Proposed Rules

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This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF ENERGY

10 CFR Part 431

[EERE–2020–BT–TP–0011]

RIN 1904–AE62

Energy Conservation Program: Test Procedure for Electric Motors

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

ACTION: Request for information.

SUMMARY: The U.S. Department of Energy is soliciting public comment to consider whether to amend DOE's test procedures for electric motors. To inform interested parties and to facilitate this process, this document identifies several issues concerning the current test procedures on which comment is sought and invites public comment on any relevant topic (including those that have not been specifically raised). While the issues outlined in this document focus on how to address recent industry testing standard updates and the potential clarification of definitions and test settings for electric motors, information and data regarding any additional topics relevant to potential test procedure amendments are also sought, including methods to reduce regulatory burden while ensuring the procedure's representativeness.

DATES: Written comments and information will be accepted on or before July 20, 2020.

ADDRESSES: Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at *http://www.regulations.gov.* Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE–2020–BT–TP–0011, by any of the following methods:

1. *Federal eRulemaking Portal: http://www.regulations.gov.* Follow the instructions for submitting comments.

2. *Email:* to *ElecMotors2020TP0011@ee.doe.gov.* Include docket number EERE–2020–BT–TP–0011 in the subject line of the message.

3. *Postal Mail:* Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, Mailstop EE–5B, 1000 Independence Avenue SW, Washington, DC 20585–0121. Telephone: (202) 287–1445. If possible, please submit all items on a compact disc (''CD''), in which case it is not necessary to include printed copies.

4. *Hand Delivery/Courier:* Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, 950 L'Enfant Plaza SW, Suite 600, Washington, DC 20024. Telephone: (202) 287–1445. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

No telefacsimilies (''faxes'') will be accepted. For detailed instructions on submitting comments and additional information on this process, see section III of this document.

Docket: The docket for this activity, which includes **Federal Register** notices, comments, and other supporting documents/materials, is available for review at *http://www.regulations.gov.* All documents in the docket are listed in the *http://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 web page can be found at *http://www.regulations.gov/docket?D=EERE-2020-BT-TP-0011.* The docket web page contains instructions on how to access all documents, including public comments, in the docket. See section III for information on how to submit comments through *http://www.regulations.gov.*

FOR FURTHER INFORMATION CONTACT: Mr. Jeremy Dommu, 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) 586–9870. Email: *ApplianceStandardsQuestions@ee.doe.gov.*

Mr. Michael Kido, U.S. Department of Energy, Office of the General Counsel, GC–33, 1000 Independence Avenue SW, Washington, DC, 20585–0121. Telephone: (202) 586–8145. Email: *Michael.Kido@hq.doe.gov.*

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

SUPPLEMENTARY INFORMATION:

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I. Introduction

Electric motors are included in the list of ''covered equipment'' for which the Department of Energy (''DOE'') is authorized to establish and amend energy conservation standards and test procedures. (42 U.S.C. 6311(1)(A)) DOE's test procedures for electric motors are prescribed at Appendix B to Subpart B of 10 CFR part 431 (''Appendix B''). The following sections discuss DOE's authority to establish and amend test procedures for electric motors, as well as relevant background information regarding DOE's consideration of test procedures for this equipment.

A. Authority and Background

The Energy Policy and Conservation Act, as amended (''EPCA''),[1] among other things, authorizes DOE to regulate the energy efficiency of a number of consumer products and certain industrial equipment. (42 U.S.C. 6291–6317) Included within this authority are electric motors, the subject of this RFI. (42 U.S.C. 6311(1)(A))

The energy conservation program under EPCA consists essentially of four parts: (1) Testing, (2) labeling, (3) Federal energy conservation standards, and (4) certification and enforcement

[1] All references to EPCA in this document refer to the statute as amended through America's Water Infrastructure Act of 2018, Public Law 115–270 (October 23, 2018).

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(a) and 42 U.S.C. 6296).

Federal energy efficiency requirements for covered equipment established under EPCA generally supersede State laws and regulations concerning energy conservation 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 for particular State laws or regulations, in accordance with the procedures and other provisions of EPCA. (42 U.S.C. 6316(a))

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(a); 42 U.S.C. 6295(s)), and (2) making representations about the efficiency of that equipment. (42 U.S.C. 6314(d)) Similarly, DOE must use these test procedures to determine whether the equipment complies with relevant standards promulgated under EPCA. (42 U.S.C. 6316(a); 42 U.S.C. 6295(s))

Under 42 U.S.C. 6314, EPCA sets forth the criteria and procedures DOE must follow when prescribing or amending test procedures for covered equipment. EPCA requires that any test procedures prescribed or amended under this section must be reasonably designed to produce test results which reflect energy efficiency, energy use or estimated annual operating cost of a given type 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)) If DOE determines that a test procedure amendment is warranted, it must publish proposed test procedures and offer the public an opportunity to present oral and written comments on them. (42 U.S.C. 6314(b))

EPCA, pursuant to amendments made by the Energy Policy Act of 1992, Public Law 102–486 (October 24, 1992), specifies that the test procedures for electric motors subject to standards are those specified in National Electrical Manufacturers Association (''NEMA'') Standards Publication MG1–1987 and Institute of Electrical and Electronics Engineers (''IEEE'') Standard 112 Test Method B, as in effect on October 24, 1992. (42 U.S.C. 6314(a)(5)(A)). If these test procedures are amended, DOE must amend its test procedures to conform to such amended test procedure requirements, unless DOE determines by rule, published in the **Federal Register** and supported by clear and convincing evidence, that to do so would not meet the statutory requirements related to the test procedure representativeness and burden. (42 U.S.C. 6314(a)(5)(B)) As noted later in this document, these industry-based procedures have been revised a number of times and DOE has amended its regulations consistent with these changes.

