulation

(1) is liable on summary conviction to

- (a) a fine of not less than one hundred and twenty-five penalty units and not more than two hundred and fifty penalty units or to a term of imprisonment of not less than six months and not more than one year or to both, on a first conviction; or
- (b) a fine of not less than two hundred and fifty penalty units and not more than five hundred penalty units or to a term of imprisonment of not less than one year and not more than two years or to both, on a subsequent conviction.

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**Offence by body corporate**

32. (1) Where an offence under these Regulations is committed by a body corporate or by a member of a partnership or a firm, every director, or officer of the body corporate or a member of the partnership or any other person concerned with the management of the firm shall be deemed to have committed that offence and is liable on summary conviction to a fine of not less than two hundred and fifty penalty units and not more than five hundred penalty units for the offence and is in addition liable to the payment of compensation for the damage resulting from the breach.

(2) A person shall not be convicted of an offence under subregulation (1) if it is proved that

- (a) the person exercised due diligence to secure compliance with the provisions of these Regulations, and
- (b) the offence was committed without the knowledge, consent or connivance of that person.

**Aiding and abetting by enforcement authority**

33. An enforcement authority that assists a person to contravene these Regulations commits an offence and is liable on summary conviction to a fine of not less than one hundred and twenty-five penalty units and not more than two hundred and fifty penalty units or a term of imprisonment of not less than six months and not more than twelve months or to both.

**Interpretation**

34. In these Regulations, unless the context otherwise requires,

“Colour Rendering Index” means the quantitative measure of the ability of a light source to reveal the colours of various objects faithfully in comparison with an ideal or natural light source;

“container” includes a carton, can, jar or other receptacle in which material is held or carried and a basic tool consisting of a device that creates a partially or fully enclosed space that can be used to contain, store and transport an object or a material;



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- “Correlated Colour Temperature” means the temperature of the Planckian radiator whose perceived colour most closely resembles that of a given stimulus at the same brightness and under specified viewing conditions;
- “court” means court of competent jurisdiction;
- “dealer” means a retailer or other person who displays, offers for sale or sells a lamp to an end user;
- “dwelling place” means place of residence;
- “endorsement labelling scheme” includes a voluntary labelling scheme that guarantees appliance performance standards, that is equal to or exceeds the minimum threshold established by a recognised advisory body;
- “end user” means the final user of a lamp;
- “energy efficiency rating” means the ratio of the lighting service time to the effective power input for a set of rating conditions specified in the Standards;
- “enforcement authority” means
- (a) an authorised officer of the Customs Division of the Ghana Revenue Authority,
  - (b) an authorised officer of the Energy Commission;
  - (c) an authorised officer of the Standards Authority;
  - (d) any other authorised person designated by the Customs Division of the Ghana Revenue Authority, the Energy Commission or the Standards Authority to carry out inspections for the purposes of these Regulations; and
  - (e) the Police Service;
- “environmental labelling scheme” means a voluntary labelling scheme that provides detailed environmental information about the performance characteristics of a lamp;
- “GS” means Ghana Standards;
- “importer” means a person who places a lamp from a foreign country on the Ghanaian market and supplies that lamp for use;

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- “information sheet” means a standard table of information related to a lamp;
- “label” means a label of a lamp which contains information on its consumption of energy;
- “lamp” means Self-Ballasted Fluorescent lamp or Light Emitting Diode Lamp;
- “lamp life” means the number of hours when fifty percent of any large group of lamps have failed;
- “light emitting diode” means a semi-conductor device that emits visible light when an electric current passes through it;
- “luminous efficacy” means the ratio of the initial luminous flux of a lamp to the actual measured power, in lumens per watt (lm/W);
- “luminous flux” means lumens generated by a lamp in rated voltage and stable operation, in lumens (lm);
- “product brochure” includes a pamphlet or booklet that contains introductory information about a product;
- “rating plate” means a name plate that indicates the measurable performance capability of a lamp;
- “rated voltage” means voltage or voltage range marked on the lamp, in volts (V);
- “record” includes a book, document, label, mark, symbol, inscription and information in non-documentary form;
- “sale” includes a hire-purchase sale;
- “Standards” means
- (a) GS 323: 2003;
  - (b) GS 324: 2003; GS IEC62612: 2014; and
  - (c) GS 1098: 2014 as amended;
- “Standards Authority” means the Standards Authority established under the Standards Authority Act, 1973 (N.R.C.D. 173);
- “supplier” includes
- (a) a manufacturer or the authorised representative of a manufacturer resident in the country; and
  - (b) an importer or the person who introduces a lamp on the Ghanaian market;

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“supply” includes an offer to supply, contract to supply and advertisement for supply of a lamp but excludes the exhibition at a trade fair of a lamp that is prohibited by these Regulations; and

“wattage” means the power marked on the lamp, in watts (W).

