[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Part 430

[EERE-2014-BT-TP-0014]

RIN 1904–AD22

Energy Conservation Program: Test Procedures for Portable Air Conditioners; Correction

AGENCY: Office of Energy Efficiency and Renewable Energy, Department of Energy.

ACTION: Final rule; correcting amendments.

SUMMARY: On June 1, 2016, the U.S. Department of Energy ("DOE") published a final rule adopting test procedures for portable air conditioners ("June 2016 final rule"). A correction rule was subsequently published on October 14, 2016 ("October 2016 correction rule"), to correct typographical errors in the June 2016 final rule that were included in the regulatory text. This document corrects typographical errors introduced in the October 2016 correction rule, including missing parentheses and incorrect variable names. Neither the errors nor the corrections in this document affect the substance of the rulemaking or any of the conclusions reached in support of the final rule.

DATES: Effective **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

I. Background

DOE published a final rule in the *Federal Register* on June 1, 2016, establishing test procedures for portable air conditioners in appendix CC to subpart B of Title 10 of the Code of Federal Regulations (CFR) part 430 ("appendix CC"). 81 FR 35242. On October 14, 2016, DOE published a correction rule that revised appendix CC to correct typographical errors identified following the publication of the June 2016 final rule. 81 FR 70923. An additional correction rule was published on February 21, 2019, to republish amendments that could not be incorporated the Code of Federal Regulations due to inaccurate amendatory instructions provided in the June 2016 final rule. 84 FR 5346. DOE subsequently identified typographical errors in appendix CC that were introduced in the October 2016 correction rule. This correction rule revises appendix CC to correct these typographical errors.

Specifically, in section 4.1.2 of appendix CC, DOE is correcting the following errors: missing parentheses in the Q_{s_95} and Q_{s_83} equations; extended underscore and capitalization in the subscript for the variable c_{p_wv} and missing underscore for the variable ω_{ia_95} in the Q_{s_95} equation; and missing subscripts for the Q_{l_83} variable in the $Q_{infiltration\_83}$ equation. DOE is also clarifying in the variable list for the Q_{l_95} and Q_{l_83} equations that the "60" value represents the conversion factor from minutes to hours.

II. Need for Correction

As published, the regulatory text in the June 2016 final rule as corrected by the October 2016 and February 2019 correction rules may result in confusion due to typographical errors in section 4.1.2 of appendix CC. Because this final rule would simply correct errors in the text without making substantive changes in the June 2016 final rule, the changes addressed in this document are technical in nature.

III. Procedural Issues and Regulatory Review

DOE has concluded that the determinations made pursuant to the various procedural requirements applicable to the June 2016 final rule remain unchanged for this final rule technical correction. These determinations are set forth in the June 2016 final rule. 81 FR 35242, 35260.

Pursuant to the Administrative Procedure Act, 5 U.S.C. 553(b), DOE has determined there is good cause to find that notice and prior opportunity for comment on this rule are unnecessary and contrary to the public interest. Neither the errors nor the corrections in this document affect the substance of the June 2016 final rule or any of the

conclusions reached in support of the final rule. Providing prior notice and an opportunity for public comment on correcting objective, typographical errors that do not change the substance of the test procedure serves no useful purpose. Further, this rule correcting typographical errors makes non-substantive changes to the test procedure. As such, this rule is not subject to the 30-day delay in effective date requirement of 5 U.S.C. 553(d) otherwise applicable to rules that make substantive changes.

List of Subjects in 10 CFR Part 430

Administrative practice and procedure, Confidential business information, Energy conservation, Household appliances, Imports, Incorporation by reference, Intergovernmental relations, Small businesses.

Signed in Washington, DC, on March 10, 2020.

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Alexander N. Fitzsimmons
Deputy Assistant Secretary for Energy Efficiency
Energy Efficiency and Renewable Energy

For the reasons stated in the preamble, DOE amends part 430 of chapter II, subchapter D, of title 10 of the Code of Federal Regulations by making the following correcting amendments:

PART 430 -- ENERGY CONSERVATION PROGRAM FOR CONSUMER PRODUCTS

1. The authority citation for part 430 continues to read as follows:

Authority: 42 U.S.C. 6291-6309; 28 U.S.C. 2461 note.

