**[6450-01-P]**

**DEPARTMENT OF ENERGY**

**10 CFR Parts 429 and 431**

**[EERE-2017-BT-TP-0018]**

**RIN 1904-AD93**

# Energy Conservation Program: Test Procedure for Direct Expansion-Dedicated Outdoor Air Systems

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

**ACTION:** Supplemental notice of proposed rulemaking and request for comment.

**SUMMARY:** The U.S. Department of Energy ("DOE") is publishing a supplemental notice of proposed rulemaking ("SNOPR") to establish a test procedure for direct-expansion dedicated outdoor systems ("DX-DOASes") pursuant to the Energy Policy and Conservation Act, as amended. This document presents an updated proposal based on stakeholder feedback received in response to the July 7, 2021, notice of proposed rulemaking. DOE is revising its proposals regarding the terminology used to describe the equipment at issue and to provide additional direction for testing equipment with special components. DOE welcomes written comment from the public on any subject within the scope of this document, as well as the submission of data and other relevant information.

**DATES:** *Comments*: DOE will accept written comments, data, and information regarding this SNOPR on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**. See section V, "Public Participation," for details.

**ADDRESSES:** Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *www.regulations.gov*. Follow the instructions for submitting comments.

Alternatively, interested persons may submit comments, identified by docket number EERE-2017-BT-TP-0018, by any of the following methods:

1. *Federal eRulemaking Portal*: *www.regulations.gov*.
2. *E-mail*: to *CommACHeatingEquipCat2017TP0018@ee.doe.gov*. Include docket number EERE-2017-BT-TP-0018 in the subject line of the message.

No telefacsimiles (faxes) will be accepted. For detailed instructions on submitting comments and additional information on this process, see section V of this document (Public Participation).

Although DOE has routinely accepted public comment submissions through a variety of mechanisms, including postal mail and hand delivery/courier, the Department has found it necessary to make temporary modifications to the comment submission process in light of the ongoing coronavirus (COVID-19) pandemic. DOE is currently accepting only electronic submissions at this time. If a commenter finds that this change

poses an undue hardship, please contact Appliance Standards Program staff at (202) 586-1445 to discuss the need for alternative arrangements. Once the COVID-19 pandemic health emergency is resolved, DOE anticipates resuming all of its regular options for public comment submission, including postal mail and hand delivery/courier.

*Docket*: The docket, which includes *Federal Register* notices, public meeting/webinar attendee lists and transcripts, comments, and other supporting documents/materials, is available for review at *www.regulations.gov*. All documents in the docket are listed in the *www.*regulations.*gov* index. However, some documents listed in the index, such as those containing information that is exempt from public disclosure, may not be publicly available.

The docket webpage can be found at: *www.regulations.gov/docket/EERE-2017-BT-TP-0018*. The docket webpage contains instructions on how to access all documents, including public comments, in the docket. See section V (Public Participation) for information on how to submit comments through *www.regulations.gov*.

**FOR FURTHER INFORMATION CONTACT:** Ms. Catherine Rivest, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone: (202) 586-7335. Email: *ApplianceStandardsQuestions@ee.doe.gov*.

Mr. Matthew Ring, U.S. Department of Energy, Office of the General Counsel, GC-33, 1000 Independence Avenue SW., Washington, DC, 20585. Telephone: (202) 586--2555. Email: *Matthew.Ring@hq.doe.gov*.

For further information on how to submit a comment, review other public comments and the docket, or participate in the webinar, contact the Appliance and Equipment Standards Program staff at (202) 287-1445 or by e-mail: *ApplianceStandardsQuestions@ee.doe.gov*.

**SUPPLEMENTARY INFORMATION:**

DOE maintains its proposal to incorporate by reference the following industry standards into title 10 of the Code of Federal Regulations ("CFR") part 431:

Air-Conditioning, Heating, and Refrigeration Institute ("AHRI") Standard 920-2020 (I-P), "2020 Standard for Performance Rating of Direct Expansion-Dedicated Outdoor Air System Units," approved February 4, 2020.

AHRI Standard 1060-2018, "2018 Standard for Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment," approved 2018.

Copies of AHRI Standard 920-2020 (I-P), and AHRI Standard 1060-2018 can be obtained from the Air-conditioning, Heating, and Refrigeration Institute, 2311 Wilson Blvd., Suite 400, Arlington, VA 22201, (703) 524-8800, or online at: *www.ahrinet.org/*.

ANSI/American Society of Heating, Refrigerating and Air-Conditioning Engineers ("ASHRAE") Standard 37-2009, "Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment," ASHRAE approved June 24, 2009.

ANSI/ASHRAE Standard 41.1-2013, "Standard Method for Temperature Measurement," ANSI approved January 30, 2013.

ANSI/ASHRAE Standard 41.6-2014, "Standard Method for Humidity Measurement," ANSI approved July 3, 2014.

ANSI/ASHRAE Standard 198-2013, "Method of Test for Rating DX-Dedicated Outdoor Air Systems for Moisture Removal Capacity and Moisture Removal Efficiency," ANSI approved January 30, 2013.

Copies of ANSI/ASHRAE Standard 37-2009, ANSI/ASHRAE Standard 41.1-2013, ANSI/ASHRAE Standard 41.6-2014, and ANSI/ASHRAE Standard 198-2013 can be obtained from the American Society of Heating, Refrigerating and Air-Conditioning Engineers, 180 Technology Parkway, Peachtree Corners, GA 30092, (404) 636-8400, or online at: *www.ashrae.org*.

See section IV.M of this document for a further discussion of these standards.

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## I. Authority and Background

### *A. Authority*

The Energy Policy and Conservation Act ("EPCA"),[1] as amended, among other things, authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. Title III, Part C[2] of EPCA, Pub. L. 94-163 (42 U.S.C. 6311-6317, as codified), added by Pub. L. 95-619, Title IV, section 441(a), established the Energy Conservation Program for Certain Industrial Equipment, which sets forth a variety of provisions designed to improve energy efficiency. This covered equipment includes small, large, and very large commercial package air conditioning and heating equipment. (42 U.S.C. 6311(1)(B)-(D)) DOE has initially determined that commercial

[1] All references to EPCA in this document refer to the statute as amended through the Energy Act of 2020, Publ. L. 116–260 (Dec. 27, 2020).
[2] For editorial reasons, upon codification in the U.S. Code, Part C was redesignated Part A-1.

package air conditioning and heating equipment includes unitary dedicated outdoor air systems ("Unitary DOASes").[3] As discussed in section I.B of this document, these equipment have not previously been addressed in DOE rulemakings and are not currently subject to Federal test procedures or energy conservation standards.

Under EPCA, DOE's energy conservation program consists essentially of four parts: (1) testing, (2) labeling, (3) Federal energy conservation standards, and (4) certification and enforcement procedures. Relevant provisions of EPCA specifically include definitions (42 U.S.C. 6311), energy conservation standards (42 U.S.C. 6313), test procedures (42 U.S.C. 6314), labeling provisions (42 U.S.C. 6315), and the authority to require information and reports from manufacturers (42 U.S.C. 6316; 42 U.S.C 6296).

The Federal testing requirements consist of test procedures that manufacturers of covered equipment must use as the basis for: (1) certifying to DOE that their equipment complies with the applicable energy conservation standards adopted pursuant to EPCA (42 U.S.C. 6316(b); 42 U.S.C. 6296), and (2) making representations about the efficiency of that equipment (42 U.S.C. 6314(d)). Similarly, DOE uses these test procedures to determine whether the equipment complies with relevant standards promulgated under EPCA.

Federal energy efficiency requirements for covered equipment established under EPCA generally supersede State laws and regulations concerning energy conservation

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[3] As discussed in section III.A of this SNOPR, DOE is proposing to use the terms DX-DOAS and Unitary DOAS in this SNOPR, in place of the terms "dehumidifying direct expansion-dedicated outdoor air systems" and "DX-DOAS", respectively, which were used in the July 2021 NOPR.

testing, labeling, and standards. (42 U.S.C. 6316(a) and (b); 42 U.S.C. 6297) DOE may, however, grant waivers of Federal preemption in limited circumstances for particular State laws or regulations, in accordance with the procedures and other provisions of EPCA. (42 U.S.C. 6316(b)(2)(D))

Under 42 U.S.C. 6314, the statute also sets forth the criteria and procedures DOE is required to follow when prescribing or amending test procedures for covered equipment. Specifically, EPCA requires that any test procedure prescribed or amended shall be reasonably designed to produce test results which measure energy efficiency, energy use, or estimated annual operating cost of covered equipment during a representative average use cycle and requires that test procedures not be unduly burdensome to conduct. (42 U.S.C. 6314(a)(2))

EPCA requires that the test procedures for commercial package air conditioning and heating equipment be those generally accepted industry testing procedures or rating procedures developed or recognized by the Air-Conditioning, Heating, and Refrigeration Institute ("AHRI") or by the American Society of Heating, Refrigerating and Air-Conditioning Engineers ("ASHRAE"), as referenced in ASHRAE Standard 90.1, "Energy Standard for Buildings Except Low-Rise Residential Buildings" ("ASHRAE Standard 90.1"). (42 U.S.C. 6314(a)(4)(A)) Further, if such an industry test procedure is amended, DOE must update its test procedure to be consistent with the amended industry test procedure, unless DOE determines, by rule published in the *Federal Register* and supported by clear and convincing evidence, that such amended test procedure would not

meet the requirements in 42 U.S.C. 6314(a)(2) and (3), related to representative use and test burden. (42 U.S.C. 6314(a)(4)(B))

EPCA also requires that, at least once every seven years, DOE evaluate test procedures for each type of covered equipment, including commercial package air conditioning and heating equipment to determine whether amended test procedures would more accurately or fully comply with the requirements for the test procedures not to be unduly burdensome to conduct and be reasonably designed to produce test results that reflect energy efficiency, energy use, and estimated operating costs during a representative average use cycle. (42 U.S.C. 6314(a)(1)-(3)) In addition, if DOE determines that a test procedure amendment is warranted, it must publish proposed test procedures in the *Federal Register* and afford interested persons an opportunity (of not less than 45 days duration) to present oral and written data, views, and arguments on the proposed test procedures. (42 U.S.C. 6314(b)) If DOE determines that test procedure revisions are not appropriate, DOE must publish in the *Federal Register* its determination not to amend the test procedures. (42 U.S.C. 6314(a)(1)(A)(ii))

As discussed in section I.B of this document, a test procedure for DX-DOASes was first specified by ASHRAE Standard 90.1 in the 2016 edition ("ASHRAE Standard 90.1-2016"). Pursuant to 42 U.S.C. 6314(a)(4)(B) and following updates to the relevant test procedures which were referenced in ASHRAE Standard 90.1, DOE is conducting this rulemaking to establish a test procedure for DX-DOASes in satisfaction of its aforementioned obligations under EPCA.

*B. Background*

From a functional perspective, Unitary DOASes operate similarly to other categories of commercial package air conditioning and heat pump equipment, in that they provide conditioning using a refrigeration cycle generally consisting of a compressor, condenser, expansion valve, and evaporator. Unitary DOASes provide ventilation and conditioning of 100-percent outdoor air to the conditioned space, whereas for typical commercial package air conditioners that are central air conditioners, outdoor air makes up only a small portion of the total airflow (usually less than 50 percent). Unitary DOASes are typically installed in addition to a local, primary cooling or heating system (*e.g.*, commercial unitary air conditioner, variable refrigerant flow system, chilled water system, water-source heat pumps)—the Unitary DOAS conditions the outdoor ventilation air, while the primary system provides cooling or heating to balance building shell and interior loads and solar heat gain. According to ASHRAE, a well-designed system using a Unitary DOAS can ventilate a building at lower installed cost, reduce overall annual building energy use, and improve indoor environmental quality.[4]

On October 26, 2016, ASHRAE published ASHRAE Standard 90.1-2016, which for the first time specified a test standard and efficiency standards for DX-DOASes. ASHRAE Standard 90.1-2016 (and the subsequent 2019 edition) defines a DX-DOAS as a type of air-cooled, water-cooled, or water-source factory assembled product that

[4] From the June 2018 ASHRAE eSociety Newsletter (Available at: *www.ashrae.org/news/esociety/what-s-new-in-doas-and-refrigerant-research*) (Last accessed May 24, 2021).

dehumidifies 100 percent outdoor air to a low dew point and includes reheat that is capable of controlling the supply dry-bulb temperature of the dehumidified air to the designed supply air temperature. This conditioned outdoor air is then delivered directly or indirectly to the conditioned spaces. It may precondition outdoor air by containing an enthalpy wheel, sensible wheel, desiccant wheel, plate heat exchanger, heat pipes, or other heat or mass transfer apparatus.

