

Amendment to Schedule 15 for Ballasts – Electromagnetic & Electronic ballasts

In the said schedule,

(i) in paragraph 7, for sub-paragraph (i) the following shall be substituted, namely:-

Effective from **1st January 2016 onwards**, a non-refundable registration fee of INR 2000 /- (Two thousand only) per model shall be paid to Bureau, in order to avail the grant of permission to affix the star label on each model of Electromagnetic & Electronic ballasts.

All the terms & conditions other than above said, shall remain same till further orders.

Schedule - 15

Ballasts – Electromagnetic & Electronic ballasts

1. SCOPE

1.1 This schedule specifies the requirements for participating in the energy efficiency labeling scheme for ballasts covering electromagnetic ballasts and electronic ballasts for tubular fluorescent lamps (TFL) and single capped fluorescent lamps. This schedule also includes built-in ballasts where the ballast is inbuilt in the luminaire. The ballasts which are integral to the lamps are excluded from the scope of this schedule.

The Indian standards referred in this schedule are IS 1534 (Part 1): 1977 for electromagnetic ballasts and IS 13021 (Part 1 & 2): 1991 for electronic ballasts. The following standards and their amendments are necessary adjunct to this schedule.

| | |
|---|--|
| IS 1534 (Part 1) | Ballasts for tubular fluorescent lamps – performance requirements– Part 1 For switch start circuits |
| IEC 61347-2-8 /IS15885(part2/Section 8) | Lamp control gear Part 2-8 Particular requirements for ballasts for fluorescent lamps |
| IEC 61347-2-3 / IS 15885 (part 2 / Section 3) | Lamp control gear Part 2-3 Particular requirements for ac supplied electronic ballast for fluorescent lamps |
| IEC 60929 / IS13021 (Part 1 and Part 2) | AC supplied electronic ballast for tubular fluorescent lamps – performance requirement |
| IS 14700 (Part 3/Sec 2)/IEC 61000-3-2 | Electromagnetic compatibility Part 3 Limits for harmonic current emissions (equipment input current ≤ 16 A per phase) |
| IS6873(Part5) /CISPR 15 | Limits and methods of measurement of radio disturbance characteristics Part 5 Electrical lighting and similar equipment |

1.2 The minimum Efficiency values covered in this schedule shall be as per **Annexure - I** of this schedule for each type of lamps.

2. PRE-QUALIFICATION

- a) The products shall conform to the requirements of relevant Indian standards for both safety and performance requirements to participate in BEE energy efficiency labeling program.
- b) Quality System Certification as per ISO : 9001 shall be mandatory

3. SCHEDULE OF TESTS

3.1 Method of Tests

The electromagnetic ballasts shall be tested as per method prescribed in IS 1534 (Part 1) with all its relevant amendments and revisions and for electronic ballasts will be as per IS 13021 (Part I) for general and safety requirements and IS 13021(Part II) for Performance requirements with all its relevant amendments and revisions.

3.2 Parameters to be tested

- ◆ Ballast efficiencies shall be as per **Annexure - I** of this schedule.
- ◆ For all electronic ballasts, Maximum THD shall be as per IS 13021 : Part 2
- ◆ The minimum Power Factor in case of electromagnetic ballasts shall be 0.85 and in case of electronic ballasts shall be 0.9.

3.3 The designed life of the product shall be declared by the manufacturer in terms of burning hours of the lamp at defined ambient temperature and case temperature of the ballast.

