Energy Labeling Guideline

Energy Label Requirements for

LED LAMPS

Sustainable and Renewable Energy Development Authority (SREDA)
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Ministry of Power, Energy and Mineral Resources

Constitution of Technical Committee for Labeling Program

No	Name Designation organization	Committee
01	Member, SREDA	Chairperson
02	Representative from Power Division	Member
03	Representative from Ministry of Commerce	Member
04	Representative from Ministry of Industry	Member
05	Representative from Directorate of National Consumers Right Protection	Member
06	Representative from BUET	Member
07	Representative from Institute of Engineers	Member
08	Representative from BSTI	Member
09	Representative from BAB	Member
10	Representative from Consumers Association	Member
11	Representative from SME foundation	Member
12	Representative from Related Business Association	Member
13	Representative from concern officials of SREDA	Member-Secretary

Foreword

1. This Guideline is prepared as per the instruction of "প্রবিধান ৪" of "যন্ত্রপাতির জ্বালানি দক্ষতা লেবেলিং প্রবিধানমালা ২০২৩"
2. This Guideline is prepared by Sustainable and Renewable Energy Development Authority (SREDA) after being thoroughly discussed and finalized by the Technical Committee under the "প্রবিধান ২৩" of "যন্ত্রপাতির জ্বালানি দক্ষতা লেবেলিং প্রবিধানমালা ২০২৩".
3. This Guideline is subject to periodical reviews and amendments in order to keep pace with the latest industrial and technological development. Any suggestion for improvement will be recorded and placed to revising the guideline by the Committee when the need may arise.

Energy Labeling Guideline for LED LAMPS

1. SCOPE

1.1. This guideline specifies the energy labeling requirements for self-ballasted non-directional general service LED lamps for general lighting services that works on single phase ac supply up to and including 250V, 50Hz, being manufactured, imported or sold in Bangladesh.

1.2. This guideline does not cover self-ballasted LED lamps that intentionally produce tinted or colored light neither does it cover OLEDs

2. NORMATIVE REFERENCE

This guideline shall be read in conjunction with the latest publication of the following standards with all amendments:

Table 1: Reference Standards

Reference Standard	Title of the Standard
BDS IEC 62560:2015	Self-ballasted LED lamps for general lighting services by voltage > 50 V – Safety specifications
BDS IEC TS 62504:2014	General lighting – LEDs and LED modules – Terms and definitions

3. TERMINOLOGY

For the purpose this guideline, the definitions referred & given in BDS IEC 62560, shall apply in addition to the following:

3.1. Rated Wattage: The wattage marked on the lamp or declared by manufacturer or responsible vendor.

3.2. Rated luminous flux: The flux marked on the lamp or declared as such by manufacturer or responsible vendor. The luminous flux is denoted by lumens (L)

3.3. Luminous efficacy: The ratio of luminous flux emitted by a lamp to the power consumed by the lamp and is expressed in L/W.

3.4. Label: Label means any written, printed, marked, stamped or graphic matter affixed to, or appearing upon, the LED lamps.

3.5. Validity of Label: The validity period of the luminous efficacy (L/W) value under energy labeling plan specified in the Table 2 of this guideline.

3.6. The lumen (symbol: lm) is the unit of luminous flux, a measure of the perceived power of visible light emitted by a source, in the International System of Units (SI).

4. PRE-QUALIFICATION CRITERIA:

To qualify as a SREDA star labelled product, the LED lamps covered under this guideline shall meet the following requirement:

4.1. The LED lamps shall confirm to the safety requirements as specified in BDS IEC 62560.

4.2. The LED lamps shall meet the harmonics requirement as per IEC 61000-3-2: 2018 and power factor requirements as per BDS IEC 62560.

4.3. The lamp shall have at least 95 percent lumen maintenance at 1000 hours of operation at the time of application submission.

4.4. The lamp shall comply with the following criteria defined for star rating level:

1. **Star Rating level:** "The star rating level shall be declared based on the initial luminous efficacy."
2. **Luminous efficacy:** "In a batch, the failure of LED lamps shall not exceed the qualifying limit for wattage and initial luminous flux (BDS IEC 62560).''

