

Schedule-10

Voluntary Energy Efficiency Labeling Program for Stationary Storage Type Electric Water Heaters

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1. Scope

This schedule specifies the star labeling requirements for stationary storage type electric water heaters (both vertical and horizontal type) up to rated capacity of 200 Litres being manufactured, imported or sold in India.

- (i) Stationary storage type electric water heaters covered under the scope of this schedule shall meet all the criteria to participate in BEE star labeling program by Manufacturer/importer
- (ii) The schedule covers stationary storage type electric water heater of rated capacities 6, 10, 15, 25, 35, 50, 70,100, 140 and 200 Litres.

2. Definitions

For the purposes of this schedule, the definition given in IS 2082:1993 with all amendments and those below apply. The definitions below take preference over the ones in the above mentioned standards.

Star Rating

“Star rating or star level” means the grade of standing loss (KWH/24Hr/45⁰C) displayed on the label of the electric storage water heaters. The available stars are between a minimum of one and a maximum of five shown in one star interval. The star rating is calculated from the Star Rating Band (refer 5 of this Schedule).

Star Rating Band

The Star Rating Band is a range of standing loss (KWH/24Hr/45⁰C) which is arrived by clause 4.2.3 of this schedule, and is used for determining the number of stars displayed on the star label.

Family of model

Family of model is the range of models of one particular brand, to which a single set of test reports is applicable and where each of the models has the same relevant physical characteristics, comparative energy consumption, and energy efficiency rating and performance characteristics. The term 'model' is synonymous with 'family of models'.

Appliance/Unit

An electric storage water heaters described under Section 1(scope) of this schedule.

Authority

Government of India.

Star Label

Star label as described in Section 6 of this schedule.

Participant

Manufacturers, importers or retailers of the appliance participating under this program

Rated input

The electrical power input shown on the nameplate of the electric storage water heaters.

Scheme for Energy Efficiency Labeling

The Bureau of Energy Efficiency's Labeling Scheme for all the voluntary products covered under Standard & Labeling Scheme.

2. Normative Reference

This schedule shall be read in conjunction with IS 2082:1993 & “**Scheme for Energy Efficiency Labeling**” & “**Check Testing Scheme**” covered under Standard & Labeling Program, with all applicable amendments till date. The safety standard for stationary storage type electric water heater shall be as per clause 19 to 31 of IS 302-2-21 with all amendments as applicable.

3. Eligibility Criteria:

The pre-requisite criteria for participation in the energy efficiency labeling scheme is that the Stationary Storage Type Electric Water Heaters shall confirm to minimum requirements as per IS 2082:1993 and IS 302-2-21 with all applicable amendments.

4. Testing Guidelines & standards**4.1 Test Methodology**

The testing code and procedure for stationary storage type electric water heaters shall be as per IS 2082:1993 and IS 302-2-21 with all amendments

4.2 Test Parameters

4.2.1 Rated capacity (Liter): Zero negative tolerance on rated capacity of heaters. The measured capacity shall not be less than the rated capacity.

4.2.2 Rated Power (KW): The power input shall be within +5% /-10% of the rated capacity as prescribed in IS 302-2-21: 20xx and IS 302-1: 2008.

4.2.3 Standing loss (KWH) per 24 hour: Standing loss is the energy consumption of a filled water heater, after steady state conditions have been reached when connected to electrical supply, and when no water is drawn for 24 hours. The standing loss shall be calculated as per IS 2082:1993 and comply with the star rating requirement as given in Tables 1, 2 and 3 as applicable.

NOTE:

- 1) The testing of the product shall be done in a sequential manner starting from Rated Capacity followed by Rated Power and then standing loss. Any product failed in a particular parameter in the sequence shall not be tested for the next parameter (s) and shall be considered as failed.
- 2) Along with the above stated tests, products must also comply to mean water temperature criteria. Compliance to the Mean water temperature shall be as per IS 2082:1993. Products not meeting the criteria

4.3 Test report: The results of tests shall be furnished to Bureau in form of test report. The same results shall also be reported as per **Annexure I** of this Schedule.

