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Energy and Internal Volume of Refrigerating Appliances

AHAM HRF-1-2008

ASSOCIATION OF HOME APPLIANCE MANUFACTURERS

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PREFACE

The Association of Home Appliance Manufacturers develops standards in accordance with AHAM's "Policy and Procedures Governing Technical Standards" which states:

> "AHAM Standards shall be in the best interest, mutually, of consumers who use appliances, the industries which provide and service appliances, and other interested parties. They shall relate to actual use conditions and be technically and scientifically sound."

Use or observance of AHAM standards is voluntary.

This standard contains test procedures that may be applied to any brand or model of electric refrigerator, refrigerator-freezer or freezer for measuring performance. Results of tests in accordance with this standard may be publicly stated. This standard is a technical revision of ANSI/AHAM HRF-1-2007. Section 4 replaces Sections 5, 6 and 7 of HRF-1-2007 with a simplified volume calculation procedure. In addition, standardized testing temperatures have been changed for fresh food and freezer compartments to harmonize with the IEC. Finally, this version more fully clarifies the process of removing ice cubes from an icemaker, and further clarifies general test set-up and requirements.

With regard to safety, AHAM recommends that all appliance products—both major and portable--manufactured or marketed in the United States be submitted to an appropriate independent laboratory for inspection and listing in conformance with the safety standards and procedures followed by such laboratories. The relevant standard for refrigerators, refrigerator-freezers and freezers is ANSI/UL 250 / CSA C22.2 No. 63, *Household Refrigerators and Freezers*.

AHAM welcomes comments and suggestions regarding this standard. Any standard may be reviewed and improved as needed. All standards must be updated or reconfirmed at least every five years. Any interested party, at any time, may request a change in an AHAM standard. Such request should be addressed to AHAM's President, and should be accompanied by a statement of reason for the request and a suggested alternate proposal.

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1 PURPOSE

1.1 The purpose of this standard is to establish a uniform and repeatable procedure or standard method for measuring specified product characteristics of refrigerators, wine chillers and freezers. The standard methods and the recommended levels of performance, where they appear, are intended to provide a means by which different brands and models of refrigerators, wine chillers and freezers can be compared and evaluated.

The standard methods are not intended to inhibit improvement and innovation in product testing, design or performance.

1.2 The following principles of interpretation shall be applied to AHAM HRF-1, and shall apply to and guide any revisions to the test procedure. The intent of the energy test procedure is to simulate typical room conditions (approximately 70 °F) with door openings, by testing at 90 °F without door openings.

Except for operating characteristics that are affected by ambient temperature (for example, compressor percent run time), the unit, when tested under this standard, shall operate equivalent to the unit in typical room conditions. The energy used by the unit shall be calculated when a calculation is provided by the standard.

Energy consuming components that operate in typical room conditions (including as a result of door openings, or a function of humidity), and that are not exempted by this standard, shall operate in an equivalent manner during energy testing under this standard, or be accounted for by all calculations as provided for in the standard.

Examples:

1. Energy saving features that are designed to operate when there are no door openings for long periods of time shall not be functional during the energy test.
2. The defrost heater shall not either function or turn off differently during the energy test than it would when in typical room conditions. Also, the product shall not recover differently during the defrost recovery period than it would in typical room conditions.
3. Electric heaters that would normally operate at typical room conditions with door openings shall also operate during the energy test.
4. Energy used during adaptive defrost shall continue to be tested and adjusted per the calculation provided for in this standard.

2 SCOPE

2.1 This standard applies to refrigerators as defined in Section 3.1, refrigerator freezers as defined in Section 3.2, freezers as defined in Section 3.3 and wine chillers as defined in Section 3.4.

2.2 This standard covers definitions, methods for computing volumes, methods for determining energy consumption and energy factor, and safety recommendations.

2.3 This standard does not include methods of testing refrigerators, wine chillers and freezers using gas fuel as defined in ANSI Standard Z21.19.