

Appendix A: Regulatory Impact Statement for Household Appliance Standards

**Performance Standards – Fridges and Freezers (equivalent to performance levels defined in the AHAM-ACEEE Multi-Product Standard Agreement from 2010-07-30)**

**Definitions**

Refrigerators and Refrigerator-Freezers (Residential): Standard-Size (Types 1, 2, 3, 4, 5, 5A, 6, 7)

All-refrigerators and refrigerator-freezers with a total volume greater than or equal to 219.5 l (7.75 ft<sup>3</sup>) but less than or equal to 1104.4 l (39 ft<sup>3</sup>).

Freezers (Residential): Standard-Size (Type 8, 9, 10, 10A)

Freezers with a total volume greater than or equal to 219.5 l (7.75 ft<sup>3</sup>) but less than or equal to 850.5 l (30 ft<sup>3</sup>).

Refrigerators, Refrigerator-Freezers and Freezers (Residential): Compact (Type 11, 12, 13, 14, 15, 16, 17, 18)

All compact refrigerators, refrigerator-freezers and freezers with a total volume less than 219.5 l (7.75 ft<sup>3</sup>) and an overall height less than 91.4 cm (36 inches).

**Test Standard:**

CAN/CSA-C300-08 Energy Performance and Capacity of Household Refrigerators, Refrigerator-Freezers, Freezers, and Wine Chillers

## Performance Requirements

To determine whether a model qualifies,

1) Calculate the adjusted volume (AV):

$$AV = V_{\text{fresh food}} + V_{\text{freezer}} \cdot AF$$

Where

$V_{\text{fresh food}}$  is the volume of the fresh food compartment of a refrigerator in ft<sup>3</sup>.

$V_{\text{freezer}}$  is the volume of the freezer compartment of a refrigerator in ft<sup>3</sup>.

AF is an adjustment factor which is determined as follows:

Type	AF
All-refrigerators*	1.00
Basic refrigerators**	1.44
Combination refrigerator-freezers	1.63
Freezers	1.73

\* All-refrigerator – a refrigerator that does not include a compartment for the storage of food at temperatures below 0° C (32°F). It may include a compartment of 14.2 l (0.5 ft<sup>3</sup>) or less for the freezing and storage of ice.

\*\* Basic refrigerator – in general, not a refrigerator-freezer nor an all-refrigerator. It is characterized by a refrigerated surface that partially encloses the low-temperature compartment and cools the fresh food compartment by natural convection. It frequently has a partition (called the chiller or drip tray).

2) Based on the type and adjusted volume of the model, compare the model's annual energy consumption with the annual energy consumption calculation from the correct table below. To comply, the model's annual energy consumption must be less than the calculated value.

**Performance Requirements (table)**

Type Number and Description	Maximum Annual Energy Consumption in kWh/a
1. Refrigerators and refrigerator-freezers with semi-automatic and manual defrost	7.056 AV + 198.72
2. Refrigerator-freezers with partial automatic defrost	7.056 AV + 198.72
3. Refrigerator-freezers with automatic defrost with top-mounted freezer without through-the-door ice service and all-refrigerators with automatic defrost	7.35 AV + 207.0
4. Refrigerator-freezers with automatic defrost with side-mounted freezer without through-the-door ice service	3.68 AV + 380.6
5. Refrigerator-freezers with automatic defrost with bottom-mounted freezer without through-the-door ice service	3.68 AV + 367.2
5A. Refrigerator-freezers with automatic defrost and bottom-mounted freezer with through-the-door ice service.	4.0 AV + 431.2
6. Refrigerator-freezers with automatic defrost with top-mounted freezer with through-the-door ice service	7.65 AV + 267.0
7. Refrigerator-freezers with automatic defrost with side-mounted freezer with through-the-door ice service	7.58 AV + 304.5

**Performance Requirements (table - continued)**

8. Upright freezers with manual defrost	5.66 AV + 193.7
9. Upright freezers with automatic defrost	8.70 AV + 228.3
10. Chest freezers and all other freezers except compact freezers	7.41 AV + 107.8
10A. Chest freezers with automatic defrost.	10.33 AV + 148.1
11. Compact refrigerators and refrigerator-freezers with semi-automatic and manual defrost	8.03 AV + 224.3
12. Compact refrigerator-freezers with partial automatic defrost	5.25 AV + 298.5
13. Compact refrigerator-freezers with automatic defrost with top-mounted freezer and compact all-refrigerators with automatic defrost	10.80 AV + 301.8
14. Compact refrigerator-freezers with automatic defrost with side-mounted freezer	6.08 AV + 400.8
15. Compact refrigerator-freezers with automatic defrost with bottom-mounted freezer	10.80 AV + 301.8
16. Compact upright freezers with manual defrost	8.80 AV + 225.7
17. Compact upright freezers with automatic defrost	10.26 AV + 351.9
18. Compact chest freezers and all other freezers	9.41 AV + 136.8