3.4 The test report shall be submitted as per the performa given in **Annexure - II** of this schedule.

4. RATING PLAN

4.1 The star rating plan for the ballasts specified in **Annexure - I**, of this schedule shall be as given in the following table:

| Star Rating | Ballast Efficiency Class |
|---------------|--------------------------|
| 1 Star | $\geq B1$ and $< A3$ |
| 2 Star | $\geq A3$ and $< A2$ |
| 3 Star | $\geq A2$ and $< A2$ BAT |
| 4 Star | $\geq A2$ BAT and $< A1$ |
| 5 Star | = A1 |

- BAT Best Available Technology
- B1 Electromagnetic ballasts

- A3, A2, A2 (BAT) Non Dimmable Electronic ballasts
- A1 Dimmable Electronic ballasts

NOTE

In the case of dimmable ballasts, the dimming position corresponding to 25 % of the lumen output of the operated lamp, the input power (P_{in}) of the lamp-ballast circuit shall not exceed fifty percent of the ratio the ($P_{Lrated}/\hat{I}_{ballast}$):

$$P_{in} < 50\% \text{ of } P_{Lrated}/\hat{I}_{ballast}$$

Where,

- P_{Lrated} is the rated lamp power and \hat{I} ballast is the minimum energy efficiency limit (which is A2 BAT here).
- The power consumption of the ballasts shall not exceed 1.0 W when lamps do not emit any light in normal operating conditions and when other possible connected components (network connections, sensors etc.) are disconnected. If they cannot be disconnected, their power shall be measured and deducted from the result.
- Star Rating will be based on the ballast efficiencies (IEC 62442-1) as per the requirements mentioned in the attached table in **Annexure - I**.

4.2 The ballast efficiency & losses are calculated as per below:

$$\text{Ballast efficiency (\%)} = P_{lamp} / P_{in}$$

$$\text{Losses in Watts} = ((P_{lamp}/\text{Ballast efficiency}) \times 100) - P_{lamp}$$

Where,

P_{in} - input power

P_{lamp} - Lamp Power

5. Sampling plan:

The samples shall be picked up by Bureau of Energy Efficiency or its designated agency for testing at NABL accredited laboratory. Sample size shall be in accordance with the guidelines set by BEE from time to time.

6. Label design, manner of display:

6.1. The energy star label shall be displayed on the packaging as shown in Fig. 6.1. The other details shall be marked as given in relevant Indian standards both on the product as well as on the packaging/card board cartons.



Figure 6.1: Sample Label of Ballast

6.2. Manner of display of label:

The label design with colour scheme is as shown in figure 6.2. The dimensions of the label can be proportionately changed with respect to the size of the cover of the ballast, however, the label should be prominently visible.

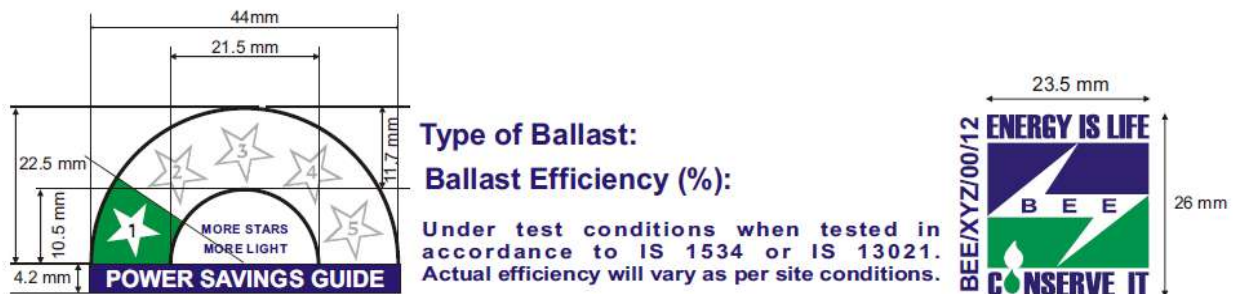


Fig 6.2: Sample Label of Ballast on the Packing Case

The Options for the Type of ballasts (to be shown in label on the packing case of the ballast) are the following:

- Electromagnetic ballasts
- Non Dimmable Electronic ballasts
- Dimmable electronic ballasts

The star marking label shall also be applied on the name plate of the ballast as per the required rating as shown in the figure 6.3 which should be prominently visible.

The star marking label shall be displayed on the top left side of the name plate of ballast.