When operating in humid conditions, the dehumidification load from the outdoor ventilation air is a much larger percentage of the total cooling load for a DX-DOAS than for a typical commercial air conditioner. Additionally, compared to a typical commercial air conditioner, the amount of total cooling (both sensible and latent) is much greater per pound of air for a DX-DOAS at design conditions (*i.e.*, the warmest/most humid expected summer conditions), and a DX-DOAS is designed to accommodate greater variation in entering air temperature and humidity (*i.e.*, a typical commercial air conditioner would not be able to dehumidify 100-percent outdoor ventilation air to the levels achieved by a DX-DOAS). Not all Unitary DOASes have this dehumidification capability.

The amendment to ASHRAE Standard 90.1 to specify an industry test standard for DX-DOASes triggered DOE's obligations vis-à-vis test procedures under 42 U.S.C. 6314(a)(4)(B), as outlined previously. On October 25, 2019, ASHRAE published an updated version of ASHRAE Standard 90.1 ("ASHRAE Standards 90.1-2019"), which maintained the DX-DOAS provisions as first introduced in ASHRAE Standard 90.1-2016 without revisions.

On July 7, 2021, DOE published a notice of proposed rulemaking ("NOPR") pertaining to small, large, and very large commercial package air conditioning and heating equipment which provide conditioning and ventilation of 100-percent outdoor air. 86 FR 36018 (July 2021 NOPR). In the July 2021 NOPR, DOE proposed to establish a definition for Unitary DOAS (referred to as "DX-DOAS" in the July 2021 NOPR) as a category of commercial package air conditioning and heating equipment and adopt a new test procedure for DX-DOASes (referred to as "DDX-DOASes" in the July 2021 NOPR) that incorporates by reference the most up to date industry consensus test standard referenced in ASHRAE Standard 90.1-2019.

The proposed test procedure would apply to all DX-DOASes for which ASHRAE 90.1-2019 specifies standards, with the exception of ground-water-source equipment, as discussed in section III.A.1 of the July 2021 NOPR. 86 FR 36018, 36023. More specifically, DOE proposed to update 10 CFR 431.96, "Uniform test method for the measurement of energy efficiency of commercial air conditioners and heat pumps," to adopt a new test procedure for DX-DOASes as follows: (1) incorporate by reference AHRI Standard 920-2020 (I-P), "Performance Rating of Direct Expansion-Dedicated Outdoor Air System Units" ("AHRI 920-2020"), the most recent version of the test procedure recognized by ASHRAE Standard 90.1 for DX-DOASes, and the relevant industry standards referenced therein; (2) establish the scope of coverage for the test procedure; (3) add definitions for Unitary DOAS and DX-DOAS, as well as additional terminology required by the test procedure; (4) adopt the integrated seasonal moisture removal efficiency, as measured according to the most recent applicable industry standard ("ISMRE2"), and integrated seasonal coefficient of performance ("ISCOP2"), as

measured according to the most recent applicable industry standard, as energy efficiency descriptors for dehumidification and heating mode, respectively; and (5) establish representation requirements. DOE also proposed to add a new appendix B to subpart F of part 431, titled "Uniform test method for measuring the energy consumption of direct expansion-dedicated outdoor air systems," ("appendix B") that would include these new test procedure requirements. In conjunction, DOE proposed to amend Table 1 in 10 CFR 431.96 to identify the proposed appendix B as the applicable test procedure for testing DX-DOASes. DOE tentatively determined that the proposed test procedure would not be unduly burdensome to conduct.

DOE received a number of comments from interested parties in response to the July 2021 NOPR. Table I-1 lists the commenters, along with each commenter's abbreviated name used throughout this SNOPR.

**Table I-1 Interested Parties Providing Comments on the July 2021 NOPR**

| Name | Abbreviation | Type[1] |
|---|---|---|
| Air-Conditioning, Heating, and Refrigeration Institute | AHRI | IR |
| Appliance Standards Awareness Project (ASAP), American Council for an Energy-Efficient Economy (ACEEE) | Joint Advocates | EA |
| Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE), collectively referred to as California Investor-Owned Utilities (CA IOUs) | CA IOUs | U |
| Carrier Corporation | Carrier | M |
| Emerson Commercial and Residential Solutions | Emerson | M |
| Madison Indoor Air Quality | MIAQ | M |
| Northwest Energy Efficiency Alliance | NEEA | EA |
| Trane Technologies | Trane | M |

1. EA: Efficiency/Environmental Advocate; IR: Industry Representative; M: Manufacturer; U: Utility

This SNOPR addresses only those comments relevant to the proposals laid out in this document; all other relevant comments will be addressed in a future stage of the rulemaking. A parenthetical reference at the end of a comment quotation or paraphrase provides the location of the item in the public record.[5]

## II. Synopsis of the Supplemental Notice of Proposed Rulemaking

In this SNOPR, DOE is proposing revised terminology for the equipment subject to this rulemaking. DOE is proposing to define the abbreviated term Unitary DOAS to mean unitary dedicated outdoor air system, instead of the term "DX-DOAS" as proposed in the July 2021 NOPR. DOE also is proposing to define the abbreviated term DX-DOAS to mean a direct expansion-dedicated outdoor air system, as opposed to "dehumidifying direct-expansion dedicated outdoor air system" ("DDX-DOAS") as proposed in the July 2021 NOPR. This change to the proposal would more closely align DOE's terminology with that used in industry. DOE is not, however, proposing substantial updates to the definitions of these terms. This topic is addressed in section III.A of this SNOPR.

Secondly, DOE is proposing an update to the provisions pertaining to testing and representations for equipment with special components. The July 2021 NOPR proposed

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[5] The parenthetical reference provides a reference for information located in the docket of DOE's rulemaking to develop test procedures for dehumidifying direct expansion-dedicated outdoor air system. (Docket No. EERE-2017-BT-TP-0018, which is maintained at *www.regulations.gov*). The references are arranged as follows: (commenter name, comment docket ID number, page of that document).

to reference the entirety of Appendix F of AHRI 920-2020, "Unit Configuration for Standard Efficiency Determination," in section 1.1(a)(vii) and section 2.2.1(h) of the proposed Appendix B test procedure. However, Appendix F of AHRI 920-2020 includes two types of instructions: (1) alternative test methods for certain special components, and (2) whether special components should be present during testing for the determination of energy efficiency representations. As a result, DOE has provisionally determined that it is necessary to reference these instructions in the proposed Appendix B test procedure and in the proposed representation requirements at 10 CFR 429.43 to provide more detailed direction. DOE also is proposing one deviation from the instructions in Appendix F to AHRI 920-2020. This topic is addressed in section III.B of this SNOPR. Additionally, Appendix F of AHRI 920-2020 also allows an option for testing specially built models that do not include a feature if no models are distributed in commerce with that feature. DOE is proposing not to include this option in its certification and enforcement provisions. This topic is also addressed in section III.B of this SNOPR.

Finally, DOE is correcting its references in the proposal to the industry test standard AHRI 1060-2018, "2018 Standard for Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment," which was incorrectly attributed as being certified by the American National Standards Institute ("ANSI") in the July 2021 NOPR.

DOE's proposed actions are summarized in Table II.1 and addressed in detail in section III of this document.

**Table II.1 Summary of Proposed Test Procedure for DX-DOASes Addressed in this SNOPR**

| July 2021 NOPR Proposals | SNOPR | Attribution |
|---|---|---|
| Defines the abbreviated term "DX-DOAS" to refer to direct expansion-dedicated outdoor air systems and define such equipment as covered equipment. | Replaces the term "DX-DOAS" with Unitary DOAS. | The term "DX-DOAS" will be used to refer to the subcategory of equipment within the scope of the proposed test procedure. |
| Defines the abbreviated term "DDX-DOAS" to refer to the dehumidifying direct expansion-dedicated outdoor air systems proposed to be within scope of the proposed test procedure. | Replaces the term "DDX-DOAS" with DX-DOAS. | Align with industry terminology. |
| Incorporates by reference AHRI 920-2020 and other relevant industry test standards referenced by that standard, including a list of components that must be present for testing and provisions for testing units with certain optional features. | Re-organizes the instructions in AHRI 920-2020 10 CFR 429.43 for components that must be present for testing, and the proposed Appendix B test procedure for provisions for testing units with certain optional features. | Re-organization of regulatory provisions. |
| | Proposes to include instruction that coated coils be present during testing if the individual unit under test has this special component. | Clarification of representation requirements. |
| | Proposal to exclude industry test standard provisions regarding testing of specially built models | Clarification of representation requirements |
| Incorrectly refers to AHRI 1060-2018 as being certified by ANSI. | Corrects the title of AHRI 1060-2018. | Correction of an inaccurate citation. |

## III. Discussion

### *A. Terminology for Covered Equipment*

In the July 2021 NOPR, DOE proposed to establish terms and definitions for dedicated outdoor air systems that are small, large, and very large commercial package air conditioning and heating equipment. 86 FR 36018, 36023. DOE proposed to refer to the general category of this equipment as "DX-DOAS" (*i.e.*, Unitary DOAS, as proposed

in this SNOPR), whereas the specific equipment with the capability to dehumidify outdoor air to a low dew point would be referred to as "DDX-DOAS" (*i.e.*, DX-DOAS, as proposed in this SNOPR). However, the abbreviated term "DX-DOAS" is used in AHRI 920-2020 and ASHRAE Standard 90.1 to refer specifically to equipment with a high degree of dehumidification capacity. 86 FR 36018, 36020, 36023.

DOE requested comment upon its proposed terms and definitions in the July 2021 NOPR. 86 FR 36018, 36022-36024. In response, DOE received comments from AHRI, CA IOUs, Carrier, Emerson, MIAQ, and Trane. (AHRI, No. 18, p. 9; AHRI, No. 22, pp. 4-6; CA IOUs, No. 25, pp. 3-4; Carrier, No. 20, p. 2; MIAQ, No. 19, pp. 2-3; Trane, No. 23, p. 1) The CA IOUs and Carrier supported DOE's proposal to use "DX-DOAS" (*i.e.*, Unitary DOAS, as proposed in this SNOPR) as a more generic term and "DDX-DOAS" (*i.e.*, DX-DOAS, as proposed in this SNOPR) as the specific term to describe the equipment covered by the proposed test procedure. (CA IOUs, No. 25, p. 3; Carrier, No. 20, p. 2) AHRI, Emerson, MIAQ, and Trane raised concerns that deviating from the already industry-accepted terminology would cause supply-chain and market confusion. (AHRI, No. 18, p. 9; AHRI, No. 22, pp. 4-5; MIAQ, No. 19, pp. 2-3; Trane, No. 23, p. 1)

AHRI stated that specifiers, contractors, and manufacturers are familiar with the acronyms "DOAS" and "DX-DOAS" but not "DDX-DOAS". (AHRI, No. 18, p. 9) AHRI also commented that common industry terminology should be maintained to prevent market confusion because the market is familiar with the term DX-DOAS being used to refer to equipment that is capable of supplying 100-percent outdoor air for ventilation purposes, with dehumidification. (AHRI, No. 22, pp. 4-5) AHRI noted that

this definition was originally established in ASHRAE Standard 90.1-2016, and AHRI 920 has referred to dehumidifying, refrigerant-driven DOAS as DX-DOAS. (*Id.*) AHRI urged DOE to adopt DX-DOAS as the term used to describe the dehumidifying equipment and stated that industry is adamantly against referring to dehumidifying DOAS as "DDX-DOAS". (*Id.*)

Emerson agreed with the approach suggested by AHRI to adopt the term DX-DOAS and stated that this approach may be less likely to cause confusion in the market. (Emerson, No. 27, p. 2) MIAQ also urged DOE to adopt the term DX-DOAS for this purpose. (MIAQ, No. 19, p. 2)

Trane requested that DOE use the term "DOAS" for the equipment under consideration and provided a collection of Trane product literature using this term across 20 years. (Trane, No. 23, p. 1) Trane commented that the industry recognizes a "DOAS" as equipment that is capable of dehumidifying 100-percent outdoor air below a 55 °F dew point; changing this terminology would cause confusion to customers and would undermine the purpose of the AHRI 920 standard. (*Id.*)

AHRI indicated that its members were largely in agreement with the definitions proposed, but the major concern is regarding the terminology or acronym used to describe the equipment. (AHRI, No. 18, p. 9) MIAQ also stated that MIAQ agrees with DOE's proposed terminology with the noted exception that DOE should use DX-DOAS instead of "DDX-DOAS." (MIAQ, No. 19, p. 3)

DOE appreciates these comments from stakeholders and understands the concerns regarding introducing a new, unfamiliar term into the market when a different term may already be well-established. Based on comments received, DOE is revising its proposal to use the abbreviated term DX-DOAS to refer to the dedicated outdoor air system equipment called DDX-DOAS in the July 2021 NOPR. Unlike the simpler term "DOAS" suggested by Trane, DX-DOAS is used in ASHRAE Standard 90.1 and AHRI 920 and thus would appear to be more generally accepted by industry to specifically refer to this type of equipment.