5. Star Rating

The Star Rating plan for a stationary type storage electric water heaters shall be based on the Standing Losses(kWh/24hour/45°C difference) calculated the as per IS 2082:1993. The timelines and corresponding applicable table for star rating plan is as indicated below:

Timelines for Electric Water Heaters

SL. No.	Product Manufactured/ Commercially purchased or sold	Table to be used
1	Till 30 th June 2014 (Voluntary)	1
2	From 1st July 2014 to 30th June 2015 (Voluntary)	2
3	From 1 st July 2015 to 30 th June 2017 (Mandatory)	3

Table 1: Star rating plan valid till 30th June 2014

Rated Capacity (Litres)	1 star	2 star	3 star	4 star	5 star
	Standing Losses (kWh/24 hour/45°C)				
6	≤0.792 & > 0.634	≤0.634 & > 0.554	≤0.554 & > 0.475	≤0.475 & > 0.396	≤ 0.396
10	≤0.990 & > 0.792	≤0.792 & > 0.693	≤0.693 & > 0.594	≤0.594 & > 0.495	≤ 0.495
15	≤1.138 & > 0.910	≤0.910 & > 0.797	≤ 0.797 & > 0.683	≤0.683 & > 0.569	≤ 0.569
25	≤1.386 & > 1.109	≤1.109 & > 0.970	≤0.970 & > 0.832	≤0.832 & > 0.693	≤ 0.693
35	≤1.584 & > 1.267	≤1.267 & > 1.109	≤1.109 & > 0.950	≤0.950 & > 0.792	≤ 0.792
50	≤1.832 & > 1.466	≤1.466 & > 1.282	≤1.282 & > 1.099	≤1.099 & > 0.916	≤ 0.916
70	≤2.079 & > 1.663	≤ 1.663 & > 1.455	≤ 1.455 & > 1.247	≤1.247 & > 1.040	≤ 1.040
100	≤2.376 & > 1.901	≤ 1.901 & > 1.663	≤1.663 & > 1.426	≤1.426 & > 1.188	≤ 1.188
140	≤2.673 & > 2.138	≤2.138 & > 1.871	≤1.871 & > 1.604	≤1.871 & > 1.604	≤ 1.337
200	≤2.970 & > 2.376	≤2.376 & > 2.079	≤2.079 & > 1.782	≤1.782 & > 1.485	≤ 1.485

Table 2: Star rating plan valid from 01st July 2014 to 30th June 2015

Rated Capacity (Litres)	1 star	2 star	3 star	4 star	5 star
	Standing Losses (kWh/24 hour/45°C)				
6	≤0.521 & > 0.474	≤0.474 & > 0.431	≤0.431 & > 0.392	≤0.392 & > 0.356	≤ 0.356
10	≤0.654 & > 0.594	≤0.594 & > 0.540	≤0.540 & > 0.491	≤0.491 & > 0.446	≤ 0.446
15	≤0.750 & > 0.681	≤0.681 & > 0.620	≤0.620 & > 0.563	≤0.563 & > 0.512	≤ 0.512
25	≤0.914 & > 0.831	≤0.831 & > 0.755	≤0.755 & > 0.686	≤0.686 & > 0.624	≤ 0.624
35	≤1.044 & > .949	≤.949 & > 0.864	≤0.863 & > 0.784	≤0.784 & > 0.713	≤ 0.713
50	≤1.206 & > 1.097	≤1.097 & > .997	≤.997 & > 0.906	≤0.906 & > 0.824	≤ 0.824
70	≤1.37 & > 1.246	≤1.246 & > 1.133	≤1.133 & > 1.030	≤1.030 & > 0.936	≤ 0.936
100	≤1.565 & > 1.423	≤1.423 & > 1.239	≤1.293 & > 1.176	≤1.176 & > 1.069	≤ 1.069
140	≤1.761 & > 1.601	≤1.601 & > 1.456	≤1.456 & > 1.323	≤1.323 & > 1.203	≤ 1.203
200	≤1.958 & > 1.780	≤1.780 & > 1.618	≤1.618 & > 1.471	≤1.471 & > 1.337	≤ 1.337

