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DRAFT BELIZE STANDARD

SPECIFICATION FOR ENERGY LABELLING AND REQUIREMENTS FOR REFRIGERATING EQUIPMENT

This is a Draft and should not be regarded or used as a Belize Standard.

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DRAFT BELIZE STANDARD SPECIFICATION FOR ENERGY LABELLING AND REQUIREMENTS FOR REFRIGERATING EQUIPMENT

Committee Representation

The preparation of this standard for the Standards Advisory Council established under the Standards Act 1992 was carried out under the supervision of the Bureau's Technical Committee for Energy Efficiency, which at the time comprised the following members:

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0 FOREWORD

0.1 This standard is an adoption of the CARICOM Regional Standard CRS 57:2018, *Energy labelling - Refrigerating appliances - Requirements* which has been developed under the authority of the CARICOM Regional Organisation for Standards and Quality (CROSQ). It was approved as a CARICOM Regional Standard by the CARICOM Council for Trade and Economic Development (COTED) at its 47th Meeting in November 2018.

0.2 This standard is intended to improve the energy performance for refrigerators. The application of the standard is expected to improve energy efficiency in Belize through the availability, selection and usage of more energy efficient refrigerators. The information given on the energy label provides consumers with information for consideration when making a purchasing decision.

0.3 The requirements of this standard are expected to drive manufacturers, importers and retailers to provide more energy efficient refrigerator options to consumers as they compete to offer better value for money and accelerate the market place transition to more energy efficient refrigerators.

0.4 This standard is aligned with Belize's Growth and Sustainable Development Strategy (GSDS) with Energy Efficiency (EE) one of several critical success factors in achieving the government's overall Sustainable Development Goals (SDGs). By extension the establishment and enforcement of standards and labelling for the importation of electrical appliances to improve energy efficiency and conservation in Belize is within the Ministry of Energy's National Energy Policy Framework and its National Sustainable Energy Strategy (NSES).

1 SCOPE

This standard establishes the minimum energy performance standards (MEPs) for refrigerating appliances and relevant test method to specify the energy label. It also specifies the energy label requirements.

2 NORMATIVE REFERENCES

The following documents are referred to in the text in such a way that some or all of the contents constitute requirements of this document. For dated references,

only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

a) AHAM HRF-1-2016, Energy and internal volume of refrigerating appliances

b) IEC 62552-1, Household refrigerating appliances – Characteristics and test methods – Part 1: General requirements.

c) NOM-015-ENER-2012, Energy efficiency of refrigerator and freezers appliances. Limits, test methods and labeling.

3 TERMS AND DEFINITIONS

For the purposes of this document, the following terms and definitions apply.

3.1 **Energy consumption** means energy used by a refrigerating appliance over a specified period of time, or for a specified operation in kilowatt per hour.

3.2 **Energy efficiency** means a measure, usually expressed as a percentage or a ratio, of the energy performance of a model.

3.3 **Estimated yearly operating cost** means cost determined by multiplying the annual energy consumption by the specified rate for that energy.

3.4 **Manufacturer** means a person or organisation who manufactures, produces, assembles, prepares or reassembles any good for sale, or any other use or the person who sells any goods under a trade name controlled by them.

NOTE: It also includes the importer of the goods.

3.5 **Features** means functions and characteristics which determine the performance of a refrigerating appliance and are used as selection options for purchase.

EXAMPLE: Water and ice dispenser, lateral freezer, manual or digital settings.

3.6 **Refrigerating appliance** means insulated cabinet with one or more compartments controlled at specific temperatures and are of suitable size and equipped for household use, cooled by natural convection or a forced convection system whereby the cooling is obtained by one or more energy-consuming means.

NOTE: From the point of view of insulation, there are various types of household refrigerating appliances (free-standing, portable, wall-mounted, built-in, etc.)

4 GENERAL REQUIREMENTS

4.1 The energy label declared on refrigerating appliances shall be affixed to each unit adjacent to the purchase price, clearly visible and easily read at point-of-sale.

EXAMPLE: The energy label can be affixed on the upper right corner of the appliance door.

4.2 The information on the energy label shall be printed, legible, indelible and in the official language of the country of sale.

4.3 The energy label shall include a statement that the energy label shall not be removed except by the consumer.

5 SPECIFIC LABEL REQUIREMENTS

5.1 The following information shall be required on the energy label:

a) the programme name;

b) the type of refrigerating appliance;
EXAMPLE: Refrigerator, wine cooler.

c) the measured capacity, or size in SI units or a combination of SI and imperial units;

d) special features which will categorize it in a product type;

e) the measured energy consumption;

f) the brand name of the refrigerating appliance;

g) the model identification number;

h) the name of the manufacturer; and

i) the country of origin.