Fig 6.3: Sample label on the Name plate of one star Ballast

The actual dimension of the star label of Ballast to be engrossed on the name plate of the Ballast is shown in figure 6.4.

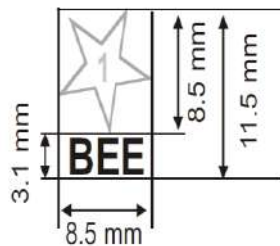


Figure 6.4: Sample label on the Name plate of one star Ballast

7. Fees & other conditions:

- i. Registration Fee payable on application (for each model or family of model) for authority to affix labels is Rs. 1000/- (Rupees one thousand only)
- ii. Registration Fee payable on application for renewal (of each application) of authority to affix labels is Rs. 500/ (Rupees five hundred only)
- iii. The labelling Fee for affixing label on each piece of Ballasts is Rs. 0.10 (10 Paise only).
- iv. The time and procedure laid down in the manner of submission of labelling fees has been listed in 'General Instructions' manual (available on BEE website)
- v. For other Terms & Conditions regarding participation in the voluntary programme the BEE scheme for Energy Efficiency Labelling should be referred (available on BEE website)

8. Definition:

Family of models: Family of models 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'.

ANNEXURE - I Requirements for Ballasts for Fluorescent Lamps

| LampType | Nominal Wattage | ILCOS Code (Refer IEC 61231 Edition 1) | Rated / Typical Wattage | | DIMMABLE BALLASTS | | NON DIMMABLE ELECTRONIC BALLASTS | | | | | | NON DIMMABLE MAGNETIC BALLASTS | |
|--------------|-----------------|--|-------------------------|--------|-------------------|--------|----------------------------------|--------|------------|--------|------------|--------|--------------------------------|--------|
| | | | 50 Hz | HF | A1(**) | | A2 BAT | | A2 | | A3 | | B1 | |
| | | | Plamp | | STAR 5 | STAR 4 | STAR 3 | | STAR 2 | | STAR 1 | | | |
| | | | Efficiency | Losses | Efficiency | Losses | Efficiency | Losses | Efficiency | Losses | Efficiency | Losses | Efficiency | Losses |
| T8 | 15 | FD-15-E-G13-26/450 | 15 | 13.5 | 75.0 | 4.50 | 87.8 | 1.88 | 84.4 | 2.50 | 75.0 | 4.50 | 67.9 | 6.74 |
| T8 | 18 | FD-18-E-G13-26/600 | 18 | 16 | 76.2 | 5.00 | 87.7 | 2.24 | 84.2 | 3.00 | 76.2 | 5.00 | 71.3 | 7.25 |