Table 3: Star rating plan valid from 1st July 2015 to 30th June 2017

Rated Capacity (Litres)	1 star	2 star	3 star	4 star	5 star
	Standing Losses (kWh/24 hour/45°C)				
6	≤ 0.469 & > 0.426	≤ 0.426 & > 0.387	≤ 0.387 & > 0.352	≤ 0.352 & > 0.320	≤ 0.320
10	≤ 0.587 & > 0.534	≤ 0.534 & > 0.485	≤ 0.485 & > 0.441	≤ 0.441 & > 0.401	≤ 0.401
15	≤ 0.675 & > 0.614	≤ 0.614 & > 0.558	≤ 0.558 & > 0.507	≤ 0.507 & > 0.461	≤ 0.461
25	≤ 0.823 & > 0.748	≤ 0.748 & > 0.680	≤ 0.680 & > 0.618	≤ 0.618 & > 0.562	≤ 0.562
35	≤ 0.940 & > 0.855	≤ 0.855 & > 0.777	≤ 0.777 & > 0.706	≤ 0.706 & > 0.642	≤ 0.642
50	≤ 1.086 & > 0.988	≤ 0.988 & > 0.898	≤ 0.898 & > 0.816	≤ 0.816 & > 0.742	≤ 0.742
70	≤ 1.233 & > 1.121	≤ 1.121 & > 1.019	≤ 1.019 & > 0.926	≤ 0.926 & > 0.842	≤ 0.842
100	≤ 1.408 & > 1.280	≤ 1.280 & > 1.164	≤ 1.164 & > 1.058	≤ 1.058 & > 0.962	≤ 0.962
140	≤ 1.586 & > 1.441	≤ 1.441 & > 1.310	≤ 1.310 & > 1.191	≤ 1.191 & > 1.083	≤ 1.083
200	≤ 1.761 & > 1.601	≤ 1.601 & > 1.456	≤ 1.456 & > 1.323	≤ 1.323 & > 1.203	≤ 1.203

Note: There is no tolerance for Star Rating Bands (as mentioned in Table 1, 2, 3). The average of products tested must be at par type electric water heater or better than the Label threshold.

6. Star Label

6.1 Placement:

The label shall be affixed at the front display of the unit and should be easily visible. The participant should ensure that the label appears on every registered Unit on display for identification purpose, at point of sale or hire. The label shall also be printed or pasted on the packaging. The label shall be included as a part of the documentation given to the customer/user.

6.2 Material and Dimensions:

The label shall be durable and possess good wear and tear characteristics and self adhesive type. It should stick tightly on the appliance surface. The design and dimension of the label shall be as given in Figure 3.4.

6.3 Color Scheme: Color scheme of the label shall be as given in Figure 3.5.

6.4 Sample Label:

A Typical specimen of star label for electric water heater is shown in Figure 3.6.

6.5 Information on the label:

The information that appears on the label should accord to the label format and meanings as indicated in the Figure 3.4

7. Procedure of Registration & Participation:

As mentioned in the “Scheme for Energy Efficiency Labeling”

8. Compliance Monitoring & Verification:

As mentioned in the “Scheme for Energy Efficiency Labeling” & “Check Testing Scheme”

9. Legal Provisions:

As mentioned in the “Scheme for Energy Efficiency Labeling” & “Check Testing Scheme”

10. Participant’s Duties, Responsibilities and Obligations:

As mentioned in the “Scheme for Energy Efficiency Labeling” & “Check Testing Scheme”

11. Penalty:

As mentioned in the “Scheme for Energy Efficiency Labeling” & “Check Testing Scheme”

12. Termination:

As mentioned in the “Scheme for Energy Efficiency Labeling” & “Check Testing Scheme”

13. Testing Facilities:

As mentioned in the “Scheme for Energy Efficiency Labeling”

