Setting Standards for Excellence

KYLE PITSOR
Vice President, Government Relations

September 13, 2017

Submitted Via Email: SmallElectricMotors2017TP0047@ee.doe.gov

Mr. Jeremy Dommu
U.S. Department of Energy
Buildings Technologies Program
Mail Stop EE-5B
1000 Independence Ave, SW
Washington, DC 20585-0121

NEMA Comments on Energy Conservation Program: Request for Information Test Procedure for Small Electric Motors and Electric Motors

Docket Number: EERE–2017–BT–TP–0047

Dear Mr. Dommu,

As the leading trade association representing the manufacturers of electrical and medical imaging equipment, the National Electrical Manufacturers Association (NEMA) provides the attached comments on the Department of Energy's Request for Information regarding Test Procedures for Small Electric Motors and Electric Motors. These comments are submitted on behalf of NEMA Motor and Generator Section member companies.

NEMA, founded in 1926 and headquartered in Arlington, Virginia, represents nearly 400 electrical and medical imaging manufacturers. Our combined industries account for more than 350,000 American jobs and more than 6,500 facilities across the U.S. Domestic production exceeds $117 billion per year.

Please find our detailed comments attached. Our Member companies count on your careful consideration and we look forward to an outcome that meets their expectations.
If you have any questions on these comments, please contact Alex Boesenberg of NEMA at 703-841-3268 or alex.boesenberg@nema.org.

Sincerely,

Kyle Pitsor

Kyle Pitsor
Vice President, Government Relations

NEMA Comments on DOE's Request for Information regarding Test Procedures for Small Electric Motors and Electric Motors

General Remarks:
NEMA supports and agrees with DOE's recent rulemaking actions establishing energy conservation standards on equipment systems instead of the components in equipment. The "Extended Product Regulation" approach used in establishing standards for Commercial and Industrial Pumps or Dedicated Purpose Pool Pumps are good examples of a better approach to address energy efficiency by looking at how components combine into an end-use product. Rather than regulating equipment efficiency by looking at a motor inside the extended product, the more appropriate approach is to look at setting efficiency for the equipment or appliance as a whole.

NEMA views an amendment to test procedures for small electric motors and electric motors as a precursor for expanding component regulation, and believes that DOE should be looking at more effective system efficiency regulation instead. Because special- and definite-purpose small electric motors are components in other regulated appliances, NEMA does not support regulating motors outside their applied use environment. In view of improved and more practical energy efficiency potential of appliance- and equipment-level standards, NEMA does not support additional motor efficiency regulations for electric motors or small electric motors. A component approach is likely to impose higher costs on the entire system supply chain and drive the extended product prices higher.

Special- and definite-purpose small electric motors from 0.125 to 3 horsepower are predominantly sold to OEM's that incorporate them into a product system. Examples of these product systems incorporating these small electric motors include: window unit air conditioners, residential air compressors, furnaces, food processing equipment, fans and blowers, washing machines, floor care products and thousands more. The fallacy of component regulation in the case of small electric motors is that any test method for general, definite or special purpose small electric motors that measures efficiency in a laboratory at fixed speed and under specific load and power conditions will not provide consumers or the nation with a meaningful metric versus testing and regulating the complete system. It is not worthwhile to attempt to quantify and accommodate all the possible loading conditions and hours of use for the myriad applications of general, definite and special purpose small electric motors. Such projections would result in broad assumptions which over the course of analysis would yield meaningless unverifiable results. In the end, what matters is delivering energy savings in practical application, and system-level projections are the most credible data regarding true energy consumption of appliances in practical application.

While NEMA does not support expansion of the scope of applicability of electric motor test procedures, NEMA does support the addition of the IEC 61800-9 series of testing standards to the approved list of testing standards for motor-driven system testing. The IEC 61800-9 approach is supported by NEMA Motor and Generator Members and we submit it is a correct path to measure motor-driven system savings.

For those general purpose small electric motors already regulated, there have been changes to international and regional standards, and those should be updated in the existing test procedures along with other relevant considerations. Our comments below then are largely concerning already-regulated products.

Below follows a summary of known test procedures for motors and motor driven systems.

Currently Incorporated by DOE:
IEEE 114
CSA C747
IEEE 112 Method A
IEEE 112 Method B
CSA C390

Recommended by NEMA for incorporation by DOE:
CSA C838-2011

Scope: This standard establishes the testing procedure for determining efficiencies under varying loads and speeds for three-phase output variable frequency drives (VFDs) with rated voltage up to 750 V. This test procedure is limited to a combination of one motor with one drive. This Standard applies to voltage source inverter (VSI) pulse-width modulated (PWM) drives for squirrel-cage induction motors and other three-phase VFD technologies commonly used with permanent magnet and reluctance motor-drive systems. This Standard does not cover VFDs with a rated voltage rating greater than 750 V. Ancillary equipment are not to be included unless they are contained within the confines of the input and output terminals of the VFD device, or a mandatory requirement for the operation of the VFD. Note: Small motors supplied with special purpose VFDs of the single-phase type are covered by CSA C747.