| T8 | 30 | FD-30-E-G13-26/900 | 30 | 24 | 72.7 | 9.01 | 82.1 | 5.23 | 77.4 | 7.01 | 72.7 | 9.01 | 79.2 | 7.48 |
| T8 | 36 | FD-36-E-G13-26/1200 | 36 | 32 | 84.2 | 6.00 | 91.4 | 3.01 | 88.9 | 4.00 | 84.2 | 6.00 | 83.4 | 6.81 |
| T8 | 38 | FD-38-E-G13-26/1050 | 38.5 | 32 | 80.0 | 8.00 | 87.7 | 4.49 | 84.2 | 6.00 | 80.0 | 8.00 | 84.1 | 6.91 |
| T8 | 58 | FD-58-E-G13-26/1500 | 58 | 50 | 84.7 | 9.03 | 93.0 | 3.76 | 90.9 | 5.01 | 84.7 | 9.03 | 86.1 | 8.90 |
| T8 | 70 | FD-70-E-G13-26/1800 | 69.5 | 60 | 83.3 | 12.03 | 90.9 | 6.01 | 88.2 | 8.03 | 83.3 | 12.03 | 86.3 | 10.48 |
| TC-L | 18 | FSD-18-E-2G11 | 18 | 16 | 76.2 | 5.00 | 87.7 | 2.24 | 84.2 | 3.00 | 76.2 | 5.00 | 71.3 | 6.88 |
| TC-L | 24 | FSD-24-E-2G11 | 24 | 22 | 81.5 | 4.99 | 90.7 | 2.26 | 88.0 | 3.00 | 81.5 | 4.99 | 76.0 | 7.20 |
| TC-L | 36 | FSD-36-E-2G11 | 36 | 32 | 84.2 | 6.00 | 91.4 | 3.01 | 88.9 | 4.00 | 84.2 | 6.00 | 83.4 | 6.81 |
| TCF | 18 | FSS-18-E-2G10 | 18 | 16 | 76.2 | 5.00 | 87.7 | 2.24 | 84.2 | 3.00 | 76.2 | 5.00 | 71.3 | 6.88 |
| TCF | 24 | FSS-24-E-2G10 | 24 | 22 | 81.5 | 4.99 | 90.7 | 2.26 | 88.0 | 3.00 | 81.5 | 4.99 | 76.0 | 7.20 |
| TCF | 36 | FSS-36-E-2G10 | 36 | 32 | 84.2 | 6.00 | 91.4 | 3.01 | 88.9 | 4.00 | 84.2 | 6.00 | 83.4 | 6.81 |
| TC-D / DE | 10 | FSQ-10-E-G24q=1 FSQ-10-I-G24d=1 | 10 | 9.5 | 73.1 | 3.50 | 89.4 | 1.13 | 86.4 | 1.50 | 73.1 | 3.50 | 67.9 | 4.49 |
| TC-D / DE | 13 | FSQ-13-E-G24q=1 FSQ-13-I-G24d=1 | 13 | 12.5 | 78.1 | 3.51 | 91.7 | 1.13 | 89.3 | 1.50 | 78.1 | 3.51 | 72.6 | 4.66 |
| TC-D / DE | 18 | FSQ-18-E-G24q=2 FSQ-18-I-G24d=2 | 18 | 16.5 | 78.6 | 4.49 | 89.8 | 1.87 | 86.8 | 2.51 | 78.6 | 4.49 | 71.3 | 6.88 |
| TC-D / DE | 26 | FSQ-26-E-G24q=1 FSQ-26-I-G24d=1 | 26 | 24 | 82.8 | 4.99 | 91.4 | 2.26 | 88.9 | 3.00 | 82.8 | 4.99 | 77.2 | 7.29 |
| TC-T / TE | 13 | FSM-13-E-GX24q=1 FSM-13-I-GX24d=1 | 13 | 12.5 | 78.1 | 3.51 | 91.7 | 1.13 | 89.3 | 1.50 | 78.1 | 3.51 | 72.6 | 4.66 |
| TC-T / TE | 18 | FSM-18-E-GX24q=2 FSM-18-I-GX24d=2 | 18 | 16.5 | 78.6 | 4.49 | 89.8 | 1.87 | 86.8 | 2.51 | 78.6 | 4.49 | 71.3 | 6.88 |