2. Appendix CC to subpart B of part 430 is amended by revising section 4.1.2 to read as follows:

APPENDIX CC TO SUBPART B OF PART 430– UNIFORM TEST METHOD FOR MEASURING THE ENERGY CONSUMPTION OF PORTABLE AIR CONDITIONERS

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4. * * *

4.1.2. *Infiltration Air Heat Transfer.* Measure the heat contribution from infiltration air for single-duct portable air conditioners and dual-duct portable air conditioners that draw at least part of the condenser air from the conditioned space.

Calculate the heat contribution from infiltration air for single-duct and dual-duct portable air conditioners for both cooling mode outdoor test conditions, as described in this section. Calculate the dry air mass flow rate of infiltration air according to the following equations:

$$\dot{m}_{SD} = \frac{V_{co\_SD} \times \rho_{co\_SD}}{\left(1 + \omega_{co\_SD}\right)}$$

For dual-duct portable air conditioners:

$$\dot{m}_{95} = \left[\frac{V_{co\_95} \times \rho_{co\_95}}{\left(1 + \omega_{co\_95}\right)}\right] - \left[\frac{V_{ci\_95} \times \rho_{ci\_95}}{\left(1 + \omega_{ci\_95}\right)}\right]$$

$$\dot{m}_{83} = \left[\frac{V_{co\_83} \times \rho_{co\_83}}{\left(1 + \omega_{co\_83}\right)}\right] - \left[\frac{V_{ci\_83} \times \rho_{ci\_83}}{\left(1 + \omega_{ci\_83}\right)}\right]$$

Where:

$\dot{m}_{SD}$ = dry air mass flow rate of infiltration air for single-duct portable air conditioners, in pounds per minute (lb/m).

$\dot{m}_{95}$ and $\dot{m}_{83}$ = dry air mass flow rate of infiltration air for dual-duct portable air conditioners, as calculated based on testing according to the test conditions in Table 1 of this appendix, in lb/m.

V_{co_SD}, V_{co_95}, and V_{co_83} = average volumetric flow rate of the condenser outlet air during cooling mode testing for single-duct portable air conditioners; and at the 95 °F and 83 °F dry-bulb outdoor conditions for dual-duct portable air conditioners, respectively, in cubic feet per minute (cfm).

V_{ci_95} and V_{ci_83} = average volumetric flow rate of the condenser inlet air during cooling mode testing at the 95 °F and 83 °F dry-bulb outdoor conditions for dual-duct portable air conditioners, respectively, in cfm.

ρ_{co_SD}, ρ_{co_95}, and ρ_{co_83} = average density of the condenser outlet air during cooling mode testing for single-duct portable air conditioners, and at the 95 °F and 83 °F dry-bulb outdoor conditions for dual-duct portable air conditioners, respectively, in pounds mass per cubic foot (lb_m/ft^3).

ρ_{ci_95} and ρ_{ci_83} = average density of the condenser inlet air during cooling mode testing at the 95 °F and 83 °F dry-bulb outdoor conditions for dual-duct portable air conditioners, respectively, in lb_m/ft^3.

ω_{co_SD}, ω_{co_95}, and ω_{co_83} = average humidity ratio of condenser outlet air during cooling mode testing for single-duct portable air conditioners, and at the 95 °F and 83 °F dry-bulb outdoor conditions for dual-duct portable air conditioners, respectively, in pounds mass of water vapor per pounds mass of dry air (lb_w/lb_{da}).

ω_{ci_95} and ω_{ci_83} = average humidity ratio of condenser inlet air during cooling mode testing at the 95 °F and 83 °F dry-bulb outdoor conditions for dual-duct portable air conditioners, respectively, in lb_w/lb_{da}.