EPCA also requires DOE to evaluate its test procedures at least once every 7 years for each type of covered equipment, including electric motors, to determine whether amended test procedures would more accurately or fully comply with the requirements that test procedures not be unduly burdensome to conduct but be reasonably designed to produce test results reflecting energy efficiency, energy use, and estimated operating costs during a representative average use cycle of the equipment at issue. (42 U.S.C. 6314(a)(1)) In addition, if the Secretary determines that a test procedure amendment is warranted, the Secretary must propose amended test procedures (published 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 its determination not to amend the test procedures. (42 U.S.C. 6314(a)(1)(A)(ii))

DOE is publishing this RFI to collect data and information to inform its decision in satisfaction of its obligations under EPCA.

B. Rulemaking History

DOE established test procedures for electric motors that referenced NEMA MG1–1993 and IEEE 112–1996. 64 FR 54114 (October 5, 1999) (''October 1999 final rule''). The October 1999 final rule also incorporated by reference Canadian Standards Association (''CSA'') Standard C390–93, *Energy Efficiency Test Methods for Three-Phase Induction Motors,* which DOE found to be a widely recognized alternative that was consistent with IEEE 112–1996. *Id.*

On May 4, 2012, DOE amended the test procedures for electric motors consistent with its obligations under EPCA to incorporate the NEMA MG 1–2009 and the IEEE 112–2011 into its regulations. 77 FR 26608 (''May 2012 final rule''). The May 2012 final rule also updated the regulations to reference the most current version of CSA C390. *Id.*

On December 13, 2013, DOE again amended its electric motor test procedure by clarifying the test setup requirements for certain electric motors. 78 FR 75962 (''December 2013 final rule''). DOE explained that changes brought about by the Energy Independence and Security Act of 2007 (Pub. L. 110–140 (December 19, 2007)) and the American Energy Manufacturing Technical Corrections Act (Pub. L. 112–210, Sec. 10 (December 18, 2012)) enabled DOE to consider an expanded scope of electric motors for regulatory coverage. *Id.* at 78 FR 75965. DOE determined that the motors covered by the expanded scope could be tested using the testing methods provided in IEEE 112 (Test Method B) and CSA C390–10 (which were both part of DOE's test procedure regulations) to accurately measure their losses and determine their energy efficiency. *Id.* However, some of these motors required additional testing set-up instructions prior to testing, which DOE established in the December 2013 final rule.[2] *Id.*

DOE's test procedures for electric motors at 10 CFR part 431, subpart B, Appendix B (''Appendix B'') currently incorporate by reference NEMA MG 1–2009, IEEE 112–2004 Test Method B, and CSA Standard C390–10. Appendix B also includes additional specifications necessary for testing certain types of electric motors. 10 CFR part 431, subpart B, Appendix B, Sec. 4.

On March 1, 2017, NEMA published NEMA MG 1–2016, Motors and Generators. On February 14, 2018, IEEE published IEEE 112–2017, IEEE Standard Test Procedure for Polyphase Induction Motors and Generators. DOE subsequently proposed to amend the current test procedure regulations for small electric motors and electric motors, which included a full review of IEEE 112–2017. 84 FR 17004 (April 23, 2019) (''April 2019 NOPR''). The relevant updates to the industry test procedures (including NEMA MG 1–2016), in addition to potential clarification of definitions and test settings for electric motors, are discussed in the following section.

II. Request for Information

In the following sections, DOE has identified a variety of issues on which

[2] A 2011 version of NEMA MG 1 was released prior to the publication of the December 2013 final rule. The updates from the 2009 version, however, did not affect the sections of NEMA MG–1 incorporated by reference in the DOE regulations. Subsequently, DOE declined to incorporate by reference NEMA MG 1–2011. 78 FR 75962, 75963.

it seeks input on deciding whether amending its test procedures for electric motors would (1) more accurately or fully comply with the requirements in EPCA that test procedures be reasonably designed to produce test results which reflect energy use during a representative average use cycle, without being unduly burdensome to conduct (42 U.S.C. 6314(a)(2)); or (2) reduce testing burden. Specifically, DOE is requesting comment on any opportunities to streamline and simplify testing requirements for electric motors as well as information to help inform DOE's related technical and economic analyses.

Further, DOE recently issued an RFI to seek more broadly information on whether its test procedures are reasonably designed, as required by EPCA, to produce results that measure the energy use or efficiency of a product during a representative average use cycle or period of use. 84 FR 9721 (March 18, 2019). DOE seeks comment on this issue as it pertains to the test procedure for electric motors.

Additionally, DOE welcomes comments on other issues relevant to the conduct of this process. In particular, DOE notes that under Executive Order 13771, ''Reducing Regulation and Controlling Regulatory Costs,'' Executive Branch agencies such as DOE are directed to manage the costs associated with the imposition of expenditures required to comply with Federal regulations. See 82 FR 9339 (February 3, 2017). Consistent with that Executive Order, DOE encourages the public to provide input on measures DOE could take to lower the cost of its regulations applicable to electric motors consistent with the requirements of EPCA.