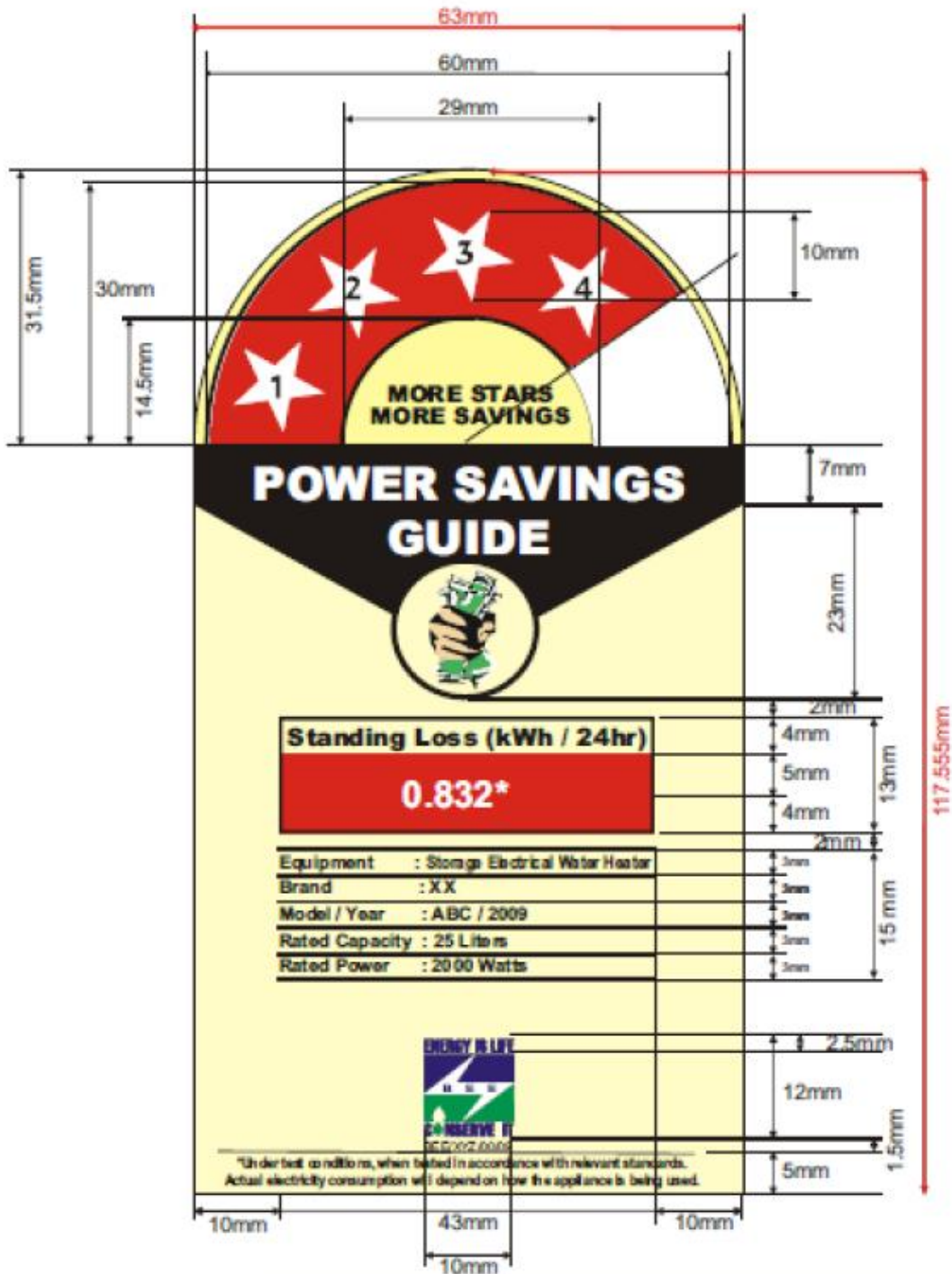


Fig.3.1-Design Scheme of BEE Label (Sample)