For single-duct and dual-duct portable air conditioners, calculate the sensible component of infiltration air heat contribution according to:

$$Q_{s\_95} = \dot{m} \times 60 \times [(c_{p\_da} \times (T_{ia\_95} - T_{indoor})) + (c_{p\_wv} \times (\omega_{ia\_95} \times T_{ia\_95} - \omega_{indoor} \times T_{indoor}))]$$

$$Q_{s\_83} = \dot{m} \times 60 \times [(c_{p\_da} \times (T_{ia\_83} - T_{indoor})) + (c_{p\_wv} \times (\omega_{ia\_83} \times T_{ia\_83} - \omega_{indoor} \times T_{indoor}))]$$

Where:

Q_{s_95} and Q_{s_83} = sensible heat added to the room by infiltration air, calculated at the 95 °F and 83 °F dry-bulb outdoor conditions in Table 1 of this appendix, in Btu/h.

$\dot{m}$ = dry air mass flow rate of infiltration air, $\dot{m}_{SD}$ or $\dot{m}_{95}$ when calculating Q_{s_95} and $\dot{m}_{SD}$ or $\dot{m}_{83}$ when calculating Q_{s_83}, in lb/m.

c_{p_da} = specific heat of dry air, 0.24 Btu/lb_m-°F.

c_{p_wv} = specific heat of water vapor, 0.444 Btu/lb_m-°F.

T_{indoor} = indoor chamber dry-bulb temperature, 80 °F.

T_{ia_95} and T_{ia_83} = infiltration air dry-bulb temperatures for the two test conditions in Table 1 of this appendix, 95 °F and 83 °F, respectively.

ω_{ia_95} and ω_{ia_83} = humidity ratios of the 95 °F and 83 °F dry-bulb infiltration air, 0.0141 and 0.01086 lb_w/lb_{da}, respectively.

ω_{indoor} = humidity ratio of the indoor chamber air, 0.0112 lb_w/lb_{da}.

60 = conversion factor from minutes to hours.

Calculate the latent heat contribution of the infiltration air according to:

$$Q_{l\_95} = \dot{m} \times 60 \times H_{fg} \times (\omega_{ia\_95} - \omega_{indoor})$$

$$Q_{l\_83} = \dot{m} \times 60 \times H_{fg} \times (\omega_{ia\_83} - \omega_{indoor})$$

Where:

Q_{l_95} and Q_{l_83} = latent heat added to the room by infiltration air, calculated at the 95 °F and 83 °F dry-bulb outdoor conditions in Table 1 of this appendix, in Btu/h.

$\dot{m}$ = mass flow rate of infiltration air, $\dot{m}_{SD}$ or $\dot{m}_{95}$ when calculating Q_{l_95} and $\dot{m}_{SD}$ or $\dot{m}_{83}$ when calculating Q_{l_83}, in lb/m.

H_{fg} = latent heat of vaporization for water vapor, 1061 Btu/lb_m.

ω_{ia_95} and ω_{ia_83} = humidity ratios of the 95 °F and 83 °F dry-bulb infiltration air, 0.0141 and 0.01086 lb_w/lb_{da}, respectively.

ω_{indoor} = humidity ratio of the indoor chamber air, 0.0112 lb_w/lb_{da}.

60 = conversion factor from minutes to hours.

The total heat contribution of the infiltration air is the sum of the sensible and latent heat:

$$Q_{infiltration\_95} = Q_{s\_95} + Q_{l\_95}$$

$$Q_{infiltration\_83} = Q_{s\_83} + Q_{l\_83}$$

Where:

$Q_{infiltration\_95}$ and $Q_{infiltration\_83}$ = total infiltration air heat in cooling mode, calculated at the 95 °F and 83 °F dry-bulb outdoor conditions in Table 1 of this appendix, in Btu/h.

Q_{s_95} and Q_{s_83} = sensible heat added to the room by infiltration air, calculated at the 95 °F and 83 °F dry-bulb outdoor conditions in Table 1 of this appendix, in Btu/h.

Q_{l_95} and Q_{l_83} = latent heat added to the room by infiltration air, calculated at the 95 °F and 83 °F dry-bulb outdoor conditions in Table 1 of this appendix, in Btu/h.

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