A. Scope and Definitions

The term ''electric motor'' is defined as ''a machine that converts electrical power into rotational mechanical power.'' 10 CFR 431.12. Manufacturers are required to test those electric motors subject to energy conservation standards according to the test procedure in Appendix B.[3] (See generally 42 U.S.C. 6314(a)(5)(A); see also the introductory paragraph to 10 CFR part 431, subpart B, Appendix B) Currently, energy conservation standards apply to a variety of categories of electric motors provided that they meet the criteria specified at 10 CFR 431.25(g). These categories of electric motors include NEMA Design A motors,[4] NEMA Design B motors,[5] NEMA Design C motors,[6] and fire pump electric motors.[7] See 10 CFR 431.25(h)–(j). The detailed criteria specified under 10 CFR 431.25(g) specify that the currently regulated motors:

(1) Are single-speed, induction motors;
(2) Are rated for continuous duty (MG 1) operation or for duty type S1 (IEC)
(3) Contain a squirrel-cage (MG 1) or cage (IEC) rotor;
(4) Operate on polyphase alternating current 60-hertz sinusoidal line power;
(5) Are rated 600 volts or less;
(6) Have a 2-, 4-, 6-, or 8-pole configuration;
(7) Are built in a three-digit or four-digit NEMA frame size (or IEC metric equivalent), including those designs between two consecutive NEMA frame sizes (or IEC metric equivalent), or an enclosed 56 NEMA frame size (or IEC metric equivalent);
(8) Produce at least one horsepower (0.746 kW) but not greater than 500 horsepower (373 kW), and
(9) Meet all of the performance requirements of one of the following motor types: A NEMA Design A, B, or C motor or an IEC Design N or H motor.

10 CFR 431.25(g).

DOE exempted certain categories of motors from having to satisfy any standards after determining that the referenced industry test procedures do not provide a standardized test method for determining the energy efficiency of these motor configurations.[8] 79 FR 30934 (May 29, 2014); see also, 78 FR 75962, 75974, 75987–75989). The currently exempted motor categories are:

- Air-over electric motors;
- Component sets of an electric motor;
- Liquid-cooled electric motors;
- Submersible electric motors; and
- Inverter-only electric motors.

10 CFR 431.25(l)

Definitions for terms related to the Federal test method for electric motors are provided at 10 CFR 431.12. A number of these definitions incorporate references to specific sections of NEMA MG 1–2009 to characterize the construction and operation of different categories of electric motors. DOE is considering revising these definitions to update its current NEMA MG 1 references to the most recent edition of that standard, NEMA MG 1–2016. These reference updates would align DOE's regulatory definitions with current industry practice and the revisions under consideration for the electric motors test procedure at Appendix B (see section II.B.1).

Twelve definitions at 10 CFR 431.12 reference the NEMA MG 1–2009 standard, of which the following five include references to sections of NEMA MG 1 that have not changed between the 2009 and 2016 publications of the standard: ''electric motor with encapsulated windings,'' ''electric motor with moisture resistant windings,'' ''electric motor with sealed windings,'' ''general purpose electric motor (subtype I),'' and ''general purpose electric motor (subtype II).''

Conversely, the definitions in 10 CFR 431.12 for ''definite purpose motor,'' ''definite purpose electric motor,'' ''general purpose electric motor,'' ''NEMA Design A motor,'' ''NEMA Design B motor,'' ''NEMA Design C motor,'' and ''nominal full-load efficiency'' reference provisions of NEMA MG 1 that have changed between the 2009 and 2016 versions. These changes are discussed in the following paragraphs.

The definitions for ''definite purpose motor,'' ''definite purpose electric motor,'' and ''general purpose electric motor'' at 10 CFR 431.12 reference

[3] This RFI does not address *small electric motors,* which are covered separately under 10 CFR part 431, subpart X. A *small electric motor* is ''a NEMA general purpose alternating current single-speed induction motor, built in a two-digit frame number series in accordance with NEMA Standards Publication MG1–1987, including IEC metric equivalent motors.'' 10 CFR 431.442.

[4] ''NEMA Design A'' motor means a squirrel-cage motor that: (1) Is designed to withstand full-voltage starting and developing locked-rotor torque as shown in NEMA MG 1–2009, paragraph 12.38.1 (incorporated by reference, see § 431.15); (2) Has pull-up torque not less than the values shown in NEMA MG 1–2009, paragraph 12.40.1; (3) Has breakdown torque not less than the values shown in NEMA MG 1–2009, paragraph 12.39.1; (4) Has a locked-rotor current higher than the values shown in NEMA MG 1–2009, paragraph 12.35.1 for 60 hertz and NEMA MG 1–2009, paragraph 12.35.2 for 50 hertz; and (5) Has a slip at rated load of less than 5 percent for motors with fewer than 10 poles. 10 CFR 430.12.