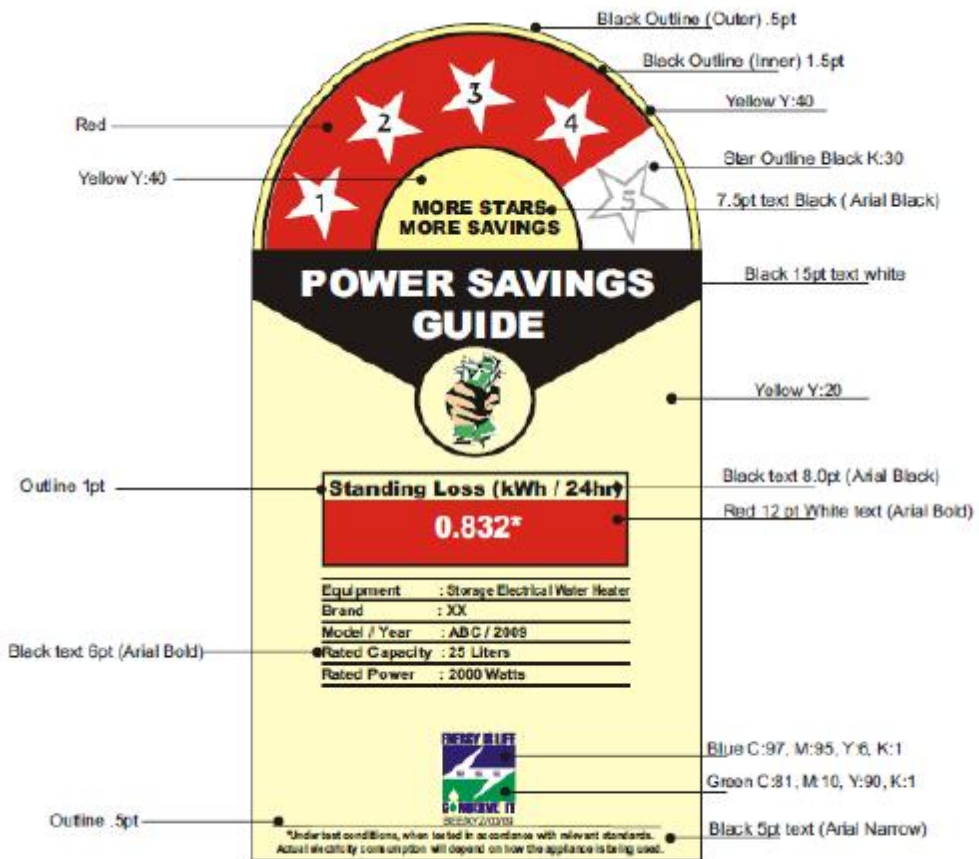


Fig.3.2-Colour Scheme of BEE label (Sample)

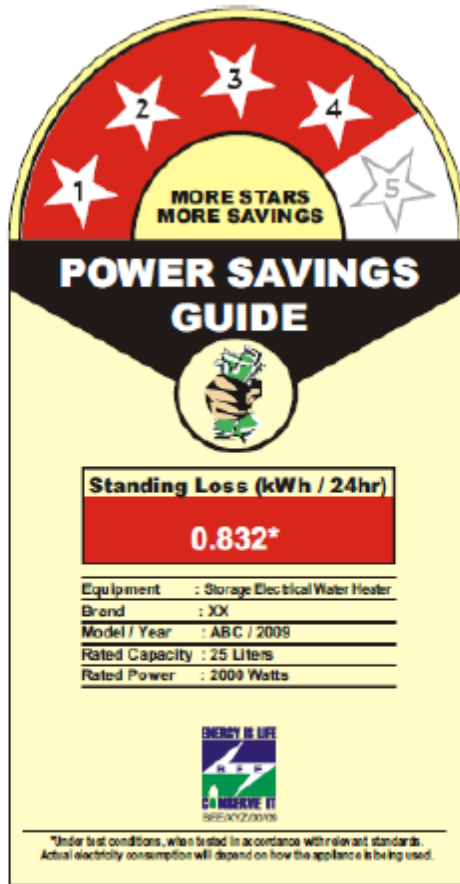


Fig.3.3-Sample BEE label

15. Fees

15.1 Registration fee:

To avail the grant of permission to affix the star label on the model, a registration fee of INR 1000 /- (One thousand only) per model shall be paid to Bureau.

