Residential Kitchen Range Hood Performance Test Procedures

AHAM HRH-2 Jan. 23, 2020

AHAM
ASSOCIATION OF HOME APPLIANCE MANUFACTURERS

Leadership ➤ Knowledge ➤ Innovation

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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, be technically and scientifically sound"

This standard contains:

> Test procedures that may be applied to any brand or model of residential kitchen range hoods for measuring performance. Results of tests in accordance with this standard may be publicly stated.

NEC 422.6 requires all appliance products - both major and portable - manufactured or marketed in the United States or Canada to be submitted to an appropriate independent Nationally Recognized Testing Laboratory for inspection and listing in conformance with the safety standards and procedures followed by such laboratories. The relevant standard for range hoods in the US is ANSI/UL 507, "Standard for Safety for Fans", latest edition and relevant standard in Canada is CAN/CSA- C22.2 No. 60335-2-31, The relevant standard for over the range microwave hoods in the US is ANSI/UL 923, "Standard for Safety for Microwave Ovens", latest edition and the relevant standard in Canada is CAN/CSA- C22.2 No. #150.

AHAM welcomes comments and suggestions regarding this standard. This standard may be reviewed and revised as needed. Internal AHAM policies document the multi-level process for review, approval and re-publication. AHAM HRH-2 is referenced as part of a certification program, therefore before any changes are accepted and would become effective, they are required to be balloted according to the AHAM Bylaws and be reviewed with any regulatory body that is a stakeholder in this program.

This Standard shall be updated or reaffirmed at least every five years. Any interested party, at any time, may request a change in this AHAM standard. Such requests 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

AHAM HRH-2 specifies a uniform method for measuring and reporting airflow and sound of residential kitchen range hoods.

The AHAM HRH-2 procedures provide a means to compare and evaluate the performance of different brands and models of residential kitchen range hoods.

2. SCOPE

This standard applies to residential kitchen range hoods as defined in Section 3.

This standard specifies uniform methods for measuring performance, and includes sections on definitions, standard test conditions and instrumentation, standard method for measuring performance and recommendations for safety.

3. DEFINITIONS

For general definitions and definitions of AHAM's product categories and nomenclature, refer to Section 1, "Definition of terms" in the AHAM Residential Kitchen Range Hood Certification Procedural Guide-2020-rev 3.0. For definitions specific to the testing specified in Section 5 below, refer to the applicable HVI Publications specified in Section 5.

4. STANDARD METHODS FOR MEASURING PERFORMANCE

This section specifies the requirements for residential kitchen range hood testing that shall be used for the ratings published by the AHAM Range Hood Certification Program.

4.1. Air Flow

Airflow performance shall be tested and reported in accordance with HVI Publication 916 (2013), "HVI Airflow Test procedure" using the procedures that are applicable to Kitchen Range Hoods. Air Flow ratings produced from this testing shall be reported in cubic feet per minute (CFM).

4.2. Sound Performance

Sound Performance shall be tested in accordance with AMCA 300-14 Reverberant Room Method for Sound Testing of Fans and HVI Publication 915 HVI Loudness Testing & Rating Procedure and reported in accordance with HVI Publication 915 HVI Loudness Testing & Rating Procedure (2015) using the procedures that are applicable to Kitchen Range Hoods. Sound ratings produced by this testing shall be reported in Sones.

4.3. Operating Power

Fan Motor electrical values shall be tested per standard wattage assessment defined in UL

507. Fan motor electrical usage is the only energy consumption considered for the efficacy calculation. Energy used for other fan auxiliaries (e.g., lights sensors, heaters, timers or night lights) is not included in the determination of fan efficiency. See section 5.1.8.4 in AHAM Range Hood Certification Procedural Guide.

4.3.1. Standby Power (Reference Only)

Per the DOE Energy Program, DOE's test procedures for microwave ovens are prescribed at Title 10 of the Code of Federal Regulations ("CFR") Part 430, Subpart B, Appendix I ("Appendix I")

Note – This is currently not a requirement for range hoods but the method is being listed here for reference as there is Microwave combination product that will follow this procedure.

5. SAFETY

It is required based on NEC 2017 that range hoods intended for installation in the United States be listed per clause 422.6. This would be accomplished by meeting the safety requirements of Underwriters Laboratories Standard No. 507, "Standard for Safety for Fans", latest edition and range hoods intended for installation in Canada meet the safety requirements of CAN/CSA- C22.2 No. 60335-2-31. The relevant standard for over the range microwave hood in the US is ANSI/UL 923, "Standard for Safety for Microwave Ovens", latest edition and relevant standard in Canada is CAN/CSA- C22.2 No. #150.

APPENDIX A

This appendix is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard.

For CEC (Title 24 – 2019)

- Kitchen range hoods must be rated at a maximum of 3.0 sone at one or more airflow settings greater than or equal to 100 CFM.
- A minimum exhaust airflow of 100 CFM is required for vented kitchen range hoods

For ENERGY STAR (Rev 4.1)

- Maximum Input Power - 75 watts
- Minimum Efficacy Level – 2.8 CFM/W
- Maximum Allowable Sound Level - 2.0 Sones

DOCUMENT REVISION HISTORY

Revision	Revision Description	Date (MM/DD/YYYY)
1.0	Initial Release	08/22/2019
2.0	Updates for CEC application	10/1/2019
3.0	Further updates to support the CEC application	1/23/2020