IEC 60034-2-1-2014 Method 1A (input output)
IEC 60034-2-1-2014 Method 1B - residual loss

1 Scope
This part of IEC 60034 is intended to establish methods of determining efficiencies from tests, and also to specify methods of obtaining specific losses.
This standard applies to d.c. machines and to a.c. synchronous and induction machines of all sizes within the scope of IEC 60034-1.
NOTE These methods may be applied to other types of machines such as rotary converters, a.c. commutator motors and single-phase induction motors.

61800-9-1-2017 Adjustable speed electrical power drive systems

Part 9-1: Ecodesign for power drive systems, motor starters, power electronics and their driven applications - General requirements for setting energy efficiency standards for power driven equipment using the extended product approach (EPA) and semi analytic model (SAM)

IEC 61800-9-2-2017 Adjustable speed electrical power drive systems

Part 9-2: Ecodesign for power drive systems, motor starters, power electronics and their driven applications - Energy efficiency indicators for power drive systems and motor starters.
Scope: This part of IEC 61800 specifies efficiency indicators of power electronics (complete drive modules, CDM), power drive systems (PDS) and motors starters, all used for motor driven equipment.
It specifies the methodology for the determination of losses of the complete drive module, the power drive system and the motor system.

It defines IE and IES classes, their limit values and provides test procedures for the classification of the overall losses of the motor system.
Furthermore, this document proposes a methodology for the implementation of the best energy efficiency solution of drive systems. This depends on the architecture of the motor driven systems. On the speed/load profile and on the operating points over time of the drive equipment.
The methodology of the extended product approach and the semi analytical models are defined in IEC 61800-9-1
The structure of this document is as follows:

- The losses of standardized reference PDS, standardized reference CDM, and the mathematical model for their calculation are given and classified.
- The reference motor (RM) and reference CDM are defined and can be used to determine the efficiency class of a motor system when one of its constituents is unknown.
- The requirements for determination of the losses of a real PDS and real CDM are given and compared to the reference RPDS and RCDM
- The requirements for type testing and user documentation are given
- Some exemplary losses of an overall system are illustrated in annexes
- Information about system and drive topologies are given in annexes

Specific data for power losses of RCDM, RM, RPDS and IE/IES-classes are given for low voltage (110V up and equal to 1000V), single axis AC/AC power drive systems with 3phase motors. Geared motors are treated as standard motors when motor and gearbox can be separated.
All provided reference data is derived from PDS with induction motors. It may be used for all types of PDS with other types of motors as well.
The application of this document to the following equipment may be technical possible but is not mandatory:

- High voltage CDM and PDS with a rated voltage above 1000VAC
- Low voltage CDM and PDS with a rated voltage below 100VAC
- High power PDS above a rated power of 1000kW
- High power CDM above a rated apparent power of 1209 kVA
- Low power PDS above a rated apparent power of 0.12kW
- Low power CDM below a rated power of 0.278 kVA
- CDMs other than those converting electrical AC power into one single AC output
- PDSs other than those converting electrical AC power into one single mechanical rotating shaft
- PDSs and CDMs that are able to regenerate energy back into the AC power supply
- PDSs and CDMs having an input current with a THC (according to 61000-3-12) of less than 10%
- PDS with geared motors where motor and gearbox cannot be separated, for example because of a common housing
- Servo PDS (consisting of frequency converter, motor and position feedback sensor)
- PDSs that are not put on the market as one single product
- Note: IEC 61800-9 (all parts) does not cover energy efficiency classification of driven equipment but provides input for the assessment to the extended product approach

NEMA responses to DOE Issues follow.

Issues on which DOE seeks Comment:
Issue 1: DOE seeks comment, data, information and justification regarding a minimum and maximum horsepower limit for motors for which DOE may consider test procedures.
NEMA Comment: There should be no changes to the current HP range. DOE should regulate the end product not the motor components.

Issue 2: DOE seeks comment, data, and information about any additional motor category and associated horsepower range, frame sizes, and/or any additional features (such as voltage and service factor) that should be considered in a possible test procedures rulemaking and why (e.g., motor categories and features presented in Table II-1, Table II-2, Table II-3, and Table II-4). DOE is also interested in detailed information on whether there would be a significant test burden resulting from requiring testing of such motors – and if so, the nature and extent of that burden.
NEMA Comment: The current scope of test procedures and standards for small electric motors is technology specific and therefore limits systems-level efficiency gains for non-covered small electric motors. Only systems-level efficiency testing can accurately address the energy use of a definite or special purpose small electric motor, and as such testing of individual motors is unnecessary beyond that already done today.