[5] ''NEMA Design B motor'' means a squirrel-cage motor that is: (1) Designed to withstand full-voltage starting; (2) Develops locked-rotor, breakdown, and pull-up torques adequate for general application as specified in sections 12.38, 12.39 and 12.40 of NEMA MG1–2009 (incorporated by reference, see § 431.15); (3) Draws locked-rotor current not to exceed the values shown in section 12.35.1 for 60 hertz and 12.35.2 for 50 hertz of NEMA MG1–2009; and (4) Has a slip at rated load of less than 5 percent for motors with fewer than 10 poles. *Id.*

[6] ''NEMA Design C'' motor means a squirrel-cage motor that: (1) Is Designed to withstand full-voltage starting and developing locked-rotor torque for high-torque applications up to the values shown in NEMA MG1–2009, paragraph 12.38.2 (incorporated by reference, see § 431.15); (2) Has pull-up torque not less than the values shown in NEMA MG1–2009, paragraph 12.40.2; (3) Has breakdown torque not less than the values shown in NEMA MG1–2009, paragraph 12.39.2; (4) Has a locked-rotor current not to exceed the values shown in NEMA MG1–2009, paragraphs 12.35.1 for 60 hertz and 12.35.2 for 50 hertz; and (5) Has a slip at rated load of less than 5 percent. *Id.*

[7] ''Fire pump electric motor'' means an electric motor, including any IEC-equivalent motor that meets the requirements of section 9.5 of NFPA 20. *Id.*

[8] DOE notes that, while these motor configurations are not currently subject to any energy conservation standards, they remain within the Department's scope of covered equipment.

paragraph 14.3, ''Unusual Service Conditions,'' of NEMA MG 1–2009. Paragraph 14.3 of NEMA MG 1 provides a list of service conditions that may affect the construction or operation of a motor. The NEMA MG 1–2016 standard adds two conditions to the NEMA MG 1–2009 standard: ''exposure to a coupling mass that is greater than 10% of rotor weight and/or has a center of gravity that is beyond the shaft extension'' and ''exposure to a coupling or coupling/coupling guard combination which could produce a negative pressure at the drive end seal.'' DOE notes that the regulatory definition for ''general purpose electric motor'' also references paragraph 14.2, ''Usual service conditions,'' of NEMA MG 1–2009, but unlike paragraph 14.3, section 14.2 remains unchanged in NEMA MG 1–2016. Prior to June 1, 2016, DOE's energy conservation standards for electric motors differentiated between general purpose electric motors (for which standards applied) and definite or special purpose electric motors (for which standards did not apply). 10 CFR 431.25(a)–(d) and (f). For electric motors manufactured on or after June 1, 2016, DOE's energy conservation standards no longer differentiated between these previous broad categories of general purpose and definite or special purpose. Consequently, DOE's standards are now differentiated according to the criteria listed at 10 CFR 431.25(g) and NEMA and IEC Design categories. 10 CFR 431.25(h)–(i). Therefore, the updates to these definitions are not expected to change the applicability of test procedures or energy conservation standards for electric motors manufactured on or after June 1, 2016.

The definitions for ''NEMA Design A motor,'' ''NEMA Design B motor,'' and ''NEMA Design C motor'' at 10 CFR 431.12 reference tables of locked-rotor current in sections 12.35.1 and 12.35.2 of NEMA MG 1–2009. NEMA MG 1–2016 revises these tables by adding a column for ''Locked-Rotor kVA Code'' and a footnote regarding a tolerance that may be applied to the locked-rotor current values based on the associated Locked-Rotor kVA Code.[9] Section 10.37 of NEMA MG 1–2016 provides the applicable range of kVA per horsepower for each locked-rotor kVA code that would be used to calculate the locked-rotor current tolerances. These definitions also reference other sections in NEMA MG 1–2009, each of which remains unchanged in the NEMA MG 1–2016 standard. The addition of the column for ''Locked-Rotor kVA Code'' is not expected to impact the applicability of test procedures or energy conservation standards for electric motors. Further, NEMA MG 1–2016's addition of the footnote regarding a tolerance that may be applied to the maximum locked-rotor current values is a clarification of the existing tolerance presented in section 10.37 of NEMA MG1–2009, which remains unchanged in NEMA MG1–2016, and would also not impact the scope of electric motors that are subject to energy conservation standards and test procedures.

The definition for ''nominal full-load efficiency'' at 10 CFR 431.12 references Table 12–10 of NEMA MG 1–2009, which provides a list of nominal efficiencies and associated minimum motor efficiencies based on a 20 percent loss difference. Table 12–10 in NEMA MG 1–2009 lists nominal efficiency ratings ranging from 50.5 to 99.0, while Table 12–10 in NEMA MG 1–2016 lists nominal efficiency ratings ranging from 34.5 to 99.0. The nominal efficiency ratings (and associated minimum efficiencies) in the range of 50.5 to 99.0 did not change between the NEMA MG1–2009 and NEMA MG1–2016 versions of the standard. The nominal full-load efficiency requirements specified by the energy conservation standards for electric motors at 10 CFR 431.25 are efficiency values ranging from 74.0 to 96.2; therefore, the addition of nominal efficiency ratings ranging from 34.5 to 50.5 in the NEMA MG 1–2016 version of Table 12–10 will not impact the applicability of test procedures or energy conservation standards for electric motors.

Issue 1: DOE requests comment on the 2016 updates to NEMA MG 1 that relate to the electric motor definitions in 10 CFR 431.12. Specifically, DOE requests information on how these revisions would impact the applicability of test procedures and energy conservation standards for electric motors.

Issue 2: DOE requests comment on whether any other definitions should be modified or added to 10 CFR 431.12 to provide additional detail or direction in the application of the test procedure for electric motors.