The CA IOUs expressed that there is ambiguity regarding equipment that conditions 100-percent outdoor air but does not dehumidify to the levels specified in the DX-DOAS definition, such as makeup air units ("MUAs"). The CA IOUs noted that AHRI 920-2020 references, but does not define, "sensible-only 100-percent outdoor air units." (CA IOUs, No. 25, pp. 3-4)

Other industry stakeholders suggested potential ways to define these types of equipment that do not humidify to the levels specified in the proposed DX-DOAS definition. AHRI commented that DOE's definitions should differentiate between dehumidifying and non-dehumidifying dedicated outdoor air systems. AHRI suggested defining direct-expansion units capable of providing 100-percent outdoor air but not capable of meeting the dehumidification criteria set forth in AHRI 920 as "non-dehumidifying DX-DOAS" or "ND-DX-DOAS." AHRI stated that DOE's regulations should focus on how these products are represented in the market because operating conditions, rather than features, differentiate DX-DOASes from ND-DX-DOASes.

AHRI also indicated key differences between DX-DOASes and ND-DX-DOASes and commercial unitary air conditioners ("CUACs"), specifically stating that DX-DOASes may include a reheat coil to provide space-neutral supply air, but that ND-DX-DOASes will not have a reheat coil; design conditions are different for DX-DOASes, ND-DX-DOASes, and CUACs; and design airflow rates for these equipment are around 146.5 cubic feet per minute per ton ("cfm/ton") for DX-DOASes, 360 cfm/ton for CUACs, and 550 cfm/ton for ND-DX-DOASes. (AHRI, No. 22, pp. 4-5)

MIAQ provided similar comments discussing DX-DOASes, ND-DX-DOASes, and CUACs, and supported the adoption of a definition for ND-DX-DOASes. (MIAQ, No. 19, p. 2) AHRI and MIAQ urged DOE to adopt definitions for DX-DOAS and ND-DX-DOAS. (AHRI, No. 22, p. 6; MIAQ, No. 19, p. 2) Emerson agreed with the approach proposed by AHRI. (Emerson, No. 27, p. 2)

DOE understands that the approach proposed by AHRI would establish mutually exclusive equipment categories— DX-DOAS and ND-DX-DOAS— where ND-DX-DOAS would likely capture the MUAs highlighted by the CA IOUs. However, in this SNOPR, DOE is not addressing substantive changes to the definitions proposed in the July 2021 NOPR. Based on stakeholder comment, DOE has tentatively determined that the DX-DOAS term proposed in this SNOPR is generally consistent with the term used in industry. Therefore, DOE is only proposing to update the terminology used to refer to the definitions proposed in the July 2021 NOPR in order to avoid confusion with industry. DOE is maintaining its approach proposed in the July 2021 NOPR (to establish

one generic definition and one specific definition for dehumidifying equipment), but is revising its proposal to use the terms Unitary DOAS and DX-DOAS.

As a result, in this SNOPR, DOE is proposing the following updated terms with no substantial difference in the definitions proposed in the July 2021 NOPR:

*Unitary dedicated outdoor air system*, or *Unitary DOAS*, means a category of small, large, or very large commercial package air-conditioning and heating equipment that is capable of providing ventilation and conditioning of 100-percent outdoor air or marketed in materials (including but not limited to, specification sheets, insert sheets, and online materials) as having such capability.

*Direct-expansion dedicated outdoor air system*, or *DX-DOAS*, means a unitary dedicated outdoor air system that is capable of dehumidifying air to a 55 °F dew point—when operating under Standard Rating Condition A as specified in Table 4 or Table 5 of AHRI 920-2020 (incorporated by reference, see §431.95) with a barometric pressure of 29.92 in Hg—for any part of the range of airflow rates advertised in manufacturer materials, and has a moisture removal capacity of less than 324 lb/h.

Issue-1: DOE seeks comment on the revised terms for Unitary DOAS and DX-DOAS, which replace the terms DX-DOAS and DDX-DOAS in the July 2021 NOPR, respectively.

*B. Specific Components*

In the July 2021 NOPR, DOE proposed to adopt Appendix F of AHRI 920-2020. AHRI 920-2020 includes appendix F, "Unit Configuration for Standard Efficiency Determination – Normative." Section F2.4 includes a list of features that are optional for testing.[6] Section F2.4 of AHRI 920-2020 further specifies the following general provisions regarding testing of units with optional features:

- If an otherwise identical model (within the same basic model) without the feature is distributed in commerce, test the otherwise identical model

- If an otherwise identical model (within the same basic model) without the feature is not distributed in commerce, conduct tests with the feature present but configured and de-activated so as to minimize (partially or totally) the impact on the results of the test (as determined per the provisions in section D2). Alternatively, the manufacturer may indicate in the supplemental testing instructions that the test shall be conducted using a specially built otherwise identical unit that is not distributed in commerce and does not have the feature.

DOE has tentatively determined that testing specially built units would not provide ratings representative of equipment distributed in commerce. Therefore, DOE is

[6] On January 30, 2015, DOE issued a Commercial HVAC Enforcement Policy addressing the treatment of specific features during Departmental testing of commercial HVAC equipment. Many of the features in the Commercial HVAC Enforcement Policy are present in Appendix F of AHRI 920-2020, however, the Commercial HVAC Enforcement Policy is not applicable to DX-DOASes and is therefore not applicable in this rulemaking.

not proposing to include this option for testing specially built units in its certification and enforcement provisions.

DOE notes that the list of features and provisions in Section F2.4 of Appendix F of AHRI 920-2020 conflates features that can be addressed by testing provisions with features that warrant enforcement relief (*i.e.*, features that, if present on a unit under test, could have a substantive impact on test results and that cannot be disabled or otherwise mitigated). This differentiation remains central to providing clarity in DOE's regulations. Further, provisions more explicit than included in Section F2.4 of AHRI 920-2020 are warranted to clarify the differences between how specific components must be treated when manufacturers are making representations as opposed to when DOE is conducting enforcement testing.

In order to provide clarity between test procedure provisions (*i.e.*, how to test a specific unit) and certification and enforcement provisions (*e.g.,* which model to test), in this SNOPR, DOE is not proposing to incorporate by reference Appendix F of AHRI 920-2020 and instead is proposing to adopt certain related provisions in appendix B to subpart F of part 431, §§429.43, and 429.134.

Specifically, in appendix B, DOE proposes test provisions for specific components, including the components listed in Section F2.4 of AHRI 920-2020 for which there is a neutralizing test procedure action (*i.e.,* test procedure provisions specific to the component that are not addressed by general provisions in AHRI 920-2020 that

negates the components impact on performance).[7] These provisions would specify how to test a unit equipped with such a component – *e.g.*, for a unit with hail guards, remove hail guards for testing.

In the July 2021 NOPR, DOE noted that Section F2.3 of AHRI 920-2020 specifies that for supply air filters, the filter shall have a "minimum efficiency reporting value" ("MERV") specification no less than MERV 8, and that the lowest-MERV filter distributed in commerce with the DOAS model may be used if it exceeds MERV 8. DOE notes that by no longer proposing to incorporate by reference Appendix F to AHRI 920-2020, DOE would need to adopt this requirement elsewhere in the DOE test procedure. DOE is proposing to include this requirement in Appendix B, consistent with what is specified in Section F2.3 of AHRI 920-2020 regarding filters. AHRI 920-2020.

DOE is proposing provisions that would allow determination of represented values of a model equipped with a particular component to be based on an individual model distributed in commerce without the component in specific cases. The provisions apply to certain components for which the test provisions for testing a unit with the

[7] For the following components listed in Section F2.4 of AHRI 920-2020, DOE has tentatively concluded that there is not a neutralizing test procedure action specified in Section F2.4 of AHRI 920-2020 for testing a unit with the component present, and is therefore not proposing to include test procedure actions specific to these components in Appendix B: coated coils and VERS preheat.

component may result in differences in ratings compared to testing a unit without the component.[8] For these such components, DOE proposes in 10 CFR 429.43(a)(4) that:

- If a basic model includes only individual models distributed in commerce with a specific component, or does not include any otherwise identical individual models without the specific component, the manufacturer must determine represented values for the basic model based on performance of an individual model with the component present (and consistent with any relevant proposed test procedure provisions in Appendix B).

- If a basic model includes both individual models distributed in commerce with a specific component and otherwise identical individual models without the specific component, the manufacturer may determine represented values for the basic model based on performance of an individual model either with the component present (and consistent with any relevant proposed test procedure provisions in appendix B) or without the component present.

DOE's proposed provisions in 10 CFR 429.43(a)(4) include all of the optional features specified in Section F2.4 of AHRI 920-2020 for which the test provisions for

[8] DOE has tentatively concluded that for the following features included in Section 2.4 of AHRI 920-2020, testing a unit with these components in accordance with the proposed test provisions would not result in differences in ratings compared to testing a unit without these components; therefore, DOE is not proposing to include these features in 10 CFR 429.43(a)(4): UV lights, high-effective indoor air filtration, power correction capacitors, and hail guards.

testing a unit with these components may result in differences in ratings compared to testing a unit without these components, except coated coils. DOE is proposing to exclude coated coils from the specific components list specified in 10 CFR 439.43 because DOE has tentatively concluded that the presence of coated coils does not result in a significant impact to performance of DX-DOASes, and therefore, that models with coated coils should be rated based on performance of models with coated coils present (rather than based on performance of an otherwise identical model without coated coils).

DOE notes that in some cases, individual models may include multiple of the specified components or there may be individual models within a basic model that include various dehumidification components that result in more or less energy use. In these cases, the represented values of performance must be representative of the lowest efficiency found within the basic model.

In response to the July 2021 NOPR, the CA IOUs recommended excluding furnaces from the list of optional features specified in Section F2.4 of AHRI 920-2020. The CA IOUs noted that the test procedure for commercial unitary air conditioning and heating equipment (*i.e.*, AHRI 340/360) requires that a furnace is installed when testing models that are distributed in commerce with a furnace. More specifically, the CA IOUs asserted that rating units without furnaces is unrepresentative, and that all DX-DOASes should be rated with the furnaces installed (*i.e.,* the same approach used for commercial unitary air conditioning and heating equipment). DOE understands AHRI 920-2020 to represent the industry consensus position on testing DX-DOASes and has tentatively determined that furnaces installed in a DX-DOAS may result in differences in ratings

compared to testing units without these components. As such, DOE is proposing not to deviate from the approach taken in Section 2.4 of AHRI 920-2020 with respect to furnaces at this time and is therefore including furnaces in the optional features list specified in 10 CFR 429.43(a)(4).