Illustration: Technical specifications of LED lamp

Star rating band: ≥ 95 L/W & < 105 L/W

Star rating level: 3 star

Declared luminous efficacy: 96 L/W

No. of LED samples in a batch: 10

Case 1: Pass i.e. a batch is eligible for star rating

Out of 10 samples in a batch, 6 or more samples are having individual luminous efficacy of ≥ 95 L/W an rest samples are having individual luminous efficacy <95 L/W. Batch of LED lamp has an average luminous efficacy of ≥ 95 L/W. This batch will pass the test, firstly, because the average efficacy meets the star rating band and secondly the no. of failures are within the qualifying limit of acceptance test (BDS IEC 62560)

Case 2: Failure

Out of 10 samples in a batch, 5 or less samples are having individual luminous efficacy of ≥ 95 L/W and rest samples are having individual luminous efficacy of < 95 L/W and batch of LED lamps has an average luminous efficacy of ≥ 95 L/W. The batch will fail the test, though the average luminous efficacy of the samples (>=95 L/W) meets the star rating band but the no. of failures exceeds the qualifying limit of acceptance test (BDS IEC 62560)

5. STAR RATING PLAN:

5.1. The star rating plan for self- ballasted non directional general service LED lamps shall be as given in Table 2.

Table 2

(a) Star Rating Plan – Voluntary Period (Validity: 6/7/2024 to 31/12/2025)		
Star Rating	**Rated Luminous Efficacy (Lumen/Watt)**	**Remarks**
1	≥85 & <89	
2	≥90 & <94	
3	≥95 & <99	
4	≥100 & <110	
5	≥110	

(b) Star Rating Plan – Mandatory Period (Validity: 1/1/2026 to 31/12/2026)		
Star Rating	**Rated Luminous Efficacy (Lumen/Watt)**	**Remarks**
1	≥85 & <89	
2	≥90 & <94	
3	≥95 & <99	
4	≥100 & <110	
5	≥110	

5.2. To qualify for SREDA Star label during voluntary period, all the tested LED lamps shall meet the minimum luminous efficacy of 85 L/W. During mandatory period also, all the tested LED lamps shall meet the minimum luminous efficacy of 85 L/W.

5.3. The value reported shall be rounded off up to one significant figure after the decimal point.

6. TESTING GUIDELINE:

6.1. Test Parameter: For the purpose of star rating criteria, the following type tests and corresponding testing protocol as mentioned in respective standard shall be conducted:

Table 3: Test Parameters

S.No.	Test parameters	Test Standards
1	Wattage	BDS IEC 62560
2	Initial Luminous Flux	BDS IEC 62560
5	Color chromaticity and color rendering index (CRI)	BDS IEC 62560
6	Life	BDS IEC 62560
7	Harmonics	BDS IEC 62040-2:2022
8	Lamp efficacy	The lamp efficacy shall be derived from the measured value of lumen output and the wattage at the rated voltage and frequency

6.2. Testing Conditions: The testing conditions while conducting the tests for electrical and photometric characteristics shall be as per Annexure A of IEC 62612.

6.3. Test methods: The test methods for conducting electrical and Photometric

requirements shall be in accordance with BDS IEC 62560 and IEC 62612.

6.4. Test Report:

6.4.1. The results of tests reported shall be submitted in the prescribed format as given in Annex of this guideline.

6.4.2. At the time of application submission, the following test reports shall be submitted along with the above-mentioned format:

a. Photo-biological safety
b. Lumen maintenance test report after 1000 h
c. Harmonic content and power factor
d. Performance requirement specified in Table 3 of this guideline
e. Safety requirement

6.4.3. The test report for photo biological safety shall not be more than two years old at the time of submission/approval of model.

6.4.4. Within 12 months from the date of approval of label, the permittee shall submit the test report for lumen maintenance after 25% of declared life or 6000 hours of operation as per BDS IEC 62560.

Note:

a. The label will be withdrawn, if the permittee fails to submit the test report of lumen maintenance after 25% of declared life or 6000 hours, within 12 months from the date of approval of label;
b. Penalty shall be applicable, for those models failed in rated lumen maintenance as per the test report submitted within 12 months from the date of approval of label.
c. In case of failure, the permittee shall withdraw the product from the market.

