01 March 2024

# SCHEDULE NO - 37

# COMMERCIAL BEVERAGE COOLER

## 1. Scope

1.1 This schedule specifies the requirement for participating in the energy labeling program for vertical floor or table mounted, single and multidoor type Commercial Beverage Cooler (commercially known as Visi Cooler), overall height between 0.5 m and 2.2 m covered under the scope of ISO 22044:2021/IS 2167:2024, being manufactured, imported and sold in India.

For the purpose of this schedule, the star rating shall be based on equivalent volume (Litres) and annual energy consumption measured as per the methodology specified in ISO 22044:2021 / IS 2167:2024 with deviations as mentioned in section-4.2 of the schedule.

1.2 This schedule does not apply to commercial beverage cooler with pre-installed energy management device (EMD).

## 2. Reference Standard

This schedule shall be read in conjunction with the following standards with all amendments.

| **Reference Standard** | **Title of the Standard** |
|---|---|
| ISO 22044:2021 / IS 2167:2024 | Commercial beverage cooler – Classification, requirements and test conditions |

## 3. Terminology

For the purpose of this schedule, the following definitions in addition to those given in ISO 22044:2021/IS 2167:2024 with as amended from time to time shall apply.

**3.1 Annual Energy Consumption (AEC) –** energy consumption per year**,** calculated as follows

**AEC = TEC*365**

**3.2 Climate class -** classification of the test room climate according to the dry bulb temperature and relative humidity.

**3.3 Commercial beverage cooler** – Refrigerated cabinets to sell and / or display pre-packaged beverage products that are non-perishable, designed to chill products loaded at ambient temperature to the defined storage temperature class within a specified time and for which the customer is allowed direct access to the products.

**3.4 Equivalent volume ($V_{eq}$) –** reference volume corrected for compartment classification differences and shall be calculated as specified in Annexure C of ISO 22044:2021/IS 2167:2024

$V_{eq}$= Measured Gross Volume ($V_G$) x (25-Tc)/20 x Cc

$Tc$ is the average compartment classification temperature

$Cc$ is the climate class factor.

**3.5** **Gross volume** – volume within the inside walls of the commercial beverage cooler, including internal fittings, doors or lids, if any, with these being closed, and with the load limit being taken into account if the commercial beverage cooler has no door or lid.

**3.6** **Label** – Any written, printed, marked, stamped or graphic matter affixed to or appearing upon, commercial beverage cooler.

**3.7** **Label period -** validity period of the annual energy consumption under the star rating plan specified in the schedule.

**3.8** **Models or Family of models** – It is the range of models of a particular brand, to which a single set of test reports is applicable and where each of the models has the same relevant physical characteristics, annual electricity consumption, energy efficiency level and performance characteristics.

**3.9** **Net volume -** storage volume inside the appliance which can be used for storage of products.

**3.10** **Permittee -** means a person or agency to whom permission has been granted to affix label under clause 7.

**3.11** **Star rating or Star level -** means the grade of energy efficiency displayed on the label of the commercial beverage cooler based on annual energy consumption standard under the star rating plan specified in the schedule.

**3.12** **Star rating band -** The Star rating band is a range of annual energy consumption which is arrived at by an established tests method and calculations and is used for determining the number of stars to be displayed on the Star Label.

**3.13** **Total Energy Consumption (TEC) -** energy consumption in 24-hours calculated as per ISO 22044:2021 / IS 2167:2024.

**3.14** **Trader or Seller -** in relation to any labeled commercial beverage cooler means a person who sells or distributes any such commercial beverage cooler and includes the shopkeeper, trader, manufacturer and permittee who has been given permission to affix label on such commercial beverage cooler.

## 4. Testing Guidelines

**4.1 Performance testing parameters:** For the purpose of determining the star level, the commercial beverage cooler shall meet the requirements of all the tests defined in Table-1.