DOE is proposing provisions in 10 CFR 429.134 regarding how DOE would assess compliance for basic models that include individual models distributed in commerce with specific components—these provisions would simply incorporate the representation provisions discussed above into DOE's product-specific enforcement provisions.

- If a basic model includes only individual models distributed in commerce with a specific component, or does not include any otherwise identical individual models without the specific component, DOE may assess compliance for the basic model based on testing an individual model with the component present (and consistent with any relevant proposed test procedure provisions in appendix B).
- If a basic model includes both individual models distributed in commerce with a specific component and otherwise identical individual models without the specific component, DOE will assess compliance for the basic model based on testing of an otherwise identical model within the basic model that does not include the component; except if DOE is not able to obtain such a model for testing. In such a case, DOE will assess compliance for the basic model based on testing of an individual model

with the specific component present (and consistent with any relevant proposed test procedure provisions in appendix B).

Were DOE to adopt the provisions in appendix B, 10 CFR 429.43, and 10 CFR 429.134 as proposed, DOE may consider adding certification reporting requirements in a separate rulemaking such that manufacturers would be required to certify which otherwise identical models are used for making representations of basic models that include individual models with specific components.

Issue-2: DOE requests comment on its proposals regarding specific components in appendix B, 10 CFR 429.43, and 10 CFR 429.134.

## IV. Procedural Issues and Regulatory Review

### *A. Review Under Executive Order 12866*

The Office of Management and Budget (OMB) has determined that this test procedure rulemaking does not constitute a "significant regulatory action" under section 3(f) of Executive Order 12866, "Regulatory Planning and Review," 58 FR 51735 (Oct. 4, 1993). Accordingly, this action was not subject to review under the Executive order by the Office of Information and Regulatory Affairs (OIRA) in OMB.

### *B. Review Under the Regulatory Flexibility Act*

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq*.) requires preparation of an initial regulatory flexibility analysis ("IRFA") for any rule that by law must be proposed for public comment, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. A regulatory flexibility analysis examines the impact of the rule on small entities and considers alternative ways of reducing negative effects. As required by Executive Order 13272, "Proper Consideration of Small Entities in Agency Rulemaking," 67 FR 53461 (August 16, 2002), DOE published procedures and policies on February 19, 2003 to ensure that the potential impacts of its rules on small entities are properly considered during the DOE rulemaking process. 68 FR 7990. DOE has made its procedures and policies available on the Office of the General Counsel's website: *www.energy.gov/gc/office-general-counsel.*

DOE reviewed this test procedure SNOPR pursuant to the Regulatory Flexibility Act and the procedures and policies previously discussed. DOE has concluded that this rule would not have a significant impact on a substantial number of small entities. The factual basis for this certification is set forth below.

Under 42 U.S.C. 6293, the statute sets forth the criteria and procedures DOE must follow when prescribing or amending test procedures for covered products. EPCA requires that any test procedures prescribed or amended under this section must be reasonably designed to produce test results which measure energy efficiency, energy use or estimated annual operating cost of a covered product during a representative average

use cycle or period of use and not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3))

Currently, DOE does not have a test procedure or energy conservation standards for DX-DOASes. DOE published a NOPR proposing to establish a test procedure for DX-DOASes on July 7, 2021. 86 FR 36018. DOE conducted an initial regulatory flexibility analysis ("IRFA") as part of the July 7, 2021 NOPR, and determined that there are three domestic small businesses that manufacture DX-DOASes. Based on stakeholder feedback, DOE has revised its small business count to one domestic small business that manufacturers DX-DOASes. DOE still tentatively concludes that the proposed test procedure in that NOPR would not present a significant burden to small manufacturers. 86 FR 36050.

In this SNOPR, DOE proposes the following:

- Revising proposed terminology, changing the "DX-DOAS" term proposed in the NOPR to "Unitary DOAS" (the category of commercial package air-conditioning and heating equipment) and the "DDX-DOAS" term proposed in the NOPR to "DX-DOAS" (the subcategory to which this test procedure applies); and
- Modifying the NOPR proposal to provide instructions on how representations shall be made for equipment with special components.
- Correcting the reference to the AHRI 1060-2018 test procedure.

The proposed test procedure amendments in this SNOPR would add no additional costs for small businesses because they align the test procedure definitions with those of industry test procedures and provide additional specific instruction for manufacturers. Therefore, DOE concludes that this SNOPR would not have a "significant economic impact on a substantial number of small entities," and that the preparation of an IRFA for this SNOPR is not warranted. DOE will transmit the certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the Small Business Administration for review under 5 U.S.C. 605(b).

*C. Review Under the Paperwork Reduction Act of 1995*

DOE's certification and compliance activities ensure accurate and comprehensive information about the energy and water use characteristics of covered products and covered equipment sold in the United States. Manufacturers of all covered products and covered equipment with applicable standards must submit a certification report before a basic model is distributed in commerce, annually thereafter, and if the basic model is redesigned in such a manner to increase the consumption or decrease the efficiency of the basic model such that the certified rating is no longer supported by the test data. Additionally, manufacturers must report when production of a basic model has ceased and is no longer offered for sale as part of the next annual certification report following such cessation. DOE requires the manufacturer of any covered product or covered equipment to establish, maintain, and retain the records of certification reports, of the underlying test data for all certification testing, and of any other testing conducted to satisfy the requirements of part 429, part 430, and/or part 431. Certification reports

provide DOE and consumers with comprehensive, up-to date efficiency information and support effective enforcement.

DOE is not proposing certification or reporting requirements for DX-DOASes in this NOPR. Certification of DX-DOAS would not be required until such time as DOE establishes DX-DOAS energy conservation standards and manufacturers are required to comply with those standards. DOE may consider proposals to establish certification requirements and reporting for DX-DOASes under a separate rulemaking regarding appliance and equipment certification. DOE will address changes to OMB Control Number 1910-1400 at that time, as necessary.

Notwithstanding any other provision of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the PRA, unless that collection of information displays a currently valid OMB Control Number.

*D. Review Under the National Environmental Policy Act of 1969*

In this SNOPR, DOE proposes test procedures that it expects will be used to develop and implement future energy conservation standards for DX-DOASes. DOE has determined that this proposed rule falls into a class of actions that are categorically excluded from review under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and DOE's implementing regulations at 10 CFR part 1021. Specifically, DOE has determined that adopting test procedures for measuring energy efficiency of consumer products and industrial equipment is consistent with activities identified in 10

CFR part 1021, appendix A to subpart D, A5 and A6. Accordingly, neither an environmental assessment nor an environmental impact statement is required.

*E. Review Under Executive Order 13132*

Executive Order 13132, "Federalism," 64 FR 43255 (August 4, 1999), imposes certain requirements on Federal agencies formulating and implementing policies or regulations that preempt State law or that have federalism implications. The Executive order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to carefully assess the necessity for such actions. The Executive order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. DOE has examined this proposed rule and has tentatively determined that it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the products that are the subject of this proposed rule. States can petition DOE for exemption from such preemption to the extent, and based on criteria, set forth in EPCA. (42 U.S.C. 6297(d)) No further action is required by Executive Order 13132.

*F. Review Under Executive Order 12988*

Regarding the review of existing regulations and the promulgation of new regulations, section 3(a) of Executive Order 12988, "Civil Justice Reform," 61 FR 4729 (Feb. 7, 1996), imposes on Federal agencies the general duty to adhere to the following requirements: (1) eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; (3) provide a clear legal standard for affected conduct rather than a general standard, and (4) promote simplification and burden reduction. Section 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) clearly specifies the preemptive effect, if any; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms, and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in sections 3(a) and 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, the proposed rule meets the relevant standards of Executive Order 12988.

*G. Review Under the Unfunded Mandates Reform Act of 1995*

Title II of the Unfunded Mandates Reform Act of 1995 ("UMRA") requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. . Pub. L. 104-4, sec. 201 (codified at 2 U.S.C. 1531). For a proposed regulatory action likely to result in a rule that may cause the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector of $100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed "significant intergovernmental mandate," and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect small governments. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820; also available at *www.energy.gov/gc/office-general-counsel*. DOE examined this proposed rule according to UMRA and its statement of policy and determined that the rule contains neither an intergovernmental mandate, nor a mandate that may result in the expenditure of $100 million or more in any year, so these requirements do not apply.

*H. Review Under the Treasury and General Government Appropriations Act, 1999*

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105-277) requires Federal agencies to issue a Family Policymaking Assessment

for any rule that may affect family well-being. This proposed rule would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

*I. Review Under Executive Order 12630*

DOE has determined, under Executive Order 12630, "Governmental Actions and Interference with Constitutionally Protected Property Rights," 53 FR 8859 (March 18, 1988), that this proposed regulation would not result in any takings that might require compensation under the Fifth Amendment to the U.S. Constitution.

*J. Review Under Treasury and General Government Appropriations Act, 2001*

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note) provides for agencies to review most disseminations of information to the public under guidelines established by each agency pursuant to general guidelines issued by OMB. OMB's guidelines were published at 67 FR 8452 (Feb. 22, 2002), and DOE's guidelines were published at 67 FR 62446 (Oct. 7, 2002). DOE has reviewed this proposed rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

*K. Review Under Executive Order 13211*

Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to OMB, a Statement of Energy Effects for any proposed significant energy action. A "significant energy action" is defined as any action by an agency that promulgated or is expected to lead to promulgation of a final rule, and that: (1) is a significant regulatory action under Executive Order 12866, or any successor order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (3) is designated by the Administrator of OIRA as a significant energy action. For any proposed significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use should the proposal be implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use.

The proposed regulatory action to adopt a test procedure for measuring the energy efficiency of DX-DOASes is not a significant regulatory action under Executive Order 12866. Moreover, it would not have a significant adverse effect on the supply, distribution, or use of energy, nor has it been designated as a significant energy action by the Administrator of OIRA. Therefore, it is not a significant energy action, and, accordingly, DOE has not prepared a Statement of Energy Effects.

*L. Review Under Section 32 of the Federal Energy Administration Act of 1974*

Under section 301 of the Department of Energy Organization Act (Pub. L. 95–91; 42 U.S.C. 7101), DOE must comply with section 32 of the Federal Energy

Administration Act of 1974, as amended by the Federal Energy Administration Authorization Act of 1977. (15 U.S.C. 788; "FEAA") Section 32 essentially provides in relevant part that, where a proposed rule authorizes or requires use of commercial standards, the notice of proposed rulemaking must inform the public of the use and background of such standards. In addition, section 32(c) requires DOE to consult with the Attorney General and the Chairman of the Federal Trade Commission ("FTC") concerning the impact of the commercial or industry standards on competition.

The proposed test procedure for DX-DOASes incorporate the following applicable industry consensus standards: AHRI 920-2020, AHRI 1060-2018, ANSI/ASHRAE 37-2009, ANSI/ASHRAE 41.1-2013, ANSI/ASHRAE 41.6-2014, and ANSI/ASHRAE 198-2013. DOE has evaluated these standards and is unable to conclude whether they fully comply with the requirements of section 32(b) of the FEAA (*i.e.*, whether they were developed in a manner that fully provides for public participation, comment, and review). DOE will consult with both the Attorney General and the Chairman of the FTC concerning the impact of these test procedures on competition, prior to prescribing a final rule.