| TC-T / TC-TE | 26 | FSM-26-E-GX24q=3 FSM-26-I-GX24d=3 | 26.5 | 24 | 82.8 | 4.99 | 91.4 | 2.26 | 88.9 | 3.00 | 82.8 | 4.99 | 77.5 | 7.31 |
| TC-DD / DDE | 10 | FSS-10-E-GR10q FSS-10-L/P/H-GR10q | 10.5 | 9.5 | 70.4 | 3.99 | 86.4 | 1.50 | 82.6 | 2.00 | 70.4 | 3.99 | 68.8 | 4.52 |
| TC-DD / DDE | 16 | FSS-16-E-GR10q FSS-16-I-GR10q FSS-10-L/P/H-GR10q | 16 | 15 | 75.0 | 5.00 | 87.0 | 2.24 | 83.3 | 3.01 | 75.0 | 5.00 | 72.4 | 5.79 |
| TC-DD / DDE | 21 | FSS-21-E-GR10q FSS-21-I-GR10q FSS-21-L/P/H-GR10q | 21 | 19 | 79.2 | 4.99 | 89.4 | 2.25 | 86.4 | 2.99 | 79.2 | 4.99 | 73.9 | 7.05 |
| TC-DD / DDE | 28 | FSS-28-E-GR10q FSS-28-I-GR10q FSS-28-L/P/H-GR10q | 28 | 26 | 81.3 | 5.98 | 89.7 | 2.99 | 86.7 | 3.99 | 81.3 | 5.98 | 78.2 | 7.42 |
| TC-DD / DDE | 38 | FSS-38-E-GR10q FSS-38-L/P/H-GR10q | 38.5 | 36 | 85.7 | 6.01 | 92.3 | 3.00 | 90.0 | 4.00 | 85.7 | 6.01 | 84.1 | 6.91 |
| TC | 5 | FSD-5-I-G23 FSD-5-E-2G7 | 5.4 | 5 | 58.8 | 3.50 | 72.7 | 1.88 | 66.7 | 2.50 | 58.8 | 3.50 | 49.3 | 5.28 |
| TC | 7 | FSD-7-I-G23 FSD-7-E-2G7 | 7.1 | 6.5 | 65.0 | 3.50 | 77.6 | 1.88 | 72.2 | 2.50 | 65.0 | 3.50 | 55.7 | 5.36 |
| TC | 9 | FSD-9-I-G23 FSD-9-E-2G7 | 8.7 | 8 | 66.7 | 3.99 | 78.0 | 2.26 | 72.7 | 3.00 | 66.7 | 3.99 | 60.3 | 5.44 |
| TC | 11 | FSD-11-I-G23 FSD-11-E-2G7 | 11.8 | 11 | 73.3 | 4.01 | 83.0 | 2.25 | 78.6 | 2.99 | 73.3 | 4.01 | 66.7 | 5.60 |
| T5 | 4 | FD-4-E-G5-16/150 | 4.5 | 3.6 | 50.0 | 3.60 | 64.9 | 1.95 | 58.1 | 2.60 | 50.0 | 3.60 | 45.0 | 5.23 |
| T5 | 6 | FD-6-E-G5-16/225 | 6 | 5.4 | 58.1 | 3.89 | 71.3 | 2.17 | 65.1 | 2.89 | 58.1 | 3.89 | 51.8 | 5.30 |
| T5 | 8 | FD-8-E-G5-16/300 | 7.1 | 7.5 | 58.6 | 5.30 | 69.9 | 3.23 | 63.6 | 4.29 | 58.6 | 5.30 | 48.9 | 7.05 |
| T5 | 13 | FD-13-E-G5-16/525 | 13 | 12.8 | 75.3 | 4.20 | 84.2 | 2.40 | 80.0 | 3.20 | 75.3 | 4.20 | 72.6 | 4.66 |
| T9-C | 22 | FSC-22-E-G10q-29/200 | 22 | 19 | 79.2 | 4.99 | 89.4 | 2.25 | 86.4 | 2.99 | 79.2 | 4.99 | 74.6 | 7.12 |
| T9-C | 32 | FSC-32-E-G10q-29/300 | 32 | 30 | 81.1 | 6.99 | 88.9 | 3.75 | 85.7 | 5.01 | 81.1 | 6.99 | 80.0 | 7.60 |
| T9-C | 40 | FSC-40-E-G10q-29/400 | 40 | 32 | 82.1 | 6.98 | 89.5 | 3.75 | 86.5 | 4.99 | 82.1 | 6.98 | 82.6 | 8.00 |

