ENERGY STAR Automatic Commercial Ice Makers Test Method Webinar

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ENERGY STAR Program

Agenda

1	Introduction
2	DOE Test Procedure
3	ENERGY STAR Test Method
4	Next Steps

EPA–DOE Memorandum of Understanding (MOU)

- On September 30, 2009, EPA and DOE signed a memorandum of understanding (MOU) designed to enhance and strengthen the ENERGY STAR program

EPA: Brand Manager	DOE: Technical Support
• New Products • Performance Levels • Marketing & Outreach • Product Database • Monitoring & Verification	• Test Methods • Metrics • Monitoring & Verification

ENERGY STAR ACIM Program Development

- Updated ENERGY STAR Specification published Jan. 20th
  - References recently published DOE Test Procedure Final Rule*
- Published new ENERGY STAR Test Method Jan. 20th
  - Broadens scope of metrics and proposes test approach for products not covered by DOE

*10 CFR 431 Subpart H, Automatic Commercial Ice Makers. 77 FR 1591, January, 11 2012.

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DOE Test Procedure

- DOE test procedure final rule published January 11, 2012
  - Compliance date for testing: January 7, 2013

    No longer open for comment
- DOE test procedure changes
  - Updates references to industry test procedures
    - AHRI 810-2007 with Addendum 1
    - ASHRAE 29-2009
  - Includes method of test for continuous type ice makers
    - Provides normalization equation for ice hardness
  - Discontinues energy use rate calculation
    - Energy consumption per 100 pounds of ice

DOE Test Procedure

- Two issues not included in DOE test procedure final rule
  - Potable Water
    - DOE will not regulate or require testing and reporting of the potable water use of automatic commercial ice makers at this time. 77 FR 1605.
  - Remote Rack Compressor Connected Units
    - Remote condensing automatic commercial ice makers that are sold exclusively to be connected to remote compressor racks do not meet the definition of an automatic commercial ice maker set forth under 42 U.S.C. 6311(19) and, as such, are not subject to DOE regulations. 77 FR 1600.

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ENERGY STAR Test Method

- ENERGY STAR Draft 2 Specification referenced AHRI 810-2007
- New stand-alone ENERGY STAR test method
  - Published January 20, 2012
  - Includes changes described in Draft 2 specification
  - Includes additional sections related to:
    - Potable Water
    - Remote Rack Connect Units

Overview of Proposed Changes

- References DOE Test Procedure Final Rule*
- Revises Potable Water Requirements
  - Drafted definition for “variable purge setting”
  - Specified setting for units with variable purge settings
- Adds Remote Rack Compressor Units to ENERGY STAR Scope
  - Proposes two methods for testing remote rack connected units for comment

* 10 CFR 431 Subpart H, Automatic Commercial Ice Makers. 77 FR 1591. January 11, 2012.

Potable Water Requirements

- Variable purge setting not previously specified
- Drafted definition for “variable purge setting”:

  “A setting that allows for the increase or decrease of purge water used during ice making to accommodate for different water hardness levels.”

- Updated to AHRI 810-2007 with Addendum 1
  - Potable water test method
  - Test setting for variable purge units

Remote Rack Compressor Units

- Expands scope to include units designed for connection only to remote rack compressors

	ENERGY STAR Scope
DOE Covered	• Air-cooled • Batch and continuous type units • Ice Making Heads • Remote Condensing Units with dedicated condensing units • Self-contained Units
Non-DOE Covered	• Air-cooled • Batch and continuous type units • RCUs designed for connection to remote rack compressors only

- Proposes two methods for testing remote rack connected units

Remote Rack Compressor Units – Proposal #1 (Designated RCU)

- Test Setup
  - Test units with a designated remote condensing unit (RCU)
  - Manufacturers must provide an appropriately sized RCU
  - RCU must be least efficient model available
- Test Method
  - Test units according to 10 CFR Part 431 Subpart H for units with dedicated remote condensers
- Reporting
  - Report energy consumption of ice maker, compressor, and condenser together

Remote Rack Compressor Units – Designated RCU - Feedback

- Are these units normally operated using an evaporator pressure regulator?
- How should “appropriate sizing” be determined?
- How does over/under-sizing affect ice making performance?
- How does operating with a dedicated RCU affect ice making performance and energy consumption compared to a remote rack compressor?

Remote Rack Compressor Units – Proposal #2 - Remote Rack

- Test Setup
  - Test units with a remote rack compressor
- Test Method – ASHRAE 72-2005 approach*
  - Take measurements at coolant inlet and outlet
  - Determine total cooling provided to ice maker
  - Use default factor to calculate compressor energy consumption
- Reporting
  - Report energy consumption of ice maker and calculated compressor energy together

* ASHRAE 72-2005 Method of Testing Commercial Refrigerators and Freezers

Remote Rack Compressor Units - Remote Rack - Feedback

- How should the default factors be determined?
  - Are the factors from commercial refrigeration equipment (CRE) applications applicable?
- Do test facilities have remote rack compressors already available to use for testing?
- How does size of remote rack compressor affect ice making performance?

Remote Rack Compressor Units - Comparison

	Advantages	Disadvantages
Designated RCU	• Repeatability • Provides direct comparison between product types • Uses DOE ACIM test procedure	• Cost of purchasing dedicated RCU • Sizing concerns
Remote Rack	• May provide better representation of energy consumption on a per model basis • No dedicated RCU needed	• Reference another DOE test procedure (likely CRE) • May increase test burden • Requires default factors for calculations

Additional Feedback?

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Timeline

Test Method Webinar	February 1, 2012
Deadline for Written Comments on Draft Test Method	February 10, 2012
Draft 2 Test Method to Stakeholders (if necessary)	March 2012
Draft Final Version 2.0 Specification to Stakeholders	March 2012

Contact Information

Please send any additional comments to icemachines@energystar.gov or contact:

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