*M. Description of Materials Incorporated by Reference*

In this SNOPR, DOE maintains its previous proposal to incorporate by reference the following test standards:

(1) The test standard *published* by AHRI, titled "2020 Standard for Performance Rating of DX-Dedicated Outdoor Air System Units," AHRI Standard 920-2020 (I-P). AHRI Standard 920-2020 (I-P) is an industry-accepted test procedure for measuring the performance of DX-dedicated outdoor air system units. AHRI Standard 920-2020 (I-P) is available on AHRI's website at: *www.ahrinet.org/App_Content/ahri/files/STANDARDS/AHRI/AHRI_Standard_920_I-P_2020.pdf.*

(2) The test standard published by AHRI, titled "2018 Standard for Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment," AHRI Standard 1060-2018. AHRI Standard 1060-2018 is an industry-accepted test procedure for measuring the performance of air-to-air exchangers for energy recovery ventilation equipment. AHRI Standard 1060-2018 is available on AHRI's website at: *www.ahrinet.org/App_Content/ahri/files/STANDARDS/AHRI/AHRI_Standard_1060_I-P_2018.pdf.*

(3) The test standard test standard published by ASHRAE, titled "Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment," ANSI/ASHRAE Standard 37-2009. ANSI/ASHRAE Standard 37-2009 is an industry-accepted test procedure for measuring the performance of electrically driven unitary air-conditioning and heat pump equipment. ANSI/ASHRAE Standard 37-2009 is available on ASHRAE's website (in partnership with Techstreet) at: *www.techstreet.com/ashrae/standards/ashrae-37-2009?product_id=1650947.*

(4) The test standard published by ASHRAE, titled "Standard Method for Temperature Measurement," ANSI/ASHRAE Standard 41.1-2013. ANSI/AHRAE Standard 41.1-2013 is an industry-accepted test procedure for measuring temperature. ANSI/ASHRAE Standard 41.1-2013 is available on ASHRAE's website (in partnership with Techstreet) at: *www.techstreet.com/ashrae/standards/ashrae-41-1-2013?product_id=1853241*.

(5) The test standard published by ASHRAE, titled "Standard Method for Humidity Measurement," ANSI/ASHRAE Standard 41.6-2014. ANSI/AHRAE Standard 41.6-2014 is an industry-accepted test procedure for measuring humidity. ANSI/ASHRAE Standard 41.6-2014 is available on ASHRAE's website (in partnership with Techstreet) at:

*www.techstreet.com/ashrae/standards/ashrae-41-6-2014?product_id=1881840*

(6) The test standard published by ASHRAE, titled "Method for Test for Rating DX-Dedicated Outdoor Air Systems for Moisture Removal Capacity and Moisture Removal Efficiency," ANSI/ASHRAE Standard 198-2013. ANSI/ASHRAE Standard 198-2013 is an industry-accepted test procedure for measuring the performance of DX-dedicated outdoor air system units. ANSI/ASHRAE Standard 198-2013 is available on ASHRAE's website (in partnership with Techstreet) at: *www.techstreet.com/ashrae/standards/ashrae-198-2013?product_id=1852612*.

## V. Public Participation

### *A. Submission of Comments*

DOE will accept comments, data, and information regarding this proposed rule no later than the date provided in the **DATES** section at the beginning of this proposed rule. Interested parties may submit comments using any of the methods described in the **ADDRESSES** section at the beginning of this document.

*Submitting comments via www.regulations.gov.* The *www.regulations.gov* webpage will require you to provide your name and contact information. Your contact information will be viewable to DOE Building Technologies staff only. Your contact information will not be publicly viewable except for your first and last names, organization name (if any), and submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. Persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to *www.regulations.gov* information for which disclosure is restricted by statute, such as trade secrets and commercial or financial information (hereinafter referred to as Confidential Business Information (CBI)). Comments submitted through *www.regulations.gov* cannot be claimed as CBI. Comments received through the website will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section.

DOE processes submissions made through *www.regulations.gov* before posting. Normally, comments will be posted within a few days of being submitted. However, if large volumes of comments are being processed simultaneously, your comment may not be viewable for up to several weeks. Please keep the comment tracking number that *www.regulations.gov* provides after you have successfully uploaded your comment.

*Submitting comments via email.* Comments and documents submitted via email also will be posted to *www.regulations.gov*. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information in a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. The cover letter will not be publicly viewable as long as it does not include any comments.

Include contact information each time you submit comments, data, documents, and other information to DOE. No telefacsimiles (faxes) will be accepted.

Comments, data, and other information submitted to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, written in English, and free of any defects or viruses. Documents should not contain special characters or any form of encryption, and, if possible, they should carry the electronic signature of the author.

*Campaign form letters*. *Please* submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

*Confidential Business Information*. Pursuant to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email two well-marked copies: one copy of the document marked "confidential" including all the information believed to be confidential, and one copy of the document *marked* "non-confidential" with the information believed to be confidential deleted. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

*B. Issues on Which DOE Seeks Comment*

Although DOE welcomes comments on any aspect of this proposal, DOE is particularly interested in receiving comments and views of interested parties concerning the following issues:

Issue-1: DOE seeks comment on the revised terms for Unitary DOAS and DX-DOAS, which replace the terms DX-DOAS and DDX-DOAS in the July 2021 NOPR, respectively.

Issue-2: DOE requests comment on its proposals regarding specific components in appendix B, 10 CFR 429.43, and 10 CFR 429.134.

## VI. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this supplemental notice of proposed rulemaking and request for comment.

**List of Subjects**

**10 CFR Part 429**

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

**10 CFR Part 431**

Administrative practice and procedure, Confidential business information, Energy conservation, Incorporation by reference, Reporting and recordkeeping requirements.

**Signing Authority**

This document of the Department of Energy was signed on December 14, 2021, by Kelly J. Speakes-Backman, Principal Deputy Assistant Secretary for Energy Efficiency and Renewable Energy, pursuant to delegated authority from the Secretary of Energy. That document with the original signature and date is maintained by DOE. For administrative purposes only, and in compliance with requirements of the Office of the Federal Register, the undersigned DOE Federal Register Liaison Officer has been authorized to sign and submit the document in electronic format for publication, as an official document of the Department of Energy. This administrative process in no way alters the legal effect of this document upon publication in the *Federal Register*.

Signed in Washington, DC, on December 14, 2021

X Kelly Speakes-Backman Digitally signed by Kelly Speakes-Backman Date: 2021.12.14 12:55:54 -05'00'

Kelly J. Speakes-Backman
Principal Deputy Assistant Secretary
Energy Efficiency and Renewable Energy

For the reasons stated in the preamble, DOE is proposing to amend parts 429 and 431 of chapter II of title 10, Code of Federal Regulations as set forth below:

**PART 429 – CERTIFICATION, COMPLIANCE, AND ENFORCEMENT FOR CONSUMER PRODUCTS AND COMMERCIAL AND INDUSTRIAL EQUIPMENT**

1. The authority citation for part 429 continues to read as follows:

**Authority**: 42 U.S.C. 6291–6317; 28 U.S.C. 2461 note.

2. Amend § 429.43 by adding paragraphs (a)(3) and (4) to read as follows:

**§429.43 Commercial heating, ventilating, air conditioning (HVAC) equipment.**

(a) * * *

(3) *Refrigerants*. For direct expansion-dedicated outdoor air systems (DX-DOASes), if a basic model is distributed in commerce for which the manufacturer specifies the use of more than one refrigerant option, the ISMRE2 and ISCOP2, as applicable, are determined for that basic model using the refrigerant that results in the lowest ISMRE2 and the refrigerant that results in the lowest ISCOP2, as applicable. For

example, the dehumidification performance metric ISMRE2 must be based on the refrigerant yielding the lowest ISMRE2, and the heating performance metric ISCOP2 (if the unit is a heat pump DX-DOAS) must be based on the refrigerant yielding the lowest ISCOP2. A refrigerant is considered approved for use if it is listed on the nameplate of the single package unit or outdoor unit. Pursuant to the definition of "basic model" in § 431.92 of this chapter, specification of an additional refrigerant option that requires use of different hardware (*i.e.*, compressors, heat exchangers, or air moving systems that are not the same or comparably performing), results in a different basic model.

(4) *Determination of represented values for individual models with specific components for DX-DOAS equipment.*

(i) If a manufacturer distributes in commerce individual models with one of the components listed in the following table, determination of represented values is dependent on the selected grouping of individual models into a basic model, as indicated in paragraphs (a)(4)(ii) through (v) of this section. For the purposes of this paragraph, "otherwise identical" means differing only in the presence of specific components listed in table 1 to paragraph (a)(4)(i).

**Table 1 to paragraph (a)(4)(i)**

| **Component** | **Description** |
|---|---|
| Furnaces and Steam/Hydronic Heat Coils | Furnaces and steam/hydronic heat coils used to provide primary or supplementary heating. |
| Ducted Condenser Fans | A condenser fan/motor assembly designed for optional external ducting of condenser air that provides greater pressure rise and has a higher rated motor horsepower than the condenser fan provided as a standard component with the equipment. |

| | |
|---|---|
| Sound Traps/Sound Attenuators | An assembly of structures through which the supply air passes before leaving the equipment or through which the return air from the building passes immediately after entering the equipment, for which the sound insertion loss is at least 6 dB for the 125 Hz octave band frequency range |
| VERS Preheat | Electric resistance, hydronic, or steam heating coils used for preheating outdoor air entering a VERS. |

(ii) If a basic model includes only individual models distributed in commerce without a specific component listed in paragraph (a)(4)(i) of this section, the manufacturer must determine represented values for the basic model based on performance of an individual model distributed in commerce without the component.

(iii) If a basic model includes only individual models distributed in commerce with a specific component listed in paragraph (a)(4)(i) of this section, the manufacturer must determine represented values for the basic model based on performance of an individual model with the component present (and consistent with any component-specific test provisions specified in section 2.2.2 of appendix B to subpart F of part 431).

(iv) If a basic model includes both individual models distributed in commerce with a specific component listed in paragraph (a)(4)(i) of this section and individual models distributed in commerce without that specific component, and none of the individual models distributed in commerce without the specific component are otherwise identical to any given individual model distributed in commerce with the specific component, the manufacturer must consider the performance of individual models with the component present when determining represented values for the basic model (and consistent with any component-specific test provisions specified in section 2.2.2 of appendix B to subpart F of part 431).

(v) If a basic model includes both individual models distributed in commerce with a specific component listed in paragraph (a)(4)(i) of this section and individual models distributed in commerce without that specific component, and at least one of the individual models distributed in commerce without the specific component is otherwise identical to any given individual model distributed in commerce with the specific component, the manufacturer may determine represented values for the basic model either:

(A) Based on performance of an individual model distributed in commerce without the specific component, or

(B) Based on performance of an individual model with the specific component present (and consistent with any component-specific test provisions specified in section 2.2.2 of appendix B to subpart F of part 431).

(vi) In any of the cases specified in paragraphs (a)(4)(ii) through (v), the represented values for a basic model must be determined through either testing (§429.43(a)(1)) or an AEDM (§429.43(a)(2)).