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**FIRST SCHEDULE**  
*(regulations 3(b), 3(c), 5(1)(e)(i), 5(2) and 12)*

**PART ONE**  
**Efficiency Specifications**

Lamp wattage shall be classified based on the rated wattage, but the test wattage shall be within  $\pm 15\%$  of rated wattage.

Initial luminous efficacy shall be calculated from initial luminous flux and input power for the specific lamps measured at  $25 \pm 1^\circ\text{C}$  and at rated voltage.

Where the rated voltage is a range, then the test voltage shall be the nominal voltage of Ghana.

The value of initial luminous efficacy (lm/W) of the lamps shall not be less than the value indicated in Table 1.

**Table 1: Initial Luminous Efficacy of Lamps**

Input Power of Lamp (W)	Initial Luminous Efficacy (lm/W)					
	Correlated Colour Temperature (CCT)					
	6500K	5000K	4000K	3300K	3000K	2700K
1-5	50		45			
6-10	55		50			
11-25	55		50			
26-60	50		45			

The Energy Efficiency Star Rating of the lamps that meet the Initial Luminous Efficacy values in Table 1 shall be determined in accordance with the Energy Efficiency Indices in Table 2.

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**Table 2: Energy Efficiency Star Rating Non-Directional lamps and Self-Ballasted Light Emitting Diode or Self-Ballasted Fluorescent lamps and directional lamps and Self-Ballasted Light Emitting Diode or Self-Ballasted Fluorescent lamps**

Energy efficiency class	Energy efficiency index (EEI) for non-directional lamps and Self-Ballasted LED/ Self-Ballasted Fluorescent lamps	Energy efficiency index (EEI) for directional lamps and Self-Ballasted LED/ Self-Ballasted Fluorescent lamps
7-star	$EEI \leq 0.11$	$EEI \leq 0.13$
6-star	$0.11 < EEI \leq 0.17$	$0.13 < EEI \leq 0.18$
5-star	$0.17 < EEI \leq 0.24$	$0.18 < EEI \leq 0.40$
4-star	$0.24 < EEI \leq 0.60$	$0.40 < EEI \leq 0.95$
3-star	$0.60 < EEI \leq 0.80$	$0.95 < EEI \leq 1.20$
2-star	$0.80 < EEI \leq 0.95$	$1.20 < EEI \leq 0.1.75$

Product packaging, enclosed literature, or product specification sheet shall list the lamp type, efficiency and colour rendering index of the lamp.

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**PART TWO**

**Energy Efficiency Star Rating of Light Emitting Diode Lamps**

The energy efficiency requirement for directional LED lamps and modules is determined by the Energy Efficiency Index EEI:

The energy efficiency index (EEI) of the lamp is calculated as follows and rounded to two decimal places:

$$P_{cor} = P_{rated} \times f$$

Where:

$P_{cor}$  is the rated power measured at nominal input voltage and corrected where appropriate in watts.

$P_{rated}$  is the rated power measured at nominal input voltage  
f is the correction factor

f is:

1.0 for LED lamps operating by the direct mains

1.10 for Lamps operating on external LED lamp control gear

$P_{ref}$  is the reference power obtained from the useful luminous flux of the lamp ( $\Phi_{use}$ ) by the following formula:

$$P_{ref} = 0.88\sqrt{\Phi_{use}} + 0.049\Phi_{use}, \quad \text{For models with } \Phi_{use} < 1300 \text{ lumen}$$

$$P_{ref} = 0.07341\Phi_{use}, \quad \text{For models with } \Phi_{use} \geq 1300 \text{ lumen}$$

Where:

$\Phi_{use}$  is the luminous flux of the lamp

An energy efficiency index EEI is then set as

$$EEI = \frac{P_{CO_2}}{P_{ref}}$$

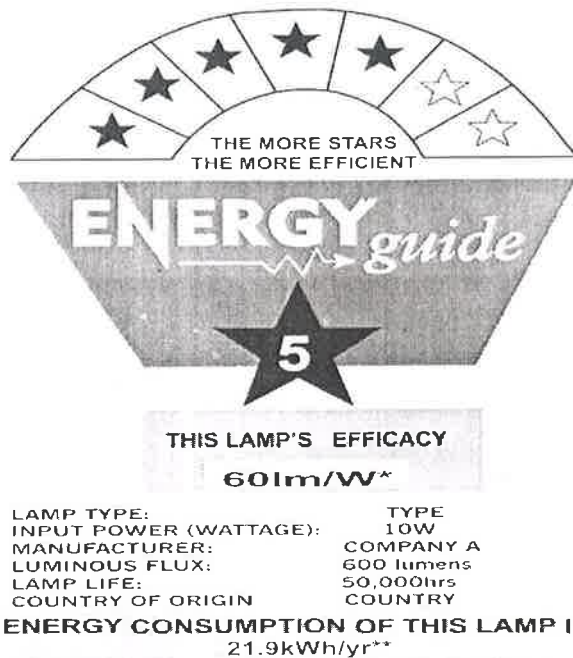
The energy efficiency star ratings are then set in accordance with the following table:

**Table 3: Energy Efficiency Star rating non-directional and directional lamps and their Light Emitting Diode modules**

Energy efficiency class	Energy efficiency index (EEI) for non-directional lamps and LED modules	Energy efficiency index (EEI) for directional lamps and LED modules
5-star	$EEI \leq 0.11$	$EEI \leq 0.13$
4-star	$0.11 < EEI \leq 0.17$	$0.13 < EEI \leq 0.18$
3-star	$0.17 < EEI \leq 0.24$	$0.18 < EEI \leq 0.40$

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**SECOND SCHEDULE**  
*(regulations 3(d), 5 (1) (c) and (d))*



\*Lamp efficacy measured in lumens per Watt (lm/W) is the measure of energy efficiency for lamps. It shows how much visible light is obtained from the lamp per Watt of electrical power consumption. The given data are according to Ghana Energy Efficiency Labeling requirements for indoor and outdoor LED lamps under GS IEC 62612:2014 and GS 1098:2014 and Compact Fluorescent lamps under GS 323. \*\*Based on 6hrs use per day. Actual consumption may vary depending on actual use of the product.

**Figure 1: Label of LED Lamps**

**2. Notes to label of LED lamps**

The following notes define the information to be included:

- (i) Lamp type,
- (ii) Supplier's name or trade mark,
- (iii) Country of origin,
- (iv) Energy efficiency star rating of a lamp,
- (v) Rated power in watts (marked "W" or "watts"),

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- (vi) Rated voltage or voltage range (marked "V" or "volts"),
- (vii) Light output in lumens (luminous flux) (lm/W),
- (viii) Life of lamp,
- (ix) Energy consumption expressed in kWh per year.

**3. Printing**

- (1) The label shall be placed on the container.
- (2) Colours are to be used on the label in accordance with the following:

All text is in black or gold as illustrated

- (a) The background is gold.
- (b) All Stars shall be in black.
- (c) Border line shall be in black.



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**THIRD SCHEDULE**

*(regulations 9 (2) (b), 11, 14 (1) (b) and 17 (b))*

**THE INFORMATION SHEET**

The information sheet shall contain the information specified below. The information may be given in the form of a table covering a number of Light Emitting Diode lamps supplied by the same supplier, in which case it shall be given in the order specified, or given in the description of the lamp.

- (a) Supplier's name or trade mark.
- (b) Supplier's model identifier.
- (c) Type of lamp as follows:

<b>Category</b>	<b>Description in information sheet</b>
1	Indoor lamp
2	Outdoor lamp for street, tunnel and area lighting

- (d) User instructions including disposal if necessary.
- (e) Energy consumption in accordance with the standards but expressed in kWh per year (i.e. per 24 hours x 365), described as: "energy consumption XYZ kWh per year, based on standard test results for twenty-four hours. Actual energy consumption will depend on how the appliance is used and where it is located".

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*Minister responsible for Energy*

L.I. 2353

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