DOE also notes that IEC standard 60034–12, published on November 23, 2016, allows the use of a new nomenclature for certain electric motors that are already covered by DOE's current standards. As an example, IEC Design N and IEC Design H motors that meet a ''premium efficiency'' attribute are permitted to be designated with an ''E'' (*i.e.* ''NE'' and ''HE''). The ''premium efficiency'' attribute generally aligns with the current DOE standards prescribed at 10 CFR 431.25. In DOE's view, these ''NE'' and ''HE'' motors are already addressed by the definitions and standards that DOE currently has in place regarding ''N'' and ''H'' motors. *See* 10 CFR 431.12 (defining the terms ''IEC Design H motor'' and ''IEC Design N motors'') *and* 10 CFR 431.25(g)–(i) *and* (l) (establishing the efficiency standards related to Design N and H motors and their applicable scope). This view is also held by NEMA, which asserted in separate communications to DOE that ''E''-designated motors are drop-in replacements for their ''non-E''-designated counterparts. See Letter from NEMA to DOE (March 26, 2018) and Supplemental Letter from NEMA to DOE (August 23, 2019). (Both letters have been filed in the docket.) To ensure the accuracy of its understanding, DOE is seeking comment as to whether its understanding of the new nomenclature is correct.

Issue 3: DOE requests comment on whether a Design NE or Design HE motor is distinguishable in performance (aside from energy efficiency) from a Design N or Design H motor, respectively, such that the ''E''-designated motor merits treatment as a separate motor type. If so, why? If not, why not?

B. Test Procedure

1. Updates to Industry Standards

DOE has reviewed each of the industry standards that are currently incorporated by reference as test methods for determining the energy efficiency of electric motors. Since publication of the December 2013 final rule, IEEE 112–2004 and NEMA MG 1–2009 have been revised, and CSA C390–10 has been reaffirmed, as listed in Table II–1. The following is a review of the relevant revisions to IEEE 112–2004 and NEMA MG 1–2009.

[9] Locked-Rotor kVA Code is a letter which appears on the nameplate of an alternating-current motor to show its range of locked-rotor kilo-volt-ampere (kVA) per horsepower. The letter designations for locked rotor kVA per horsepower are given in Section 10.37 of NEMA MG 1–2016. For example, the letter ''N'' corresponds to a range of locked rotor kVA per horsepower between 11.2 and 12.5.

TABLE II–1—UPDATED INDUSTRY STANDARDS

Existing reference	Updated version	Type of update
IEEE 112–2004	IEEE 112–2017	Revision.
CSA 390–10	CSA 390–10 (R2015)	Reaffirmed.
NEMA MG 1–2009	NEMA MG 1–2016	Revision.

a. IEEE 112

In the April 2019 NOPR DOE proposed to incorporate by reference IEEE 112–2017 for both small electric motors and electric motors. 84 FR 17004. Specifically, for electric motors, DOE has proposed to incorporate IEEE 112–2017 Test Method B as an alternative to IEEE 112–2004 Test Method B, and requested comment on this proposal. 84 FR 17004, 17011–17012. DOE tentatively determined that this proposal would harmonize the permitted test methods under subpart B of 10 CFR part 431 and align measurement and instrumentation requirements with recent industry practice. 84 FR 17004, 17011–17012.

b. NEMA MG 1

The test procedure for electric motors specified at Appendix B requires that efficiency and losses be determined in accordance with NEMA MG 1–2009, paragraph 12.58.1, ''Determination of Motor Efficiency and Losses.'' The text of paragraph 12.58.1 was modified in the subsequent revisions to NEMA MG 1–2009. Notably, paragraph 12.58.1 in the 2016 revision of MG 1 specifies an additional industry standard, IEC 60034–2–1, for calculating the efficiency of horizontal polyphase squirrel-cage motors rated 1 to 500 horsepower. Further discussion on IEC 60034–2–1 is provided in the following section II.B.1.c of this RFI.

c. IEC 60034–2–1

In a November 2017 notice, DOE sought comment regarding petitions from NEMA and Underwriters Laboratory (''UL'') requesting that DOE incorporate IEC 60034–2–1:2014 Method 2–1–1B [10] as an additional alternative test method to those already referenced in DOE's regulations for determining the energy efficiency of certain electric motors and small electric motors. 82 FR 50844 (November 2, 2017). With regard to the electric motors test procedure, NEMA and UL's petition requested that DOE incorporate IEC 60034–2–1:2014 Method 2–1–1B as an alternative to IEEE 112–2004 Test Method B and CSA C390–10, which are currently referenced in Appendix B. (NEMA, Docket EERE–2017–BT–TP–0047,[11] No. 28.2 at p.1; UL, Docket EERE–2017–BT–TP–0047, No. 29.1 at p.1)

DOE reviewed Method 2–1–1B from the IEC 60034–2–1:2014 standard in the April 2019 NOPR and initially concluded that the standard would provide comparable energy efficiency results to the current required test standards (IEEE 112 and CSA C390). 84 FR 17004, 17013. Accordingly, in the April 2019 NOPR DOE proposed to incorporate by reference IEC 60034–2–1:2014 Method 2–1–1B as an alternative to the currently incorporated industry testing standards IEEE 112–2004 Test Method B and CSA C390–10, and requested comment on this proposal. *Id.*

2. Temperature Rise Measurement Location

The test method for measuring electric motor nominal full-load efficiency prescribed under Appendix B specifies that efficiency and losses are determined in accordance with paragraph 12.58.1 of NEMA MG1–2009, and either CSA C390–10 or IEEE 112–2004 Test Method B. *See* 10 CFR part 431, subpart B, Appendix B, Sec. 2. CSA 390–10 and IEEE 112–2004 both require the motor to be loaded to the rated full load and operated until thermal equilibrium is reached. *See* CSA C390–10, Sec. 7.1.3 *and* IEEE 112–2004, Sec. 5.8.4.4. This segment of the efficiency test is known as the ''heat-run test.''