**Table 1:** Performance Testing Parameters

| S. No. | Nature of Test | Test Standards and Clause References |
|---|---|---|
| 1 | Total Energy Consumption (kWh/24hrs) | Clause 6.3.11.3.6 of ISO 22044:2021 / IS 2167:2024 |
| 2 | Gross Volume (Litres) | Annexure C, Clause C3 of ISO 22044:2021 / IS 2167:2024 |
| 3 | Net Volume (Litres) | Annexure B of ISO 22044:2021 / IS 2167:2024 |
| 4 | Half reload recovery test at CC3 | Clause 6.3.11.3.5 of ISO 22044:2021 / IS 2167:2024 |

**4.2 Deviation from ISO 22044:2021/IS 2167:2024:** The testing method and procedure to determine star levels, shall be as per ISO 22044:2021 / IS 2167:2024 as amended from time to time (if any) with following deviations.

1. Energy consumption test should be conducted at CC2 climate class (32.2°C/ 65%RH).
2. For measurement of equivalent volume as per Annex C, compartment temperature classification should be at K4 classification temperature (Tc = +5°C).
3. Half reload recovery test should be conducted at CC3 climate class (40.6°C/ 75%RH).
4. Test for energy consumption, half reload recovery should be carried out either using M-can as specified in clause 6.3.3.1 of ISO 22044:2021/IS 2167:2024 or 500 ml PET bottles filled with 33% Propylene Glycol/ 67% water mixture (based on weight percentage).
5. For the purpose of this schedule, all above mentioned tests should either be conducted with vertical or horizontal air flow.

## 5. Star rating plan

The commercial beverage cooler shall be rated from star one to star five based on their Annual Energy Consumption (AEC). To qualify for award of star labeling, the commercial beverage cooler must meet the labeling criteria as mentioned in Table-2. For calculation of AEC and Equivalent Volume (Veq) values, the total energy consumption test shall be conducted at Climate Class - CC2 as per clause 6.3.11.3.6 and Annexure C of ISO 22044:2021.

| Table-2 Star Rating Table for Commercial Beverage Cooler | | | |
|---|---|---|---|
| (Valid from 1st March, 2024 to 31st December, 2026) | | | |
| 1 star | (2.75*Veq) + 496.13 | < AEC ≤ | (3.30*Veq) + 496.13 |
| 2 star | (2.29*Veq) + 496.13 | < AEC ≤ | (2.75*Veq) + 496.13 |
| 3 star | (1.83*Veq) + 496.13 | < AEC ≤ | (2.29*Veq) + 496.13 |
| 4 star | (1.46*Veq) + 496.13 | < AEC ≤ | (1.83*Veq) + 496.13 |
| 5 star | | AEC ≤ | (1.46*Veq) + 496.13 |

**AEC (kWh/year)** = Total Energy Consumption (kWh/24hrs) x 365 days

**Equivalent Volume ($V_{eq}$)** = Measured Gross Volume (***V*G**) x $\frac{25-Tc}{20}$ x Cc

$Tc$ is the average compartment classification temperature.

- $Tc$ = +5.0 °C for K4 beverage cooler.

$Cc$ is the climate class factor.

- Cc = 1.05 for CC2 (32.2 °C/ 65%RH) beverage cooler.

There is no negative tolerance for the Star Rating Bands. All tested products must meet the minimum threshold for each Star Rating Band. The scope for manufacturing tolerance and other variations shall be accounted by the manufacturer while determining the Star Rating of a particular model.

## 6. Test Report

The result of the tests carried out in laboratory accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) or International Laboratory Accreditation Cooperation (ILAC) or Asia Pacific Accreditation Cooperation (APAC) or equivalent bodies for ensuring consistency in quality of the equipment as well as the scope of the relevant Indian standards shall be reported in the prescribed format mentioned in the ***Annexure-I*** appended to this Schedule.

Accreditation of the test labs should be based on ISO 22044:2021/IS 2167:2024 taking into consideration the deviations given in sub section - 4.2 of this schedule. The Lab should clearly mention the deviation from ISO 22044:2021/IS 2167:2024 in their test report.

## 7. Label Design and Manner of Display

### 7.1 Placement of label and QR Code

With an intent to authenticate the star rating approval issued for a model of commercial beverage cooler, BEE will share the printable/readable version of the dedicated QR code for each model along with approval letter with manufacturers. The QR code is recommended to be placed just below the star label being affixed on each unit of the commercial beverage cooler. The QR code will contain the information as mentioned in Sub-Clause 7.4 under Clause 7 of Commercial Beverage Cooler Schedule.