* * * * *

3. Amend § 429.70 by revising the tables in paragraphs (c)(2)(iv) and (c)(5)(vi)(B) to read as follows:

**§429.70 Alternative methods for determining energy efficiency and energy use.**

* * * * *

(c) * * *

(2) * * *

(iv) * * *

| Validation Class | Minimum Number of Distinct Models that Must be Tested Per AEDM |
|---|---|
| Air-Cooled, Split and Packaged Air Conditioners (ACs) and Heat Pumps (HPs) less than 65,000 Btu/h Cooling Capacity (3-Phase) | 2 Basic Models. |
| (A) Commercial HVAC Validation Classes | |
| Air-Cooled, Split and Packaged ACs and HPs greater than or equal to 65,000 Btu/h Cooling Capacity and Less than 760,000 Btu/h Cooling Capacity | 2 Basic Models. |
| Water-Cooled, Split and Packaged ACs and HPs, All Cooling Capacities | 2 Basic Models. |
| Evaporatively-Cooled, Split and Packaged ACs and HPs, All Capacities | 2 Basic Models. |
| Water-Source HPs, All Capacities | 2 Basic Models. |
| Single Package Vertical ACs and HPs | 2 Basic Models. |
| Packaged Terminal ACs and HPs | 2 Basic Models. |
| Air-Cooled, Variable Refrigerant Flow ACs and HPs | 2 Basic Models. |
| Water-Cooled, Variable Refrigerant Flow ACs and HPs | 2 Basic Models. |
| Computer Room Air Conditioners, Air Cooled | 2 Basic Models. |
| Computer Room Air Conditioners, Water-Cooled | 2 Basic Models. |
| Direct Expansion-Dedicated Outdoor Air Systems, Air-cooled or Air-source Heat Pump, Without Ventilation Energy Recovery Systems | 2 Basic Models. |
| Direct Expansion-Dedicated Outdoor Air Systems, Air-cooled or Air-source Heat Pump, With Ventilation Energy Recovery Systems | 2 Basic Models. |
| Direct Expansion-Dedicated Outdoor Air Systems, Water-cooled, Water-source Heat Pump, or Ground Source Closed-loop Heat Pump, Without Ventilation Energy Recovery Systems | 2 Basic Models. |
| Direct Expansion-Dedicated Outdoor Air Systems, Water-cooled, Water-source Heat Pump, or Ground Source Closed-loop Heat Pump, With Ventilation Energy Recovery Systems | 2 Basic Models. |
| (B) Commercial Water Heater Validation Classes | |
| Gas-fired Water Heaters and Hot Water Supply Boilers Less than 10 Gallons | 2 Basic Models. |
| Gas-fired Water Heaters and Hot Water Supply Boilers Greater than or Equal to 10 Gallons | 2 Basic Models. |
| Oil-fired Water Heaters and Hot Water Supply Boilers Less than 10 Gallons | 2 Basic Models. |

| | |
|---|---|
| Oil-fired Water Heaters and Hot Water Supply Boilers Greater than or Equal to 10 Gallons | 2 Basic Models. |
| Electric Water Heaters | 2 Basic Models. |
| Heat Pump Water Heaters | 2 Basic Models. |
| Unfired Hot Water Storage Tanks | 2 Basic Models. |
| (C) Commercial Packaged Boilers Validation Classes | |
| Gas-fired, Hot Water Only Commercial Packaged Boilers | 2 Basic Models. |
| Gas-fired, Steam Only Commercial Packaged Boilers | 2 Basic Models. |
| Gas-fired Hot Water/Steam Commercial Packaged Boilers | 2 Basic Models. |
| Oil-fired, Hot Water Only Commercial Packaged Boilers | 2 Basic Models. |
| Oil-fired, Steam Only Commercial Packaged Boilers | 2 Basic Models. |
| Oil-fired Hot Water/Steam Commercial Packaged Boilers | 2 Basic Models. |
| (D) Commercial Furnace Validation Classes | |
| Gas-fired Furnaces | 2 Basic Models. |
| Oil-fired Furnaces | 2 Basic Models. |
| (E) Commercial Refrigeration Equipment Validation Classes[1] | |
| Self-Contained Open Refrigerators | 2 Basic Models. |
| Self-Contained Open Freezers | 2 Basic Models. |
| Remote Condensing Open Refrigerators | 2 Basic Models. |
| Remote Condensing Open Freezers | 2 Basic Models. |
| Self-Contained Closed Refrigerators | 2 Basic Models. |
| Self-Contained Closed Freezers | 2 Basic Models. |
| Remote Condensing Closed Refrigerators | 2 Basic Models. |
| Remote Condensing Closed Freezers | 2 Basic Models. |

[1] The minimum number of tests indicated above must be comprised of a transparent model, a solid model, a vertical model, a semi-vertical model, a horizontal model, and a service-over-the counter model, as applicable based on the equipment offering. However, manufacturers do not need to include all types of these models if it will increase the minimum number of tests that need to be conducted.

* * * * *

(5) * * *

(vi) * * *

(B) * * *

| Equipment | Metric | Applicable Tolerance |
|---|---|---|
| Commercial Packaged Boilers | Combustion Efficiency<br>Thermal Efficiency | 5% (0.05)<br>5% (0.05) |
| Commercial Water Heaters or Hot Water Supply Boilers | Thermal Efficiency<br>Standby Loss | 5% (0.05)<br>10% (0.1) |
| Unfired Storage Tanks | R-Value | 10% (0.1) |
| Air-Cooled, Split and Packaged ACs and HPs less than 65,000 Btu/h Cooling Capacity (3-Phase) | Seasonal Energy-Efficiency Ratio<br>Heating Season Performance Factor<br>Energy Efficiency Ratio | 5% (0.05)<br>5% (0.05)<br>10% (0.1) |
| Air-Cooled, Split and Packaged ACs and HPs greater than or equal to 65,000 Btu/h Cooling Capacity and Less than 760,000 Btu/h Cooling Capacity | Energy Efficiency Ratio<br>Coefficient of Performance<br>Integrated Energy Efficiency Ratio | 5% (0.05)<br>5% (0.05)<br>10% (0.1) |
| Water-Cooled, Split and Packaged ACs and HPs, All Cooling Capacities | Energy Efficiency Ratio<br>Coefficient of Performance<br>Integrated Energy Efficiency Ratio | 5% (0.05)<br>5% (0.05)<br>10% (0.1) |
| Evaporatively-Cooled, Split and Packaged ACs and HPs, All Capacities | Energy Efficiency Ratio<br>Coefficient of Performance<br>Integrated Energy Efficiency Ratio | 5% (0.05)<br>5% (0.05)<br>10% (0.1) |
| Water-Source HPs, All Capacities | Energy Efficiency Ratio<br>Coefficient of Performance<br>Integrated Energy Efficiency Ratio | 5% (0.05)<br>5% (0.05)<br>10% (0.1) |
| Single Package Vertical ACs and HPs | Energy Efficiency Ratio<br>Coefficient of Performance | 5% (0.05)<br>5% (0.05) |
| Packaged Terminal ACs and HPs | Energy Efficiency Ratio<br>Coefficient of Performance | 5% (0.05)<br>5% (0.05) |
| Variable Refrigerant Flow ACs and HPs | Energy Efficiency Ratio<br>Coefficient of Performance<br>Integrated Energy Efficiency Ratio | 5% (0.05)<br>5% (0.05)<br>10% (0.1) |
| Computer Room Air Conditioners | Net Sensible Coefficient of Performance | 5% (0.05) |
| Direct Expansion-Dedicated Outdoor Air Systems | Integrated Seasonal Coefficient of Performance 2<br>Integrated Seasonal Moisture Removal Efficiency 2 | 10% (0.1)<br>10% (0.1) |
| Commercial Warm-Air Furnaces | Thermal Efficiency | 5% (0.05) |
| Commercial Refrigeration Equipment | Daily Energy Consumption | 5% (0.05) |

* * * * *

4. Amend § 429.134 by adding paragraph (s) to read as follows:

**§429.134 Product-specific enforcement provisions.**

* * * * *

(s) *Direct Expansion- Dedicated Outdoor Air Systems.* The following provisions apply for assessment and enforcement testing of models subject to standards in terms of ISMRE2 or ISCOP2:

(1) *Specific Components*. For basic models that include individual models distributed in commerce with any of the specific components listed at §429.43(a)(4)(i), the following provisions apply. For the purposes of this paragraph, "otherwise identical" means differing only in the presence of specific components listed at §429.43(a)(4)(i).

(i) If the basic model includes only individual models distributed in commerce with a specific component, or does not include any otherwise identical individual models without the specific component, DOE may assess compliance for the basic model based on testing of an individual model with the component present (and consistent with any component-specific test provisions specified in section 2.2.2 of appendix B to subpart F of 431).

(ii) If the basic model includes both individual models distributed in commerce with a specific component and otherwise identical individual models without the specific component, DOE will assess compliance for the basic model based on testing an otherwise identical model within the basic model that does not include the component, unless DOE is not able, through documented reasonable effort, to obtain an individual model for testing that does not include the component. In such a situation, DOE will assess compliance for the basic model based on testing of an individual model with the specific component present (and consistent with any component-specific test provisions specified in section 2.2.2 of appendix B to subpart F of 431).

**PART 431 – ENERGY EFFICIENCY PROGRAM FOR CERTAIN COMMERCIAL AND INDUSTRIAL EQUIPMENT**

4. The authority citation for part 431 continues to read as follows:

**Authority**: 42 U.S.C. 6291-6317; 28 U.S.C. 2461 note.

5. Amend §431.2 by revising the definition of "Commercial HVAC & WH product" to read as follows:

**§431.2 Definitions.**

* * * * *

*Commercial HVAC & WH product* means any small, large, or very large commercial package air-conditioning and heating equipment (as defined in §431.92), packaged terminal air conditioner (as defined in §431.92), packaged terminal heat pump (as defined in §431.92), single package vertical air conditioner (as defined in §431.92), single package vertical heat pump (as defined in §431.92), computer room air conditioner (as defined in §431.92), variable refrigerant flow multi-split air conditioner (as defined in §431.92), variable refrigerant flow multi-split heat pump (as defined in §431.92), unitary dedicated outdoor air system (as defined in §431.92), commercial packaged boiler (as defined in §431.82), hot water supply boiler (as defined in §431.102), commercial warm air furnace (as defined in §431.72), instantaneous water heater (as defined in §431.102), storage water heater (as defined in §431.102), or unfired hot water storage tank (as defined in §431.102).

*  *  *  *  *

6. Amend §431.92 by:

a. Revising the definition of "Basic model"; and

b. Adding, in alphabetical order, the definitions of "Direct expansion-dedicated outdoor air system, or DX-DOAS," ''Integrated seasonal coefficient of performance 2, or ISCOP2,'' ''Integrated seasonal moisture removal efficiency 2, or ISMRE2,'' "Unitary dedicated outdoor air system, or Unitary DOAS," and ''Ventilation energy recovery system, or VERS''.

The revisions and additions read as follows:

**§431.92 Definitions concerning commercial air conditioners and heat pumps.**

*  *  *  *  *

*Basic model* includes:

(1) *Computer room air conditioners* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparably performing compressor(s), heat exchangers, and air moving system(s) that have a common ''nominal'' cooling capacity.

(2) *Direct expansion-dedicated outdoor air system* means all units manufactured by one manufacturer, having the same primary energy source (*e.g.*, electric or gas),

within a single equipment class; with the same or comparably performing compressor(s), heat exchangers, ventilation energy recovery system(s) (if present), and air moving system(s) that have a common "nominal" moisture removal capacity.

(3) *Packaged terminal air conditioner (PTAC) or packaged terminal heat pump (PTHP)* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparable compressors, same or comparable heat exchangers, and same or comparable air moving systems that have a cooling capacity within 300 Btu/h of one another.

(4) *Single package vertical units* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparably performing compressor(s), heat exchangers, and air moving system(s) that have a rated cooling capacity within 1500 Btu/h of one another.

(5) *Small, large, and very large aircooled or water-cooled commercial package air conditioning and heating equipment* means all units manufactured by one manufacturer within a single equipment class, having the same or comparably performing compressor(s), heat exchangers, and air moving system(s) that have a common ''nominal'' cooling capacity.

(6) *Small, large, and very large water source heat pump* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparable

compressors, same or comparable heat exchangers, and same or comparable ''nominal'' capacity.

(7) *Variable refrigerant flow systems* means all units manufactured by one manufacturer within a single equipment class, having the same primary energy source (e.g., electric or gas), and which have the same or comparably performing compressor(s) that have a common ''nominal'' cooling capacity and the same heat rejection medium (e.g., air or water) (includes VRF water source heat pumps).

* * * * *

*Direct expansion*-dedicated *outdoor air system,* or *DX-DOAS,* means a unitary dedicated outdoor air system that is capable of dehumidifying air to a 55 ºF dew point—when operating under Standard Rating Condition A as specified in Table 4 or Table 5 of AHRI 920-2020 (incorporated by reference, see §431.95) with a barometric pressure of 29.92 in Hg—for any part of the range of airflow rates advertised in manufacturer materials, and has a moisture removal capacity of less than 324 lb/h.

* * * * *

*Integrated seasonal coefficient of performance 2, or ISCOP2*, means a seasonal weighted-average heating efficiency for heat pump dedicated outdoor air systems, expressed in W/W, as measured according to appendix B of this subpart.