Section 7.1.3 of CSA C390–10 provides the test instructions for the heat-run test, and states that the temperature used to establish thermal equilibrium is determined using the temperature measurement devices specified in section 7.1.2 of that standard. Section 7.1.2.2 of CSA C390–10 explicitly specifies the permissible locations for installing the temperature measurement devices when conducting the heat-run test.

Section 5.8.4.4 of IEEE 112–2004 specifies how to terminate the heat-run test. These instructions provide that the motor is operated until the temperature rises are constant, but unlike CSA C390–10, IEEE 112–2004 does not explicitly indicate the locations where these temperatures must be measured. Instead, Section 5.8.4.3 of IEEE 112–2004 provides a list of locations on the motor at which temperature measurement devices must be equipped, but does not specify which temperature measurement device must be used to establish the condition of thermal equilibrium in the heat-run test. The same requirements are provided in Section 5.9.4.4 of IEEE 112–2017, the latest version of the industry standard.

Issue 4: DOE requests comment on whether the test instructions in IEEE 112–2004 Test Method B and/or IEEE 112–2017 Test Method B provide sufficient detail regarding placement of temperature measurement devices for establishing thermal equilibrium in the heat-run test. Specifically, DOE seeks comment, including comment based on testing experience, regarding potential locations for measurement to establish thermal equilibrium. DOE is also interested in detailed information on any testing burden, including cost, associated with measuring at the various locations.

3. Rated Motor Horsepower

Nominal full-load efficiency, the metric for energy conservation standards for electric motors, is defined as a representative value of efficiency selected from the ''nominal efficiency'' column of Table 12–10 of NEMA MG 1–2009, that is not greater than the average full-load efficiency of a population of motors of the same design. *See* 10 CFR 431.12. ''Average full-load efficiency'' is defined as ''. . . the ratio (expressed as a percentage) of the motor's useful power output to its total power input when the motor is operated at its full rated load, rated voltage, and rated frequency.'' *Id.* Typically, a rated load represents a power output expected from the motor (*e.g.,* a horsepower value on the nameplate or a manufacturer declared rated motor horsepower). The industry testing standards discussed in section II.B.1 of this RFI do not provide a method to determine the full rated load of the tested unit. Rather, the standards rely on a manufacturer-specified output power, which is

[10] IEC 60034–2–1:2014 Method 2–1–1B (2014), ''Rotating Electrical Machines—Part 2–1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles),'' ''Summation of losses, additional load losses according to the method of residual loss.''

[11] Docket EERE–2017–BT–TP–0047 is available at *https://www.regulations.gov/docket?D=EERE-2017-BT-TP-0047*.

usually listed on a motor's nameplate in terms of horsepower (*i.e.,* the rated motor horsepower).

Rated motor horsepower is generally not an intrinsic, observable motor property, and motors are usually capable of operating both above and below the rated motor horsepower. For example, a motor that is rated at 1 hp is also capable of delivering 0.75 hp, but likely with a different speed, torque, and efficiency than those of when it is delivering at its rated 1 hp. The output power of the motor depends on the load and the design of the motor. Therefore, the load point (or horsepower) at which the motor must be tested is not an intrinsic parameter to the motor, but rather a parameter that must be defined or specified. The test's load point (or horsepower) is relevant to efficiency testing because the efficiency of an electric motor varies according to load.

While the ''nominal full-load efficiency definition'' relies on the definition of ''average full-load efficiency'' (and in turn, ''rated load''), DOE regulations do not explicitly address how to determine the rated load and rated motor horsepower of an electric motor. Accordingly, as part of the test procedure evaluation, DOE is considering whether to define the term ''rated motor horsepower'' and whether defining the term would provide for more accurate comparisons of similarly rated motors from different manufacturers. In addition, DOE is considering additional changes to address the relationship between the term ''rated motor horsepower'' to ''rated load,'' as discussed in section II.B.4.b of this RFI.

As with a recent proposed amendment to the test procedure for small electric motors, DOE is considering defining rated motor horsepower to be based on the breakdown torque of an electric motor, which is a directly measurable quantity. See 84 FR 17004, 17014–17015. Breakdown torque is defined in section 1.50 of NEMA MG 1–2016 as the maximum torque that the motor will develop with rated voltage and frequency applied without an abrupt drop in speed,[12] and is typically measured in accordance with Section 7, ''Other performance tests,'' of IEEE Standard 112–2017.

NEMA MG1–2016 requires that the rated horsepower be established by identifying the horsepower that corresponds to the appropriate value of breakdown torque, established in section 12.37 and section 12.39 of NEMA MG1–2016, for general-purpose polyphase 2-digit frame (*e.g.* 56-frame) size electric motors and Design A, B, and C polyphase 3- and 4-digit frame size electric motors, respectively (*e.g.* 215). While section 12.37 applies to general purpose polyphase 2-digit frame size electric motors as written, DOE is considering whether section 12.37 of NEMA MG 1–2016 could apply to all 2-digit frame size electric motors within the DOE scope (as detailed in section II.A of this RFI) such that DOE can define rated motor horsepower based on breakdown torque, as defined in NEMA MG 1–2016. DOE would need to consider how rated motor horsepower should be determined in the cases of special purpose and definite purpose 2-digit frame size electric motors within the DOE scope.