On every commercial beverage cooler, label along with QR code shall be displayed at the point of sale and such label shall be affixed in the following manner:-

a) The placement of label along with QR code may be affixed on the front side of the left top corner of commercial beverage cooler.
b) Self-adhesive label along with QR code affixed on the front side of the exterior of the packing.

### 7.2 Material and Shape

The label shall be a non-perishable material and shall be of durable cardboard or be self- adhesive and shall be cut to one of the outlines.

### 7.3 Sample Label

A typical sample of the printed star label and the color, shape and design to be affixed on each commercial beverage cooler shall be as shown in ***Annexure-II***.

### 7.4 Particulars to be displayed on the Label

On every commercial beverage cooler (approved for star rating), the following particulars shall be displayed on its label, namely:

a) Product Name: Commercial Beverage Cooler
b) Name of manufacturer or importer or brand
c) Model Name/Number
d) Year of Manufacturing
e) Annual energy consumption in units per year (kWh/Year)
f) Gross Volume (Liters)
g) Net Volume (litres)
h) Star Rating Level
i) Electricity savings/year (kWh)
j) $CO_2$ Emission Reduction (kg/$CO_2$)
k) Label period
l) Logo of the Bureau of Energy Efficiency
m) Unique series code;

## 8. Fees

a) The applicant shall deposit a security fee of INR 1,00,000/- (Rupees One Lakh only) for each registration as security deposit. However, applicants registered as small scale industries (SSI units), shall deposit INR 25,000/- (Rupees Twenty Five Thousand only) provided that they submit the valid SSI registration certificate.

b) Application fee payable on application for each model seeking permission to affix label is INR 2000/- (Rupees Two Thousand only)

c) No application fee is payable on application for renewal of permission to affix label on the model.

d) The labeling fee for affixation of label on each unit (Commercial Beverage Cooler) is to be Rs. 5/- (Rupees Five only) for 1$^{st}$ year, Rs. 10/- (Rupees Ten only) for 2$^{nd}$ year and Rs. 15/- (Rupees Fifteen only) for the 3$^{rd}$ year onwards till it become mandatory. In mandatory regime, the labeling fee will be Rs. 35/- (Rupees Thirty Five only).

## 9. Check Testing

a) Testing for compliance of Commercial Beverage Cooler covered under the S&L program with respect to BEE performance standards will be carried out in laboratories that are either BIS recognized / NABL accredited.
b) The samples will be picked up by BEE or its designated agency for testing as per the following sampling plan:
   (I) Samples will be picked up at random from manufacturer's authorized dealer/retailer/e-market platform.
   (II) In case the sample drawn for the first check testing fails, the Bureau or its designated agency shall conduct a second check testing for which it shall buy twice the quantity of samples for the same model. If the first set of sample fails, only then second check testing will be done.
   (III) The permittee/user of the label would be accordingly informed about the failure of the first check testing and shall be advised to deposit the cost of the samples, cost of check testing and transport for the second check testing in advance.

(IV) If permittee fails to deposit/pay the expenses, Bureau shall continue the verification by check testing and stop further processing of application received for new appliance/equipment of the respective permittee.

(V) Second set of samples will be picked up at random from the market for second check testing, and both samples must pass the test.

(VI) BEE or its designated agency shall inform the date of second check testing to the permittee to witness the second check testing. If the permittee is unable to witness the testing, the Bureau shall proceed with testing in the presence of BEE/Designated Agency personnel and the test result shall be binding on the permittee.