*Integrated seasonal moisture removal efficiency 2, or ISMRE2*, means a seasonal weighted average dehumidification efficiency for dedicated outdoor air systems, expressed in lbs. of moisture/kWh, as measured according to appendix B of this subpart.

*  *  *  *  *

*Unitary dedicated outdoor air system*, or *Unitary DOAS*, means a category of small, large, or very large commercial package air-conditioning and heating equipment that is capable of providing ventilation and conditioning of 100-percent outdoor air or marketed in materials (including but not limited to, specification sheets, insert sheets, and online materials) as having such capability.

*  *  *  *  *

*Ventilation energy recovery system, or VERS,* means a system that preconditions outdoor ventilation air entering the equipment through direct or indirect thermal and/or moisture exchange with the exhaust air, which is defined as the building air being exhausted to the outside from the equipment.

*  *  *  *  *

7. Section 431.95 is amended by:

a. Revising paragraph (a) and the introductory text to paragraph (b);

b. Redesignating paragraphs (b)(6) and (7) as (b)(8) and (9);

c. Adding new paragraphs (b)(6) and (7);

d. Revising the introductory text to paragraph (c) and paragraph (c)(2);

e. Redesignating paragraphs (c)(3) and (4) as (c)(5) and (6); and

f. Adding new paragraphs (c)(3), (4), and (7).

The revisions and additions read as follows:

**§431.95 Materials incorporated by reference.**

(a) Certain material is incorporated by reference into this subpart with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, DOE must publish a document in the Federal Register and the material must be available to the public. All approved material is available for inspection at the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, 6th Floor, 950 L'Enfant Plaza SW, Washington, DC 20024, (202) 586-1445, *Buildings@ee.doe.gov* or go to: *https://www.energy.gov/eere/buildings/building-technologies-office*, and may be obtained from the other sources in this section. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: *fr.inspection@nara.gov* , *or go www to:.archives.gov/federal-register/cfr/ibr-locations.html.*

(b) *AHRI.* Air-Conditioning, Heating, and Refrigeration Institute, 2311 Wilson Blvd., Suite 400, Arlington, VA 22201, (703) 524–8800, or go to: *www.ahrinet.org*.

* * * * *

(6) AHRI Standard 920–2020 (I–P), (''AHRI 920–2020''), ''2020 Standard for Performance Rating of DX-Dedicated Outdoor Air System Units,'' approved February 4, 2020, IBR approved for appendix B to this subpart.

(7) AHRI Standard 1060-2018, ("AHRI 1060-2018"), "2018 Standard for *Performance Rating of Air-to-Air Exchangers for Energy Recovery Ventilation Equipment*," approved 2018, IBR approved for appendix B of this subpart.

(c) *ASHRAE*. American Society of Heating, Refrigerating and Air-Conditioning Engineers, 180 Technology Parkway, Peachtree Corners, Georgia 30092, (404) 636–8400, or go to: *www.ashrae.org*.

* * * * *

(2) ANSI/ASHRAE Standard 37–2009, (''ANSI/ASHRAE 37'' or ''ANSI/ASHRAE 37–2009''), ''Methods of Testing for Rating Electrically Driven Unitary Air-Conditioning and Heat Pump Equipment,'' ASHRAE approved June 24, 2009, IBR approved for § 431.96 and appendices A and B to this subpart.

(3) ANSI/ASHRAE Standard 41.1– 2013, (''ANSI/ASHRAE 41.1–2013''), ''Standard Method for Temperature Measurement,'' ANSI approved January 30, 2013, IBR approved for appendix B to this subpart.

(4) ANSI/ASHRAE Standard 41.6– 2014, (''ANSI/ASHRAE 41.6–2014''), ''Standard Method for Humidity Measurement,'' ANSI approved July 3, 2014, IBR approved for appendix B to this subpart.

* * * * *

(7) ANSI/ASHRAE Standard 198– 2013, (''ANSI/ASHRAE 198–2013''), ''Method of Test for Rating DX Dedicated Outdoor Air Systems for Moisture Removal

Capacity and Moisture Removal Efficiency,'' approved by ANSI on January 30, 2013, IBR approved for appendix B to this subpart.

* * * * *

8. Amend § 431.96 by revising paragraph (a) and Table 1 in paragraph (b)(2), to read as follows:

**§431.96 Uniform test method for the measurement of energy efficiency of commercial air conditioners and heat pumps.**

(a) *Scope.* This section contains test procedures for measuring, pursuant to EPCA, the energy efficiency of any small, large, or very large commercial package air-conditioning and heating equipment, packaged terminal air conditioners and packaged terminal heat pumps, computer room air conditioners, variable refrigerant flow systems, single package vertical air conditioners and single package vertical heat pumps, and direct expansion-dedicated outdoor air systems.

(b) * * *

(2) * * *

**Table 1 to §431.96—Test Procedures for Commercial Air Conditioners and Heat Pumps**

| Equipment type | Category | Cooling capacity or moisture | Energy efficiency descriptor | Use tests, conditions, and | Additional test procedure provisions as indicated in |
|---|---|---|---|---|---|

| | | **removal capacity** | | **procedures[1] in** | **the listed paragraphs of this section** |
|---|---|---|---|---|---|
| Small Commercial Package Air-Conditioning and Heating Equipment | Air-Cooled, 3-Phase, AC and HP | <65,000 Btu/h | SEER and HSPF | AHRI 210/240-2008 (omit section 6.5) | Paragraphs (c) and (e). |
| | Air-Cooled AC and HP | ≥65,000 Btu/h and <135,000 Btu/h | EER, IEER, and COP | Appendix A to this subpart | None. |
| | Water-Cooled and Evaporatively-Cooled AC | <65,000 Btu/h | EER | AHRI 210/240-2008 (omit section 6.5) | Paragraphs (c) and (e). |
| | | ≥65,000 Btu/h and <135,000 Btu/h | EER | AHRI 340/360-2007 (omit section 6.3) | Paragraphs (c) and (e). |
| | Water-Source HP | <135,000 Btu/h | EER and COP | ISO Standard 13256-1 (1998) | Paragraph (e). |
| Large Commercial Package Air-Conditioning and Heating Equipment | Air-Cooled AC and HP | ≥135,000 Btu/h and <240,000 Btu/h | EER, IEER and COP | Appendix A to this subpart | None. |
| | Water-Cooled and Evaporatively-Cooled AC | ≥135,000 Btu/h and <240,000 Btu/h | EER | AHRI 340/360-2007 (omit section 6.3) | Paragraphs (c) and (e). |
| Very Large Commercial Package Air-Conditioning and Heating Equipment | Air-Cooled AC and HP | ≥240,000 Btu/h and <760,000 Btu/h | EER, IEER and COP | Appendix A to this subpart | None. |

| | | | | | |
|---|---|---|---|---|---|
| | Water-Cooled and Evaporatively-Cooled AC | ≥240,000 Btu/h and <760,000 Btu/h | EER | AHRI 340/360-2007 (omit section 6.3) | Paragraphs (c) and (e). |
| Packaged Terminal Air Conditioners and Heat Pumps | AC and HP | <760,000 Btu/h | EER and COP | Paragraph (g) of this section | Paragraphs (c), (e), and (g). |
| Computer Room Air Conditioners | AC | <65,000 Btu/h | SCOP | ASHRAE 127-2007 (omit section 5.11) | Paragraphs (c) and (e). |
| | | ≥65,000 Btu/h and <760,000 Btu/h | SCOP | ASHRAE 127-2007 (omit section 5.11) | Paragraphs (c) and (e). |
| Variable Refrigerant Flow Multi-split Systems | AC | <65,000 Btu/h (3-phase) | SEER | AHRI 1230-2010 (omit sections 5.1.2 and 6.6) | Paragraphs (c), (d), (e), and (f). |
| | | ≥65,000 Btu/h and <760,000 Btu/h | EER | AHRI 1230-2010 (omit sections 5.1.2 and 6.6) | Paragraphs (c), (d), (e), and (f). |
| Variable Refrigerant Flow Multi-split Systems, Air-cooled | HP | <65,000 Btu/h (3-phase) | SEER and HSPF | AHRI 1230-2010 (omit sections 5.1.2 and 6.6) | Paragraphs (c), (d), (e), and (f). |
| | | ≥65,000 Btu/h and <760,000 Btu/h | EER and COP | AHRI 1230-2010 (omit sections 5.1.2 and 6.6) | Paragraphs (c), (d), (e), and (f). |
| Variable Refrigerant Flow Multi-split Systems, Water-source | HP | <760,000 Btu/h | EER and COP | AHRI 1230-2010 (omit sections 5.1.2 and 6.6) | Paragraphs (c), (d), (e), and (f). |
| Single Package Vertical Air Conditioners | AC and HP | <760,000 Btu/h | EER and COP | AHRI 390-2003 (omit section 6.4) | Paragraphs (c) and (e). |

| | | | | | |
|---|---|---|---|---|---|
| and Single Package Vertical Heat Pumps | | | | | |
| Direct Expansion-Dedicated Outdoor Air Systems | All | <324 lbs. of moisture removal/hr | ISMRE2 and ISCOP2 | Appendix B of this subpart | None. |

[1] Incorporated by reference; see §431.95.

[2] Moisture removal capacity is determined according to appendix B of this subpart.

* * * * *

9. Add Appendix B to subpart F of part 431 to read as follows:

**Appendix B to Subpart F of Part 431—Uniform Test Method For Measuring the Energy Consumption of Direct Expansion-Dedicated Outdoor Air Systems**

Note: Beginning [date 360 days after publication of a test procedure final rule], representations with respect to energy use or efficiency of direct expansion-dedicated outdoor air systems must be based on testing conducted in accordance with this appendix. Manufacturers may elect to use this appendix early.

*1. Referenced materials.*

*1.1 Incorporation by reference.*

DOE incorporated by reference in §431.95, the entire standard for AHRI 920-2020, AHRI 1060-2018; ANSI/ASHRAE 37-2009, ANSI/ASHRAE 41.1-2013, ANSI/ASHRAE 41.6-2014, and ANSI/ASHRAE 198-2013. However, only

enumerated provisions of AHRI 920-2020, ANSI/ASHRAE 37-2009, ANSI/ASHRAE 41.6-2014, and ANSI/ASHRAE 198-2013, as set forth in paragraphs (a) through (d) of this section are applicable. To the extent there is a conflict between the terms or provisions of a referenced industry standard and the CFR, the CFR provisions control.

(a) AHRI 920-2020:

(i) Section 3 – Definitions, as specified in section 2.2.1(a) of this appendix;

(ii) Section 5 – Test Requirements, as specified in section 2.2.1(b) of this appendix;

(iii) Section 6 – Rating Requirements, as specified in section 2.2.1(c) of this appendix, omitting section 6.1.2 (but retaining sections 6.1.2.1-6.1.2.8) and 6.6.1;

(iv) Section 11 – Symbols and Subscripts, as specified in section 2.2.1(d) of this appendix;

(v) Appendix A – References – Normative, as specified in section 2.2.1(e) of this appendix;

(vi) Appendix C – ANSI/ASHRAE Standard 198 and ANSI/ASHRAE Standard 37 Additions, Clarifications and Exceptions – Normative, as specified in section 2.2.1(f) of this appendix, and

(b) ANSI/ASHRAE 37-2009:

(i) Section 5.1—Temperature Measuring Instruments (excluding sections 5.1.1 and 5.1.2), as specified in sections 2.2.1(b) and (f) of this appendix;

(ii) Section 5.2—Refrigerant, Liquid, and Barometric Pressure Measuring Instruments, as specified in section 2.2.1(b) of this appendix;

(iii) Sections 5.3—Air Differential Pressure and Airflow Measurements, as specified in section 2.2.1(b) of this appendix;

(iv) Sections 5.5(b)—Volatile Refrigerant Measurement, as specified in section 2.2.1(b) of this appendix;

(iv) Section 6.1—Enthalpy Apparatus (excluding 6.1.1 and 6.1.3 through 6.1.6), as specified in section 2.2.1(b) of this appendix;

(v) Section 6.2—Nozzle Airflow Measuring Apparatus, as specified in section 2.2.1(b) of this appendix;

(vi) Section 6.3—Nozzles, as specified in section 2.2.1(b) of this appendix;

(vii) Section 6.4—External Static Pressure Measurements, as specified in section 2.2.1(b) of this appendix;

(ix) Section 6.5—Recommended Practices for Static Pressure Measurements, as specified in section 2.2.1(f) of this appendix;

(x) Section 7.3—Indoor and Outdoor Air Enthalpy Methods, as specified in section 2.2.1(f) of this appendix;

(xi) Section 7.4—Compressor Calibration Method, as specified in section 2.2.1(f) of this appendix;

(xii) Section 7.5—Refrigerant Enthalpy Method, as specified in section 2.2.1(f) of this appendix;

(xiii) Section 7.6—Outdoor Liquid Coil Method, as specified in section 2.2.1(f) of this appendix;

(xiv) Section 7.7—Airflow Rate Measurement (excluding sections 7.7.1.2, 7.7.3, and 7.7.4), as specified in section 2.2.1(b) of this appendix;

(xv) Table 1—Applicable Test Methods, as specified in section 2.2.1(f) of this appendix;

(xvi) Section 8.6—Additional Requirements for the Outdoor Air Enthalpy Method, as specified in section 2.2.1(f) of this appendix;

(xvii) Table 2b—Test Tolerances (I–P Units), as specified in sections 2.2.1(c) and 2.2(f) of this appendix; and

(xviii) Errata sheet issued on October 3, 2016, as specified in section 2.2.1(f) of this appendix.