15.2 Renewal fee:

To avail the grant of permission for renewal of affixing the star label on the existing model, a renewal fee of INR 500 /- (five hundred only) per model shall be paid to the Bureau.

15.3 Labeling fee:

Labeling fee for each star label of stationary storage type water heater covered under this schedule, is INR 2/- (Two only).

Sample Label of Electric Geyser:

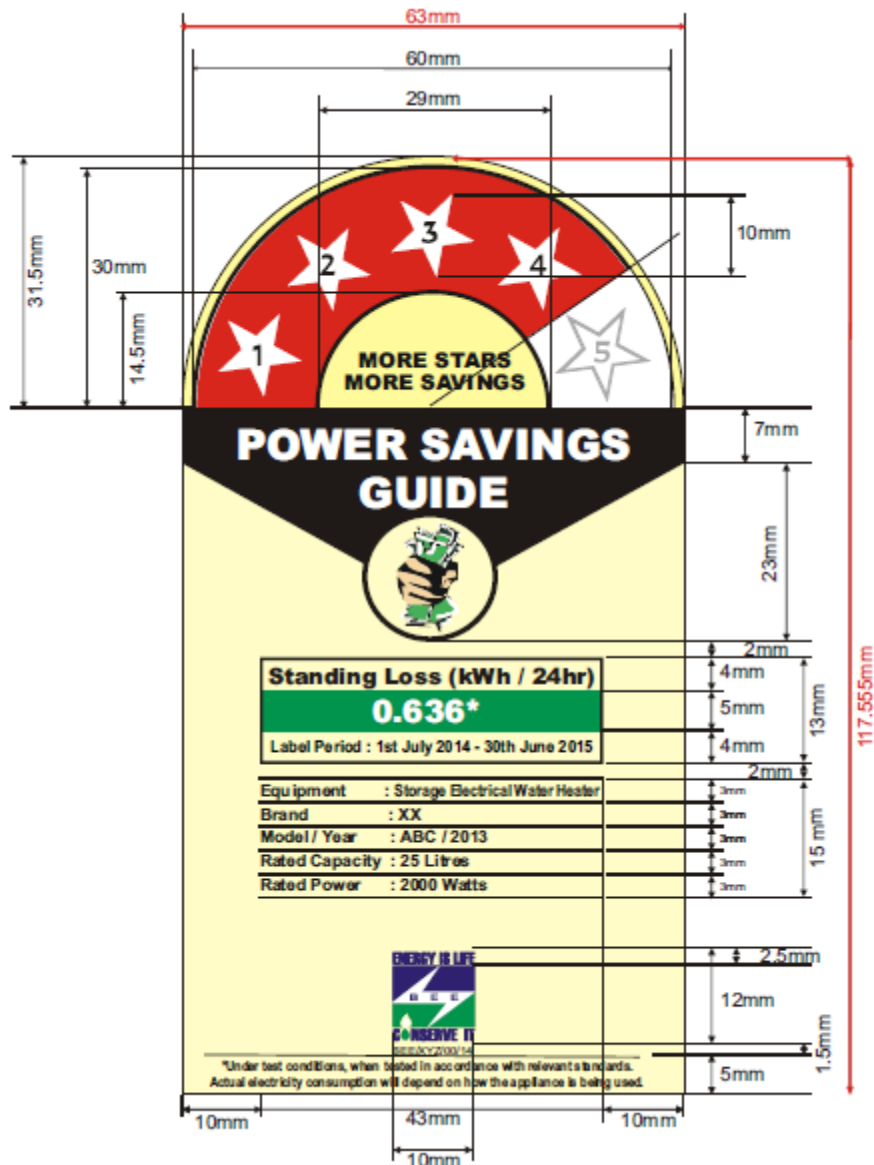


Fig. 3.4 Design scheme of BEE Label (Sample)