(VII) If any one of the samples fail during second check testing, the Commercial Beverage Cooler will be in non-compliance with prescribed BEE standards and

(VIII) Bureau/Designated Agency shall proceed with the following actions:

- direct the permittee, under intimation to all the State Designated Agencies, that the permittee within a period of two months from the date of issuance of such intimation, shall-
  - Withdraw all the stocks from the market to comply with the directions of the Bureau; and
  - Change the particulars displayed on advertising material.
  - Correct the star level displayed on the label of the appliance/equipment or remove the defects and deficiencies found during testing from the existing and new stock;
- publish, for the benefit of the consumers, the name of the permittee, brand name, model name or model number, logo and other specification in any national or regional daily newspaper and in any electronic or in any other manner as it deems fit within two months;
- The permittee within ten days of the conclusion of the period of two months from the date of issuance of intimation shall send the action taken report to the Bureau/Designated Agency with respect to action taken in compliance with the direction.

c) Every permittee, trader and seller shall comply with other terms and conditions as specified under Disseminating Star Labeling in Household Appliance (DISHA) - Operation Manual on Standards and Labeling program.

## ANNEXURE-I

## Form for reporting test results

1. **General Information**

| | | | | |
|---|---|---|---|---|
| 1 | Laboratory Name | | | |
| 2 | Address | | | |
| 3 | Date of Receipt | | | |
| 4 | Lab accreditation number | | | |
| 5 | Validity period of accreditation | | | |
| 6 | Test standard followed | | | |
| 7 | Test Report No. | | Date of testing | |
| 8 | Tested by | | Reviewed by | |

2. **Details of the Sample Tested**

| | | |
|---|---|---|
| 1 | Brand Name | |
| 2 | Model Name | |
| 3 | Model No. | |
| 4 | Month and Year of manufacturing | |
| 5 | Manufacturer Serial Number (if any) | |
| 6 | Type (floor or table mounted) | |
| 7 | Number of Doors | |
| 8 | Test Voltage (V) | |
| 9 | Test Frequency (Hz) | |
| 10 | No of shelves | |
| 11 | Net Volume (L) | |
| 12 | Gross Volume (L) | |
| 13 | Annual Energy Consumption (as per manufacturer declaration) (kWh/year) | |
| 14 | External dimensions at installation<br>(feet or castors to be included in height and set to minimum height if adjustable) | |

### 3. Test condition details

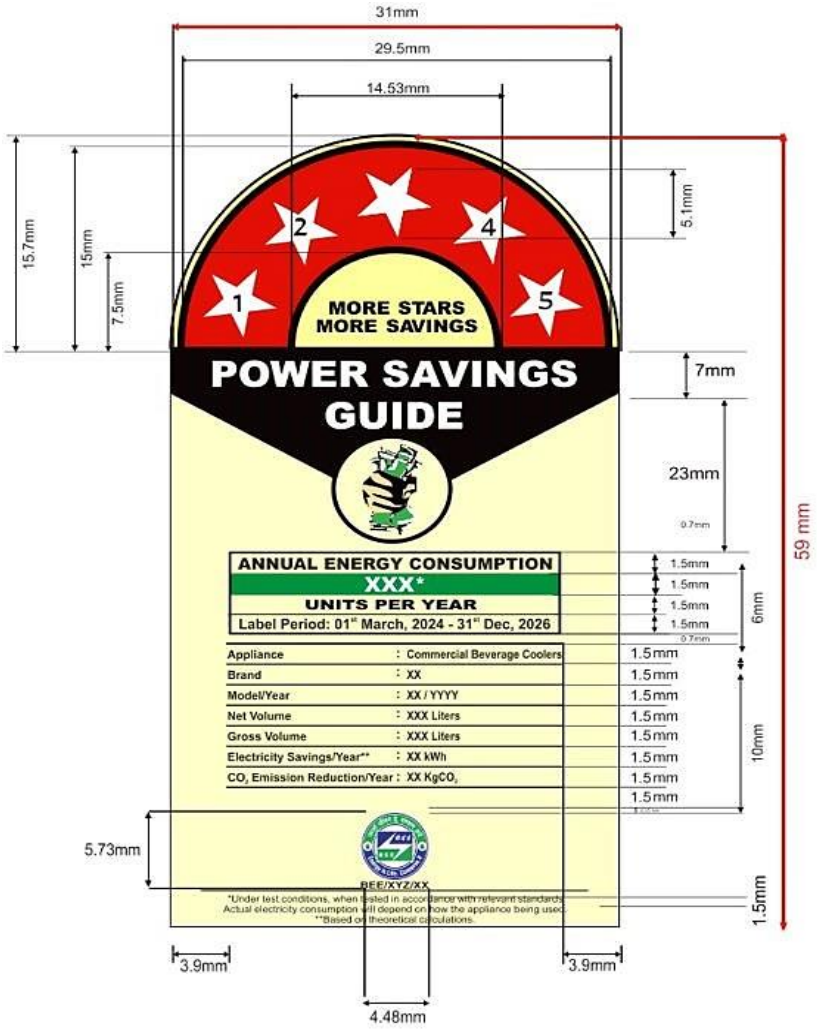
| | | |
|---|---|---|
| 1 | Ambient Temperature ($^{o}$C) | |
| 2 | Relative Humidity (%) | |
| 3 | Distance of product from back of the wall | |
| 4 | Ambient sensor location | |
| 5 | Type of cabinet / description and configuration (Including for example, open/closed; presence of night cover/ curtain and/or external and internal lighting etc.) | |
| 6 | The international number of the refrigerant (according to ISO 817) | |
| 7 | Refrigerated shelf area ($m^2$) | |
| 8 | Total display area ($m^2$) | |
| 9 | Test room climate class for which the commercial beverage cooler is intended and in which the test has been conducted as per CC2 for energy consumption test and CC3 for half reload recovery test | |
| 10 | Temperature class in which the test has been made (K4) | |
| 11 | Total number of M-can or PET bottles loaded | |