(c) ANSI/ASHRAE 41.6–2014:

(i) Section 4—Classifications, as specified in section 2.2.1(f) of this appendix;

(ii) Section 5—Requirements, as specified in section 2.2.1(f) of this appendix;

(iii) Section 6—Instruments and Calibration, as specified in section 2.2.1(f) of this appendix;

(iv) Section 7.1—Standard Method Using the Cooled-Surface Condensation Hygrometer as specified in section 2.2.1(f) of this appendix; and

(v) Section 7.4—Electronic and Other Humidity Instruments. as specified in section 2.2.1(f) of this appendix.

(d) ANSI/ASHRAE 198–2013:

(i) Section 4.4—Temperature Measuring Instrument, as specified in section 2.2.1(b) of this appendix;

(ii) Section 4.5—Electrical Instruments, as specified in section 2.2.1(b) of this appendix;

(iii) Section 4.6—Liquid Flow Measurement, as specified in section 2.2.1(b) of this appendix;

(iv) Section 4.7—Time and Mass Measurements, as specified in section 2.2.1(b) of this appendix;

(iv) Section 6.1—Test Room Requirements, as specified in section 2.2.1(b) of this appendix;

(v) Section 6.6—Unit Preparation, as specified in section 2.2.1(b) of this appendix;

(vi) Section 7.1—Preparation of the Test Room(s), as specified in section 2.2.1(b) of this appendix;

(vii) Section 7.2—Equipment Installation, as specified in section 2.2.1(b) of this appendix;

(ix) Section 8.2—Equilibrium, as specified in section 2.2.1(b) of this appendix, and

(x) Section 8.4—Test Duration and Measurement Frequency, as specified in section 2.2.1(b) of this appendix.

*1.2. Informational materials.*

DOE refers to the following provision of AHRI 920–2020, for informational purposes only:

(a) Appendix E—Typical Test Unit Installations—Informative, as specified in section 2.2.1(g) of this appendix.

(b) Reserved.

*2. Test Method*

*2.1 Capacity.*

Moisture removal capacity (in pounds per hour) and supply airflow rate (in standard cubic feet per minute) are determined according to AHRI 920–2020 as specified in section 2.2 of this appendix.

*2.2. Efficiency*

*2.2.1.* Determine the ISMRE2 for all DX-DOASes and the ISCOP2 for all heat pump DX-DOASes in accordance with the following sections of AHRI 920-2020.

(a) Section 3 – Definitions, including the references to AHRI 1060-2018;

(i) Non-standard Low-static Fan Motor. A supply fan motor that cannot maintain external static pressure as high as specified in Table 7 of AHRI 920–2020 when operating at a manufacturer-specified airflow rate and that is distributed in commerce as part of an individual model within the same basic model of a DX-DOAS that is distributed in commerce with a different motor specified for testing that can maintain the required external static pressure.

(ii) Reserved.

(b) Section 5—Test Requirements, including the references to Sections 5.1, 5.2, 5.3, 5.5, 6.1, 6.2, 6.3, 6.4, and 7.7 (not including Sections 7.7.1.2, 7.7.3, and 7.7.4) of ANSI/ASHRAE 37–2009 , and Sections 4.4, 4.5, 4.6, 4.7, 5.1, 6.1, 6.6, 7.1, 7.2, 8.2, and 8.4 of ANSI/ASHRAE 198–2013;

(i) All control settings are to remain unchanged for all Standard Rating Conditions once system set up has been completed, except as explicitly allowed or required by AHRI 920–2020 or as indicated in the supplementary test instructions (STI). Component operation shall be controlled by the unit under test once the provisions in section 2.2.1(c) of this appendix are met.

(ii) Reserved.

(c) Section 6—Rating Requirements (omitting sections 6.1.2 and 6.6.1), including the references to Table 2b of ANSI/ASHRAE 37–2009, and ANSI/ASHRAE 198–2013.

(i) For water-cooled DDX–DOASes, the ‘‘Condenser Water Entering Temperature, Cooling Tower Water’’ conditions specified in Table 4 of AHRI 920–2020 shall be used. For water-source heat pump DDX–DOASes, the ‘‘Water-Source Heat Pumps’’ conditions specified in Table 5 of AHRI 920–2020 shall be used.

(ii) For water-cooled or water-source DX– DOASes with integral pumps, set the external head pressure to 20 ft. of water column, with a -0/+1 ft. condition tolerance and a 1 ft. operating tolerance.

(iii) When using the degradation coefficient method as specified in Section 6.9.2 of AHRI 920–2020, Equation 20 applies to DX– DOAS without VERS, with deactivated VERS (see Section 5.4.3 of AHRI 920–2020), or sensible-only VERS tested under Standard Rating Conditions other than D.

(iv) Rounding requirements for representations are to be followed as stated in Sections 6.1.2.1 through 6.1.2.8 of AHRI 920–2020;

(d) Section 11 – Symbols and Subscripts, including references to AHRI 1060-2018;

(e) Appendix A—References—Normative;

(f) Appendix C – ANSI/ASHRAE 198-2013 and ANSI/ASHRAE 37 Additions, Clarifications and Exceptions – Normative, including references to Sections 5.1, 6.5, 7.3,

7.4, 7.5, 7.6, 8.6, Table 1, Table 2b, and the errata sheet of ANSI/ASHRAE 37-2009, ANSI/ASHRAE 41.1-2013, Sections 4, 5, 6, 7.1, and 7.4 of ANSI/ASHRAE 41.6-2014, and AHRI 1060-2018;

(g) Appendix E – Typical Test Unit Installations—Informative, for information only.

2.2.2. *Set-Up and Test Provisions for Specific Components*. When testing a DX-DOAS that includes any of the features listed in Table 2.1 of this section, test in accordance with the set-up and test provisions specified in Table 2.1.

Table 2.1. Test Provisions for Specific Components

| Component | Description | Test provisions |
|---|---|---|
| Return and Exhaust Dampers | An automatic system that enables a DX-DOAS Unit to supply and use some return air (even if an optional VERS is not utilized) to reduce or eliminate the need for mechanical dehumidification or heating when ventilation air requirements are less than design. | All dampers that allow return air to pass into the supply airstream shall be closed and sealed. Exhaust air dampers of DOAS units with VERS shall be open. Gravity dampers activated by exhaust fan discharge airflow shall be allowed to open by action of the exhaust airflow. |
| VERS Bypass Dampers | An automatic system that enables a DX-DOAS Unit to let outdoor ventilation air and return air bypass the VERS when preconditioning of outdoor ventilation is not beneficial. | Test with the VERS bypass dampers installed, closed, and sealed. However, VERS bypass dampers may be opened if necessary for testing with deactivated VERS for Standard Rating Condition D. |
| Fire/Smoke/Isolation Dampers | A damper assembly including means to open and close the damper mounted at the supply or return duct opening of the equipment. | The fire/smoke/isolation dampers shall be removed for testing. If it is not possible to remove such a damper, test with the damper fully open. For any fire/smoke/isolation dampers shipped with the unit but |

| | | |
|---|---|---|
| | | not factory-installed, do not install the dampers for testing. |
| Furnaces and Steam/Hydronic Heat Coils. | Furnaces and steam/hydronic heat coils used to provide primary or supplementary heating. | Test with the coils in place but providing no heat. |
| Power Correction Capacitors | A capacitor that increases the power factor measured at the line connection to the equipment. These devices are a requirement of the power distribution system supplying the unit. | Remove power correction capacitors for testing. |
| Hail Guards | A grille or similar structure mounted to the outside of the unit covering the outdoor coil to protect the coil from hail, flying debris and damage from large objects. | Remove hail guards for testing. |
| Ducted Condenser Fans | A condenser fan/motor assembly designed for optional external ducting of condenser air that provides greater pressure rise and has a higher rated motor horsepower than the condenser fan provided as a standard component with the equipment. | Test with the ducted condenser fan installed and operating using zero external static pressure, unless the manufacturer specifies use of an external static pressure greater. than zero, in which case, use the manufacturer-specified external static pressure. |
| Sound Traps/Sound Attenuators | An assembly of structures through which the Supply Air passes before leaving the equipment or through which the return air from the building passes immediately after entering the equipment for which the sound insertion | Removable sound traps/sound attenuators shall be removed for testing. Otherwise, test with sound traps/attenuators in place. |

| | | |
|---|---|---|
| | loss is at least 6 dB for the 125 Hz octave band frequency range. | |
| Humidifiers. | A device placed in the supply air stream for moisture evaporation and distribution. The device may require building steam or water, hot water, electric or gas to operate. | Remove humidifiers for testing. |
| UV Lights | A lighting fixture and lamp mounted so that it shines light on the conditioning coil, that emits ultraviolet light to inhibit growth of organisms on the conditioning coil surfaces, the condensate drip pan, and/other locations within the equipment. | Remove UV lights for testing. |
| High-Effectiveness Indoor Air Filtration | Indoor air filters with greater air filtration effectiveness than MERV 8 or the lowest MERV filter distributed in commerce, whichever is greater | Test with a MERV 8 filter or the lowest MERV filter distributed in commerce, whichever is greater |

*2.2.3. Optional Representations*. Test provisions for the determination of the metrics indicated in paragraphs (a) through (d) of this section are optional and are determined according to the applicable provisions in section 2.2.1 of this appendix. For water-cooled DX-DOASes, these optional representations may be determined using either the "Condenser Water Entering Temperature, Cooling Tower" or the "Condenser Water Entering Temperature, Chilled Water" conditions specified in Table 4 of AHRI 920-2020. For water-source heat pump DX-DOASes, these optional representations may

be determined using either the "Water-Source Heat Pumps" or "Water-Source Heat Pump, Ground-Source Closed Loop" conditions specified in Table 5 of AHRI 920-2020. The following metrics in AHRI 920-2020 are optional:

(a) $ISMRE_{\underline{70}}$;

(b) $COP_{Full,x}$:

(c) $COP_{DOAS,x}$: and

(d) ISMRE2 and ISCOP2 for water-cooled DX-DOASes using the "Condenser Water Entering Temperature, Chilled Water" conditions specified in Table 4 of AHRI 920-2020 and for water-source heat pump DX-DOASes using the "Water-Source Heat Pump, Ground-Source Closed Loop" conditions specified in Table 5 of AHRI 920-2020.

*2.3 Synonymous terms.*

(a) Any references to energy recovery or energy recovery ventilator (ERV) in AHRI 920-2020 and ANSI/ASHRAE 198-2013 shall be considered synonymous with ventilation energy recovery system (VERS) as defined in §431.92.

(b) Reserved.