| LampType | Nominal Wattage | ILCOS Code (Refer IEC 61231 Edition 1) | Rated / Typical Wattage | | DIMMABLE ELECTRONIC BALLASTS | | NON DIMMABLE ELECTRONIC BALLASTS | | | | | | NON DIMMABLE MAGNETIC BALLASTS | |
|----------|-----------------|---|-------------------------|----|------------------------------|--------|----------------------------------|--------|------------|--------|------------|--------|--------------------------------|--------|
| | | | 50 Hz | HF | A1(**) | | A2 BAT | | A2 | | A3 | | B1 | |
| | | | Plamp | | Efficiency | Losses | Efficiency | Losses | Efficiency | Losses | Efficiency | Losses | Efficiency | Losses |
| | | | | | | STAR 5 | STAR 4 | STAR 3 | STAR 2 | STAR 2 | STAR 2 | STAR 2 | STAR 2 | |
| T2 | 8 | FDH-8-L/P-W4.3x8.5d-7/320 | 7.8 | | 65.0 | 4.20 | 76.5 | 2.40 | 70.9 | 3.20 | 65.0 | 4.20 | | |
| T2 | 11 | FDH-11-L/P-W4.3x8.5d-7/420 | 10.8 | | 72.0 | 4.20 | 81.8 | 2.40 | 77.1 | 3.21 | 72.0 | 4.20 | | |
| T2 | 13 | FDH-13-L/P-W4.3x8.5d-7/520 | 13.3 | | 76.0 | 4.20 | 84.7 | 2.40 | 80.6 | 3.20 | 76.0 | 4.20 | | |
| T2 | 21 | FDH-21-L/P-W4.3x8.5d-7/ | 21 | | 79.2 | 5.52 | 88.9 | 2.62 | 85.7 | 3.50 | 79.2 | 5.52 | | |
| T2 | 23 | FDH-23-L/P-W4.3x8.5d-7/ | 23 | | 80.7 | 5.50 | 89.8 | 2.61 | 86.8 | 3.50 | 80.7 | 5.50 | | |
| T5-E | 14 | FDH-14-G5-L/P-16/550 | 13.7 | | 72.1 | 5.30 | 84.7 | 2.47 | 80.6 | 3.30 | 72.1 | 5.30 | | |
| T5-E | 21 | FDH-21-G5-L/P-16/850 | 20.7 | | 79.6 | 5.31 | 89.3 | 2.48 | 86.3 | 3.29 | 79.6 | 5.31 | | |
| T5-E | 24 | FDH-24-G5-L/P-16/550 | 22.5 | | 80.4 | 5.49 | 89.6 | 2.61 | 86.5 | 3.51 | 80.4 | 5.49 | | |
| T5-E | 28 | FDH-28-G5-L/P-16/1150 | 27.8 | | 81.8 | 6.19 | 89.8 | 3.16 | 86.9 | 4.19 | 81.8 | 6.19 | | |
| T5-E | 35 | FDH-35-G5-L/P-16/1450 | 34.7 | | 82.6 | 7.31 | 91.5 | 3.22 | 89.0 | 4.29 | 82.6 | 7.31 | | |
| T5-E | 39 | FDH-39-G5-L/P-16/850 | 38 | | 82.6 | 8.00 | 91.0 | 3.76 | 88.4 | 4.99 | 82.6 | 8.00 | | |
| T5-E | 49 | FDH-49-G5-L/P-16/1450 | 49.3 | | 84.6 | 8.97 | 91.6 | 4.52 | 89.2 | 5.97 | 84.6 | 8.97 | | |
| T5-E | 54 | FDH-54-G5-L/P-16/1150 | 53.8 | | 85.4 | 9.20 | 92.0 | 4.68 | 89.7 | 6.18 | 85.4 | 9.20 | | |