### 4. Test results

| | | |
|---|---|---|
| 1 | Measured Gross Capacity/Volume (L) ($V_{measured}$) | |
| 2 | Net Volume (L) | |
| 3 | Equivalent Volume (L) ($V_{eq}$) | |
| 4 | Total Energy Consumption (kWh/24hrs) | |
| 5 | Annual Energy Consumption (kWh/year) | |
| 6 | Stabilized Average M-can or PET bottle Temperature ($^{o}$C) | |
| 7 | Stabilized Minimum M-can or PET bottle Temperature ($^{o}$C) | |
| 8 | Stabilized Maximum M-can or PET bottle Temperature ($^{o}$C) | |
| 9 | Measured half reload recovery time (Hours) | |

**Annexure-II**

1. **Material & Dimension of label:** The label shall be self–adhesive and shall be designed as set out in sample label.

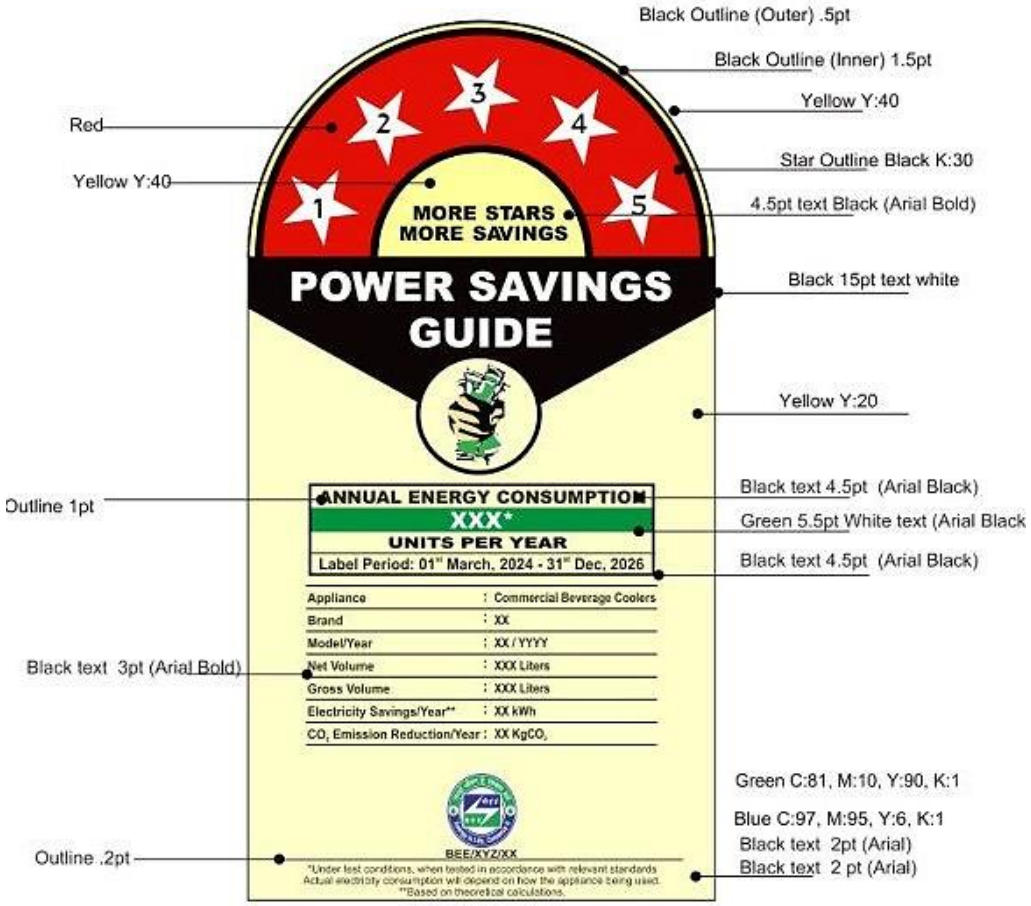


2. **Color scheme of label:** The label shall be printed as per the following specification in the following colors on a white background:
   a. Red: Pantone warm red
   b. Yellow: Pantone 116
   c. Black: Pantone Black
   d. Green: Pantone 340

   Note: The color tone at the background of Annual Energy Consumption Display (Green) will be similar as followed for the Bureau of Energy Efficiency Logo.

   The following color scheme for Bureau's logo, namely:

   a. BLUE – Hue(H)-239o Saturation(S):64% Brightness(B):59%
   b. Luminance or lightness(L) :28, chromatic components -a:24 b:54
   c. Red(R):54 Green(G):55 Blue(B):151
   d. Cyan(C):97% Magenta(M):95% Yellow(Y):6% Black(K):1%
   e. Web color code - #363797