7. **TOLERANCE LIMIT:**

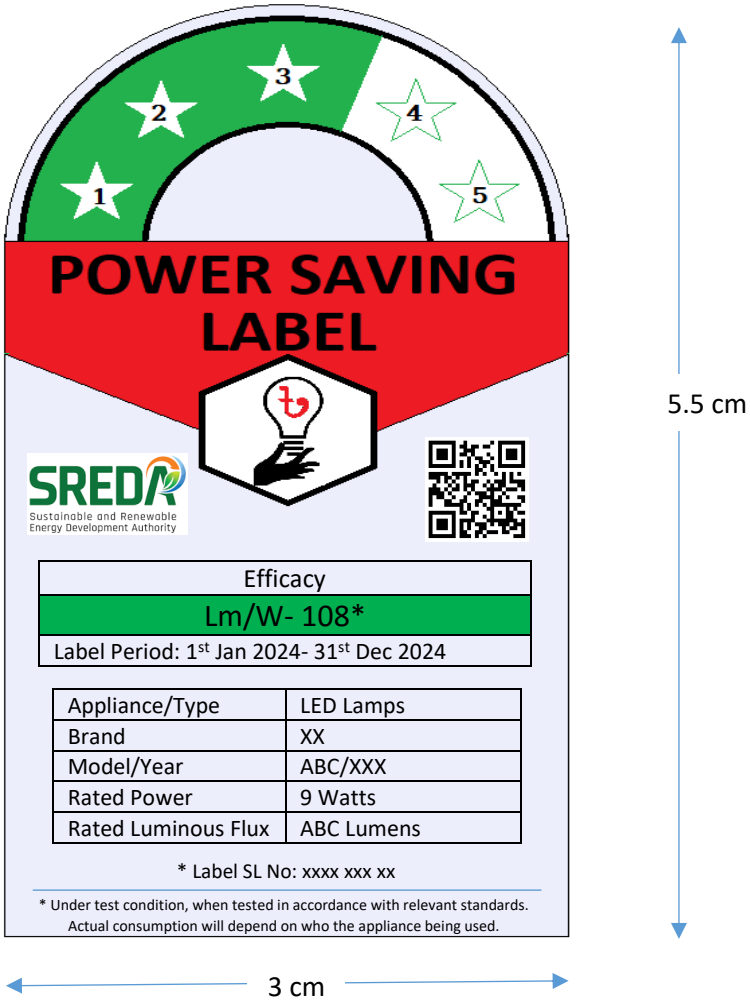
7.1. Tolerances for those testing parameters mentioned in Table 3 shall be applicable as given in respective BDS or IEC Standards.

7.2. However, there is no negative tolerance for star rating; all tested products must be at par or better than the star rating band threshold. The scope for manufacturing tolerance and other variations shall be accounted by the manufacturer or permittee while determining the Star Rating of a particular model.

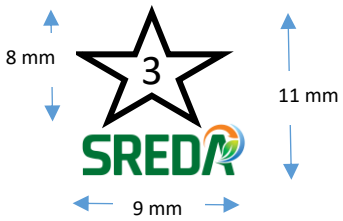
8. **SAMPLING:** The testing sampling size shall be as per BDS IEC 62560.

9. LABEL DESIGN & MANNER OF DISPLAY:

9.1. Label design, dimension & content of the label: The content along with the design and dimension of label is given below:



(a) Label on wrapper

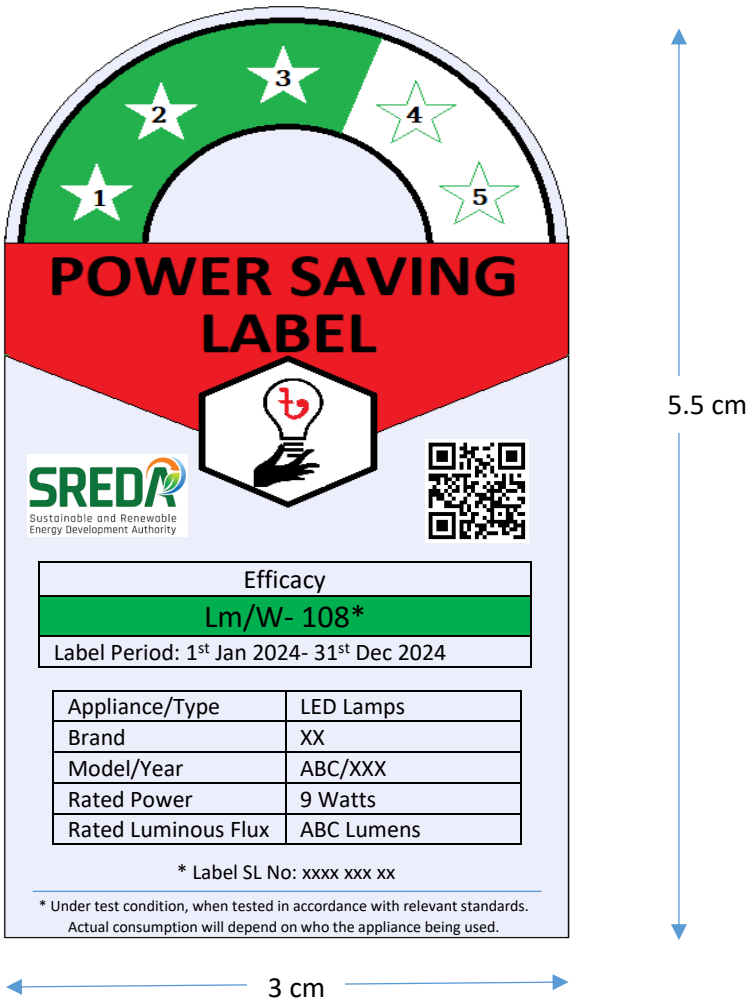


(b) Label on lamp

9.2. Color Scheme: The color scheme of the label is as follows:

Note: The PNG file is available on SREDA website

1.1.



1.2. Material, Shape & Placement:

1.2.1. On wrapper {Refer figure 9.1 (a)}:

a. The label shall be printed on the package; or

b. A durable paper, self-adhesive on the package

1.2.2. On Lamp {Refer figure 9.1(b)}: Respective star mark shall be printed on the lamp.

2. FEES:

2.1. Application Fee: Fee payable on application for authority to affix labels is BDT 3000/- (Three thousand only).

2.2. Renewal Fee: Fee payable on renewal application for authority to affix labels is BDT 1500/- (One thousand Five Hundred only).

2.3. Labeling fee for affixation of label on each piece of LED lamp is BDT 0.50/- (Fifty Paisa Only)

3. USER INFROMATION REQUIREMENT:

In order to educate and motivate the general consumer, the manufacturers shall provide the information in a tabular form about the LED lamp wattage equivalent to incandescent lamp wattage on the packing.

ANNEXURE

This annexure provides the test report format to be used by the manufacturers and the same shall be submitted to SREDA at the time of their application registration. This must include the following minimum requirement:

Test Report No: **Date:**

A. Product Details.

(i) Manufacturer Name & Address
(ii) Brand:
(iii) Type:
(iv) Model name/number:
(v) Rated voltage or voltage range:
(vi) Rated Wattage:
(vii) Rated Luminous Flux:
(viii) Rated Luminous Efficacy:

B. Test summary

(i) Laboratory Name & Address:
(ii) Date of Receipt of Sample:
(iii) Date of test:
(iv) Name of Testing Personnel:
(v) Nature of Test and Details of Test conducted as per the relevant standards
(vi) General test condition as per Annexure A of IEC 62612:,
(vii) List of standards followed for testing

C. Test Results

S.No.	Test parameters & relevant units	Measured Values	Rated/Declared Values (after applying tolerances as per standards)
1	Power consumption (Watt)		
2	Initial luminous flux (Lumen)		
3	Luminous Flux at 1000 hours (Lumen)		
4	Color chromaticity and Color Rendering Index (CRI) Compliance with safety requirement (Yes/No) [If yes, attach relevant part of test report]		
5	Life (hours)		
6	Lamp efficacy (Lumen/Watt)		

7	Harmonics Compliance with safety requirement (Yes/No) [If yes, attach relevant part of test report]		
8	Power Factor		
9	Emission of radio frequency disturbances Compliance with safety requirement (Yes/No) [If yes, attach relevant part of test report]		