| T5-E | 80 | FDH-80-G5-L/P-16/1150 | 80 | | 87.0 | 11.95 | 93.0 | 6.02 | 90.9 | 8.01 | 87.0 | 11.95 | | |
| T5-E | 95 | FDH-95-G5-L/P-16/1150 | 95 | | 84.1 | 17.96 | 92.7 | 7.48 | 90.5 | 9.97 | 84.1 | 17.96 | | |
| T5-E | 120 | FDH-120-G5-L/P-16/1450 | 120 | | 84.5 | 22.01 | 92.5 | 9.73 | 90.2 | 13.04 | 84.5 | 22.01 | | |
| T5-C | 22 | FSCH-22-L/P-2GX13-16/225 | 22.3 | | 78.8 | 6.00 | 88.1 | 3.01 | 84.8 | 4.00 | 78.8 | 6.00 | | |
| T5-C | 40 | FSCH-40-L/P-2GX13-16/300 | 39.9 | | 83.3 | 8.00 | 91.4 | 3.75 | 88.9 | 4.98 | 83.3 | 8.00 | | |
| T5-C | 55 | FSCH-55-L/P-2GX13-16/300 | 55 | | 84.6 | 10.01 | 92.4 | 4.52 | 90.2 | 5.98 | 84.6 | 10.01 | | |
| T5-C | 60 | FSCH-60-L/P-2GX13-16/375 | 60 | | 85.7 | 10.01 | 93.0 | 4.52 | 90.9 | 6.01 | 85.7 | 10.01 | | |
| TC-LE | 40 | FSDH-40-L/P-2G11 | 40 | | 83.3 | 8.02 | 91.4 | 3.76 | 88.9 | 4.99 | 83.3 | 8.02 | | |
| TC-LE | 55 | FSDH-55-L/P-2G11 | 55 | | 84.6 | 10.01 | 92.4 | 4.52 | 90.2 | 5.98 | 84.6 | 10.01 | | |
| TC-LE | 80 | FSDH-80-L/P-2G11 | 80 | | 87.0 | 11.95 | 93.0 | 6.02 | 90.9 | 8.01 | 87.0 | 11.95 | | |
| TC-TE | 32 | FSMH-32-L/P-2GX24q=3 | 32 | | 82.1 | 6.98 | 91.4 | 3.01 | 88.9 | 4.00 | 82.1 | 6.98 | | |
| TC-TE | 42 | FSMH-42-L/P-2GX24q=4 | 43 | | 86.0 | 7.00 | 93.5 | 2.99 | 91.5 | 3.99 | 86.0 | 7.00 | | |
| TC-TE | 57 | FSM6H-57-L/P-2GX24q=5 FSM8H-57-L/P-2GX24q=5 | 56 | | 83.6 | 10.99 | 91.4 | 5.27 | 88.9 | 6.99 | 83.6 | 10.99 | | |
| TC-TE | 70 | FSM6H-70-L/P-2GX24q=6 FSM8H-70-L/P-2GX24q=6 | 70 | | 85.4 | 11.97 | 93.0 | 5.27 | 90.9 | 7.01 | 85.4 | 11.97 | | |
| TC-TE | 60 | FSM6H-60-L/P-2G8=1 | 63 | | 84.0 | 12.00 | 92.3 | 5.26 | 90.0 | 7.00 | 84.0 | 12.00 | | |
| TC-TE | 62 | FSM8H-62-L/P-2G8=2 | 62 | | 83.8 | 11.99 | 92.2 | 5.25 | 89.9 | 6.97 | 83.8 | 11.99 | | |
| TC-TE | 82 | FSM8H-82-L/P-2G8=2 | 82 | | 83.7 | 15.97 | 92.4 | 6.74 | 90.1 | 9.01 | 83.7 | 15.97 | | |
| TC-TE | 85 | FSM6H-85-L/P-2G8=1 | 87 | | 84.5 | 15.96 | 92.8 | 6.75 | 90.6 | 9.03 | 84.5 | 15.96 | | |
| TC-TE | 120 | FSM6H-120-L/P-2G8=1 FSM8H-120-L/P-2G8=1 | 122 | | 84.7 | 22.04 | 92.6 | 9.75 | 90.4 | 12.96 | 84.7 | 22.04 | | |
| TC-DD | 55 | FSSH-55-L/P-GR10q | 55 | | 84.6 | 10.01 | 92.4 | 4.52 | 90.2 | 5.98 | 84.6 | 10.01 | | |