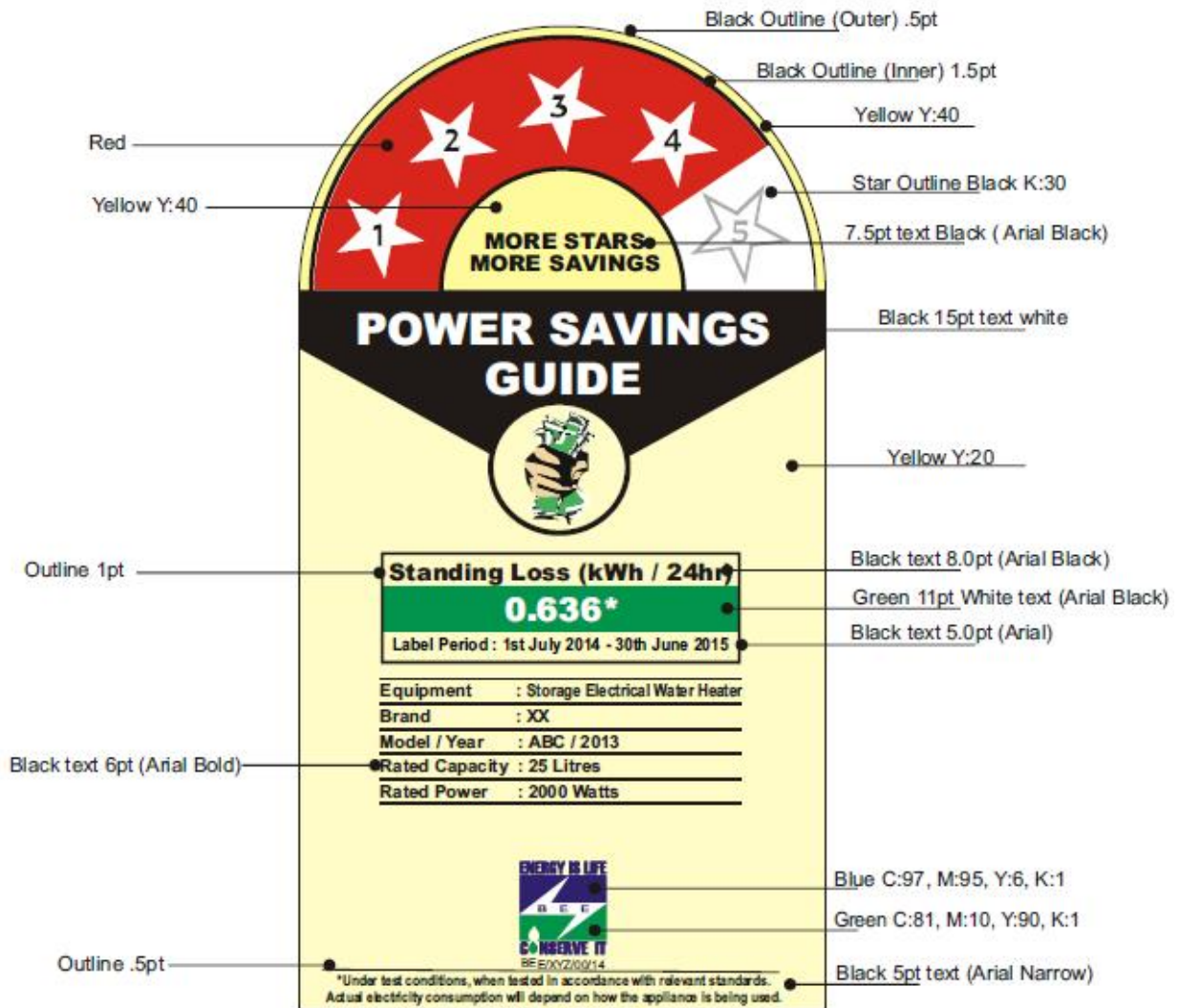


Fig. 3.5 Color scheme of BEE Label (Sample)