Issue 5: DOE requests comment on how industry currently determines rated motor horsepower of an electric motor. Specifically, DOE requests comment on whether the methods described in sections 12.37 and 12.39 of NEMA MG1–2016 reflect how industry currently determines rated motor horsepower of an electric motor.

Issue 6: DOE requests comment on the whether there is a need to define the term ''rated motor horsepower,'' and the feasibility of establishing such a definition. DOE requests comment and data regarding how rated motor horsepower determined as contemplated in the preceding discussion would compare to the rated motor horsepower currently declared by manufacturers. Additionally, DOE requests comment on how to determine the horsepower of a special or definite purpose motor with breakdown torque that is not expressly characterized by Table 10–5 of NEMA MG 1–2016. DOE also requests comment on any other method that may be used to verify the manufacturer declared horsepower of an electric motor. DOE is also interested in detailed information on any test burden, including cost, associated with the method as contemplated by DOE, or other methods as may be suggested.

4. Rated Values Specified for Testing

DOE is evaluating whether clarifying several other values used for testing electric motors is warranted. As noted previously, the definition of average full load efficiency at 10 CFR 431.12 specifies that the full load efficiency of a motor is determined when the motor operates at the rated frequency, rated load, and rated voltage. Additionally, industry standards refer to ''rated'' values, which are expected to be known or provided (*e.g.,* on the nameplate). However, ''rated frequency,'' ''rated load,'' and ''rated voltage'' are not defined in subpart B of 10 CFR part 431. Similar to proposed amendments to the test procedure for small electric motors, DOE is considering whether additional instruction regarding these terms could improve clarity and further ensure all motors of a given specification are tested using the same settings. *See* 84 FR 17004, 17017–17018.

a. Rated Frequency

''Rated frequency'' is a term commonly used by industry standards developed for testing electric motors (*e.g.,* section 6.1 in IEEE 112–2004, and section 6.1 in CSA C390–10). The test procedures and energy conservation standards established under EPCA apply to motors distributed in commerce within the United States. Within the United States, electricity is supplied at 60 hertz (''Hz''). However, electric motors could be designed to operate at frequencies in addition to 60 Hz (*e.g.,* motors designed to operate at either 60 or 50 Hz, which is used in other parts of the world).

Some electric motors subject to 10 CFR 431.16 are marketed as capable of operating at either of these two frequencies and could include in their marketing information data regarding motor performance at both frequencies (*e.g.,* 60 and 50 Hz). In this case, it could be unclear at which frequency the test should be performed. DOE is considering defining the term ''rated frequency'' as 60 Hz to expressly specify this test requirement.

b. Rated Load

The term ''rated load'' [13] is used in industry standards to specify a loading point at which to test a motor (*e.g.,* sections 5.6 and 6.1 in IEEE 112–2004, and section 6.1 in CSA C390–10). Typically, a rated load represents a power output expected from the motor (*e.g.,* a horsepower value on the nameplate or a manufacturer declared rated motor horsepower). The rated load

[12] In concept, breakdown torque describes the maximum torque the motor can develop without slowing down and stalling. The maximum torque over the entire speed range could occur at a different condition (*e.g.,* the motor start-up, zero speed condition) than the breakdown condition. Therefore, breakdown torque corresponds to a local maximum torque (on a plot of torque versus speed) that is nearest to the rated torque. NEMA MG 1–2016 does not quantify what would constitute ''an abrupt drop in speed,'' but the phrase corresponds to the expectation that the motor will slow down or stall if the load increases and indicates that minor reductions in speed observed due to measurement sensitivities are not considered.

[13] Also referred to as ''full rated load,'' ''rated full-load,'' or ''full-load.''

will have a corresponding rated speed and rated torque. DOE is considering defining the term ''rated load'' as ''the rated motor horsepower of an electric motor'' to clarify this test requirement.

c. Rated Voltage

The term ''rated voltage'' is used in industry standards to specify the voltage supplied to the motor under test (*e.g.,* section 6.1 in IEEE 112–2004, and section 6.1 in CSA C390–10). The test procedures referenced in Appendix B require a basic model to be tested at the rated voltage, without specifying what to do when a manufacturer includes multiple rated voltages on the nameplate and marketing materials. DOE is considering specifying the input voltage required for testing when motors are rated for use at multiple voltages. Options for this specification could include testing only at the lowest rated voltage, testing only at the highest rated voltage, or testing at all rated voltages. Alternatively, similar to what was proposed for small electric motors, DOE is considering allowing manufacturers to test and certify motors at any rated voltage, provided that the tested input voltage setting is listed on the certification report. See 84 FR 17004, 17018.

In addition, DOE has found that some motor nameplates are labeled with a voltage rating including a range of values, such as ''208–230/460 volts,'' or other qualifiers, such as ''230/460V, usable at 208V.'' DOE is considering how rated voltage for testing should be determined in these cases.

Issue 7: DOE requests comment on the potential definitions of ''rated frequency'' and ''rated load'' for electric motors. DOE requests comment and data regarding how the discussed definitions would impact the current test results. DOE also requests comment on the input voltage setting(s) that should be used during testing. Specifically, DOE requests test data that demonstrates how motor efficiency varies at different input voltage settings.

C. Use of an Amended Test Procedure

If required only for the evaluation and issuance of updated efficiency standards, use of a modified test procedure, were DOE to finalize such a change, typically would not be required until the implementation date of updated standards. Section 8(c) of appendix A 10 CFR part 430 subpart C. Moreover, were DOE to initiate a rulemaking to establish methodologies used to evaluate proposed energy conservation standards, such a rulemaking would be finalized at least 180 days prior to publication of a NOPR proposing new or amended energy conservation standards. See 10 CFR part 430, appendix A, subpart C, sec. 8(d)–(e).