** Refer note in para 4 of the schedule

Ballast efficiency in %age =

Plamp / Pinput

Losses in Watts =

(Plamp/Ballast eff) *100 - Plamp

**DRAFT TEST REPORT FORMAT FOR BEE FOR BALLAST LABLING
PROGRAM**

Sheet No.

| | | |
|---------------------------------------|-------------------------------|------------------------|
| NAME & ADDRESS OF CUSTOMER | REPORT NO.: | |
| | DATE : | |
| | CUSTOMER REF. NO. : | |
| | DATE OF SAMPLE RECEIPT | DATE OF TESTING |
| | | |
| SAMPLE DESCRIPTION | SAMPLE IDENTIFICATION | |
| | | |
| TEST DETAILS | TEST SPECIFICATION | |
| | | |
| Enclosures : | | |
| Test results : | | |
| Remarks : | | |
| Note : | | |
| | | |
| PREPARED BY | CHECKED BY | APPROVED BY |

Report No.

date:

Sheet 2 of

**Sr. Particulars of test
No. and clause no.**

**Requirement as per
specification.**

Obtained value

Remarks

| | | | | |
|----|--|--|--|--------------------------------|
| 1. | Total Circuit Power | | | Conforms / Does not conform |
| 2. | Total Lamp Power | | | Conforms / Does not conform |
| 3. | Ballast efficiencies | | | Conforms / Does not conform |
| 4. | THD | | | Conforms / Does not conform |
| 5. | THD with Capacitor | | | Conforms / Does not conform |
| 6. | Power factor | | | Conforms / Does not conform |
| 7. | Power Factor with capacitor | | | Conforms / Does not conform |
| 8. | Designed Life in burning hours at defined ambient temperature | | | Conforms / Does not conform |

PREPARED BY

CHECKED BY

Details required for testing of magnetic ballasts

| | | | |
|---|--|---|--|
| Ref. Standards | | Rated Voltage (V) | |
| Mark of origin | | Rated frequency (Hz) | |
| Type | | Rated current (A) | |
| Model No. | | Rated Lamp Wattage (W) | |
| Serial No. | | Power factor (λ) | |
| Efficiency | | Watt loss (W) | |
| Efficiency class | | Rated Circuit Power (W) | |
| Avg. Life (hrs.) | | THD | |
| Ambient Temp. ($^{\circ}\text{C}$) | | Year of mfg. | |
| Rated Max.operating Temp. of winding (tw) | | Wiring diagram indicating clear position of terminals | |
| Rated Temp.rise of the winding (ΔT) | | Country of mfg. | |

Details required for testing of Electronic ballasts:

| | | | |
|---|--|--|--|
| Ref. Standards | | Rated Supply Voltage (V) | |
| Mark of origin | | Supply frequency (Hz) | |
| Type | | Supply current (A) | |
| Model No. | | Rated Lamp Wattage (W) | |
| Serial No. | | Circuit Power factor (λ) | |
| Efficiency | | Watt loss (W) | |
| Efficiency class | | Total Circuit Power (W) | |
| THD | | Ballast lumen factor | |
| Avg. Life (hrs.) | | Year of mfg. | |
| Symbol for earthing | | Country of mfg. | |
| Control terminals for Controllable ballast if any | | Wiring diagram indicating clear position of terminals | |
| Symbol for independent ballast | | Value of t_c along with indication t_c point on ballast | |
| Limits of ambient temperature range within which the ballast will operate satisfactorily at the declared voltage (range). | | The Symbol Z which indicates that the ballast is designed to comply with the conditions for audio frequency impedance. | |
| The symbol for H which indicates that ballast is not of the low distortion type | | Rated output frequency at rated voltage with and without lamp operating. | |
| A clear indication regards the type of starting, namely, preheat or non-preheat. | | | |