5.2 The following information may be placed on each energy label:

a) estimated yearly operating cost in the currency of the country of sale;
NOTE: Estimated yearly operating cost should be displayed where the purchase price or financing terms are also quoted.

b) the current energy rate used to calculate the estimated yearly operating cost in the currency of the country of sale per kWh;

c) a validity period for the information on the energy label;

d) a statement indicating "Your cost will vary with electricity rates and use".

6 TEST METHODS

6.1 Energy consumption shall be determined in accordance with AHAM HRF-1-2016.

NOTE: The ambient temperature shall be in accordance with that country for which the refrigerator is to be used.

6.2 The refrigerated appliances shall be tested at the supply voltage and frequency in which it is being used.

7 MINIMUM ENERGY PERFORMANCE STANDARDS (MEPS)

Refrigerating appliances shall meet the maximum energy consumption limits as defined in Table 1 for the particular refrigerating appliance.

Table 1 — Maximum energy consumption limits for refrigerators and freezers

Number	Electrical household appliance description	E_{max}
1	Refrigerator only, conventional and refrigerator-freezer (R/F) with manual or semiautomatic defrosting	0.31 AV + 248.4
2	Refrigerator-freezer with partially automatic defrosting.	0.31 AV + 248.4
3	Refrigerator-freezer with auto-defrosting and top-mounted freezer, without ice dispenser, and refrigerator only with auto-defrosting	0.35 AV + 276.0
4	Refrigerator-freezer with auto-defrosting and side-mounted freezer, without ice dispenser	0.17 AV + 507.5
5	Refrigerator-freezer with auto-defrosting and bottom-mounted freezer, without ice dispense	0.16 AV + 459.0
5A	Refrigerator-freezer with auto-defrosting and bottom-mounted freezer, with door ice dispense	0.18 AV + 539.0
6	Refrigerator-freezer with auto-defrosting and top-mounted freezer, with ice dispenser	0.36 AV + 356.0
7	Refrigerator-freezer with auto-defrosting and side-mounted freezer, with ice dispense	0.36 AV + 406.0
8	Vertical freezer with manual defrosting	0.27 AV + 258.3

Number	Electrical household appliance description	E_{max}
9	Vertical freezer with auto-defrosting	0.44 AV + 326.1
10	Horizontal freezer and all other freezers, except compact freezers	0.35 AV + 143.7
10A	Horizontal freezer with auto-defrosting	0.52 AV + 211.5
11	Refrigerator and compact refrigerator-freezer with manual defrosting	0.38 AV + 299.0
12	Compact refrigerator-freezer with partially automatic defrosting	0.25 AV + 398.0
13	Compact refrigerator-freezer with auto-defrosting and top-mounted freezer and compact refrigerator only with auto-defrosting	0.45 AV + 355.0
14	Compact refrigerator-freezer with auto-defrosting and side-mounted freezer	0.27 AV + 501.0
15	Compact refrigerator-freezer with auto-defrosting and bottom-mounted freezer	0.46 AV + 367.0
16	Compact vertical freezer with manual defrosting	0.35 AV + 250.8
17	Compact vertical freezer with auto-defrosting	0.40 AV + 391.0
18	Compact horizontal freezer	0.37 AV + 152.0

Where,

E_{max} is Maximum energy consumption per year, in kWh/year

AV is Adjusted volume, in dm^3

8 ANNUAL ENERGY CONSUMPTION

The Annual Energy Consumption (AEC) shall be calculated in kWh per year and rounded to two decimal places. The AEC formula is given as:

$$AEC = E \times 365$$

Where

E is the total per-cycle energy consumption in kWh/day as given in clause 5.9 of AHAM HRF-1-2016.

9 ENERGY EFFICIENCY CLASSIFICATION

The energy efficiency class, as given in Table 2, is determined by the applicable Energy Efficiency Index to which the refrigerating appliance conforms. The Energy Efficiency Index is calculated as follows:

$EEI = [(AEC \div Emax) \times 100]\%$.

NOTE: The Energy Efficiency Index (EEI) is a ratio that compares the measured energy consumption of a model to a standardized energy consumption that factors in the storage volume of the refrigerator and freezer compartments.

Table 2 — Energy Efficiency Index and classification

Energy Efficiency Index (EEI)	**Energy efficiency class**
≤ 60	A
60 < EEI ≤ 70	B
70 < EEI ≤ 80	C
80 < EEI ≤ 90	D
90 < EEI ≤ 100	E
100	F

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