D. Other Test Procedure Topics

In addition to the issues identified earlier in this document, DOE welcomes comment on any other aspect of the current test procedures for electric motors found at 10 CFR part 431, subpart B. As noted earlier, DOE recently issued an RFI to seek more information on whether its test procedures are reasonably designed to produce results that measure the energy use or efficiency of a product during a representative average use cycle or period of use. 84 FR 9721 (March 18, 2019).

Issue 8: DOE seeks comment on whether its test procedures for electric motors are reasonably designed, as required by EPCA, to produce results that measure the energy use or efficiency of a product during a representative average use cycle or period of use.

Issue 9: DOE requests comments on whether potential amendments based on the issues discussed would result in a test procedure that is unduly burdensome to conduct, particularly in light of any new products on the market that have appeared since the last test procedure update.

DOE's established practice is to adopt industry standards as DOE test procedures unless such methodology would be unduly burdensome to conduct or would not produce test results that reflect the energy efficiency, energy use, water use (as specified in EPCA) or estimated operating costs of that product during a representative average use cycle or period of use. Section 8(c) of appendix A 10 CFR part 430 subpart C. In cases where the industry standard does not meet EPCA statutory criteria for test procedures DOE will make modifications through the rulemaking process to these standards as the DOE test procedure. DOE recognizes that adopting industry standards with modifications imposes a burden on industry (*i.e.,* manufacturers face increased costs if the DOE modifications require different testing equipment or facilities).

Issue 10: To the extent that potential amendments based on the issues discussed in this document would result in a procedure that is, in fact, unduly burdensome to conduct, DOE seeks information on whether an existing private sector-developed test procedure would be more appropriate. DOE requests comment on the benefits and burdens of adopting any industry/voluntary consensus-based or other appropriate test procedure, without modification.

Issue 11: Additionally, DOE requests comment on whether the existing DOE test procedure limits a manufacturer's ability to provide consumers with additional features in the electric motors that they purchase. DOE particularly seeks information on how the DOE test procedures could be amended to reduce the cost of new or additional features and make it more likely that electric motors include such features while satisfying EPCA.

Issue 12: DOE also requests comments on any potential amendments to the existing test procedures that would address impacts on manufacturers, including small businesses.

Finally, DOE published an RFI on the emerging smart technology appliance and equipment market. 83 FR 46886 (September 17, 2018) (''September 2019 RFI''). In that RFI, DOE sought information to better understand market trends and issues in the emerging market for appliances and commercial equipment that incorporate smart technology. DOE's intent in issuing the RFI was to ensure that DOE did not inadvertently impede such innovation in fulfilling its statutory obligations in setting efficiency standards for covered products and equipment.

Issue 13: DOE seeks, as part of this RFI, comments, data and information on the issues presented in the September 2018 RFI as they may be applicable to electric motors.

III. Submission of Comments

DOE invites all interested parties to submit in writing by July 20, 2020, comments and information on matters addressed in this notice and on other matters relevant to DOE's consideration of amended test procedures for electric motors. These comments and information will aid in the development of a test procedure NOPR for electric motors if DOE determines that amended test procedures may be appropriate for this equipment.

Submitting comments via http://www.regulations.gov. The *http://www.regulations.gov* web page 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 *http://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 *http://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 *http://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 *http://www.regulations.gov* provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery/courier, or postal mail. Comments and documents submitted via email, hand delivery/courier, or postal mail also will be posted to *http://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 on 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. If you submit via postal mail or hand delivery/courier, please provide all items on a CD, if feasible. It is not necessary to submit printed copies. No facsimiles (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. According 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, postal mail, or hand delivery/courier 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. Submit these documents via email or on a CD, if feasible. 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).

DOE considers public participation to be a very important part of the process for developing test procedures and energy conservation standards. DOE actively encourages the participation and interaction of the public during the comment period in each stage of this process. Interactions with and between members of the public provide a balanced discussion of the issues and assist DOE in the process. Anyone who wishes to be added to the DOE mailing list to receive future notices and information about this process should contact Appliance and Equipment Standards Program staff at (202) 287–1445 or via email at *ApplianceStandardsQuestions@ee.doe.gov.*

Signing Authority

This document of the Department of Energy was signed on May 8, 2020, by Alexander N. Fitzsimmons, Deputy Assistant Secretary for Energy Efficiency, 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 May 8, 2020.

Treena V. Garrett,

Federal Register Liaison Officer, U.S. Department of Energy.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA–2020–0513; Product Identifier 2019–SW–037–AD]

RIN 2120–AA64

Airworthiness Directives; Airbus Helicopters

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to supersede Airworthiness Directive (AD) 2018–08–01 for Airbus Helicopters Model EC225LP helicopters. AD 2018–08–01 requires inspecting the control rod attachment yokes (yoke) of certain main rotor rotating swashplates (swashplate). Since the FAA issued AD 2018–08–01, Airbus Helicopters has identified additional swashplate serial numbers affected by the unsafe condition and has established a life limit for the swashplates. This proposed AD would retain the inspection requirements of AD 2018–08–01, expand the applicability, establish a life limit, and add a one-time inspection of stripped yokes. The actions of this proposed AD are intended to address an unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by August 3, 2020.