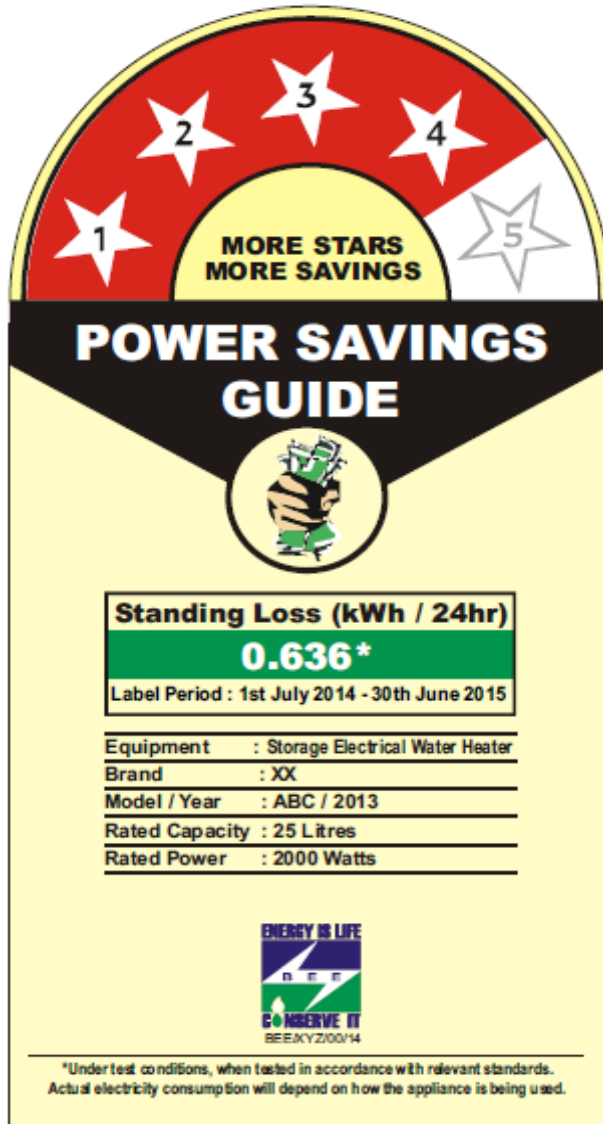


Fig. 3.6 Sample BEE star label

16. Others

16.1 Tolerance limits:

There is **no tolerance** for the Star Rating Bands. All tested products shall meet the minimum threshold for each Star Rating Band.

16.2 Label Validity Period:

Label Validity Period means the validity period of the Label for Electric Water Heater specified under this Schedule. Labels issued under Table 1 shall be valid till December 31, 2013; label issued under Table 2 shall be valid from January 01, 2014 to December 31, 2014 and labels issued under Table 3 shall be valid from January 01, 2015 to December 31, 2016.

16.3 Future Specification Revisions:

BEE reserves the right to revise this schedule, should technological and/or market changes affect its usefulness to consumers or industry or its impact on the environment. In keeping with current BEE policy, whenever there is any changes in the schedule particularly with regard to changes in the test procedure or the and/or the energy efficiency norms/values, the manufactures/user of the label shall ensure that their product meets the requirements of the revised schedule for which they should submit fresh application for fresh registration. To qualify as Star labeled product, a model shall meet the revised schedule of BEE, in respect of the products and models dispatched or shipped from the manufacturer's premises immediately after the effective date of implementation of the revised schedule.

16.4 Sampling Plan

The samples will be picked up by Bureau or its designated agency for testing as per IS 2082:1993 and IS 302-2-21 with all applicable amendments

Annexure:

**ANNEX 1
TEST REPORT FORMAT**

This annexure shall provide the template of the test report to be used by manufacturers to present the test results to the Bureau. This must include (minimum requirement):

Model:		Capacity:	
Test Details		Ambient Temperature	
- Test Started on:			
- Test Ended on:			
- Test Duration (t _i) started on:			
Energy Consumption Details			
- Energy consumption (t _i) in time (t _i) (kWh) :			
Energy Consumption in 24 h (kWh / 24 hr) :			
Mean Temperature (M1) (degree C) :			
Standing Loss (kWh / 24 hr / 45 degree C) :			