   f. GREEN – Hue(H)-150o Saturation(S):10% Brightness(B):67%
   g. Luminance or lightness(L) :61, chromatic components -a:-53 b:32
   h. Red(R):0 Green(G):170 Blue(B):87
   i. Cyan(C):81% Magenta(M):10% Yellow(Y):90% Black(K):1%
   j. Web color code - #00AA56


Black Outline (Outer) .5pt
Black Outline (Inner) 1.5pt
Yellow Y:40
Star Outline Black K:30
4.5pt text Black (Arial Bold)
Black 15pt text white
Yellow Y:20
Red
Yellow Y:40
Outline 1pt
Black text 3pt (Arial Bold)
Outline .2pt
Black text 4.5pt (Arial Black)
Green 5.5pt White text (Arial Black
Black text 4.5pt (Arial Black)
Green C:81, M:10, Y:90, K:1
Blue C:97, M:95, Y:6, K:1
Black text 2pt (Arial)
Black text 2 pt (Arial)
1
2
3
4
5
MORE STARS
MORE SAVINGS
POWER SAVINGS GUIDE
ANNUAL ENERGY CONSUMPTION
XXX*
UNITS PER YEAR
Label Period: 01st March, 2024 - 31st Dec, 2026
Appliance : Commercial Beverage Coolers
Brand : XX
Model/Year : XX / YYYY
Net Volume : XXX Liters
Gross Volume : XXX Liters
Electricity Savings/Year** : XX kWh
CO2 Emission Reduction/Year : XX KgCO2
BEE/XYZ/XX
*Under test conditions, when tested in accordance with relevant standards
Actual electricity consumption will depend on how the appliance being used.
**Based on theoretical calculations.
Green
C:81, M:10, Y:90, K:1
Blue
C:97, M:95, Y:6, K:1
Bureau of Energy Efficiency
Ministry of Power, Government of India

3. Sample label: An example of a printed star label along with QR Code for a commercial beverage cooler is shown in following label.