Issue 3: DOE requests comment on the primary motor topologies included in Table II-3, including whether they should be considered, or not, in a possible test procedures rulemaking and why. DOE seeks comment on any motor topologies not listed that DOE should consider including in a possible test procedures rulemaking. DOE is interested in information on the potential test burden associated with testing such motors.
NEMA Comment: DOE does not need to consider additional test procedures for topologies listed in Table II-3 for which specific test procedures do not exist today. For the purpose of marketing claims and labeling, it is sufficient to test all motors using one of the procedures in Table II-5. There is no need to invest significant resources in pursuing more detailed test procedures or any additional standards on definite and special purpose electric motors and small electric motors.

Issue 4: DOE seeks input on how an air-over motor could be identified based on physical and technical features. DOE requests comment on whether air-over motors could be defined based on their inability to thermally stabilize without the application of external cooling by a free flow of air during a rated temperature test according to either IEEE 112-2004, CSA C747-09, or CSA C390-10 for polyphase motors; or IEEE 114-2010 or CSA C747-09 for single-phase motors. In addition, DOE requests comment and information on whether all motors currently sold as “air-over motors” and which percentage of the market would meet this definition
NEMA Comment: Air-over motors cannot be identified by physical and technical features alone. DOE should not regulate air-over motors. DOE should regulate the extended product or power drive system, not the motor component.

Issue 5: DOE seeks comment, data, and information about any motor category that should be considered for exemption from a possible test procedure rulemaking and information providing justification for such exemptions. All exemptions, including exemptions targeted for motors that serve specific applications (e.g., submersible motors), must be identified based on unique physical features of the motor. DOE seeks comment, data, and information on these physical features.

NEMA Comment: All current small electric and electric motor exemptions should be maintained. DOE should regulate the end product or system, not the components.

Issue 6: DOE requests comment on how to account for components included in a motor or motors that are sold in multiple pieces, specifically regarding how to categorize controls or electrical conversion components that may be non-integrally connected to the motor and how to treat them during testing. DOE requests comment on ways to identify control and conversion components that are essential to motor operation.
NEMA Comment: Control and conversion components will be captured in a Power Drive System energy efficiency test, which is the only practical way to test and evaluate them.

Issue 7: DOE seeks comments and feedback about whether the presence of a gear box should constitute a new motor model when added to a motor. More specifically, if DOE were to establish a test procedure for motors with gear boxes, should these motors have to be certified to DOE separately from the same motors without a gear box? DOE is interested in information regarding the potential test burden should separate certification be required. Does the gear box change the tested motor efficiency?
NEMA Comment: There are currently no industry test standards in place to describe how a gear box is to be tested for efficiency. There are many factors that contribute to the efficiency of the gear box, e.g. finish grind of the gears, number stages, number of bearings, type of lubricant, mounting position, etc.

The motor manufacturer does not necessarily know if a gearbox will be added to a motor. Adding a gear box will not change the motor efficiency however the system efficiency will be reduced. The presence of a gear box should NOT constitute a new motor model when added to a motor. The motor should be tested separately as is done already in the regulations for electric motors.

Issue 8: DOE is interested in any physical feature(s) or observable physical properties that would differentiate these motors [Dedicated purpose pool pump motors] from the currently regulated small electric motors at 10 CFR 431.446 and electric motors at 10 CFR 431.42525 that would help define the scope of applicability of the test procedure should DOE decide to proceed in consideration of one.
NEMA Comment: We support DOE regulating the end use product/system, as is done in the Dedicated Purpose Pool Pump regulation.

Issue 9: DOE also requests comment on any particular markings or labels applied to these products or if there are published industry standards that may be used to uniquely identify motors used in pool pump applications, for example sections of NEMA MG 1-2014, “Motors and Generators,” or of UL 1801, “Standard for Swimming Pool Pumps, Filters, and Chlorinators” and would help define how they should be tested.

NEMA Comment: We defer to the negotiations begun between the pool pump manufacturers and industry on this topic.

Issue 10: DOE requests comment on the existing small electric motor and electric motor metrics and on any recommended new metrics for the motors under consideration in a test procedure rulemaking.
NEMA Comment: We recommend the DOE review and incorporate the new IEC 61800-9 "PDS" standard series which describe how to classify and test a motor with integrated or non-integrated control.

Issue 11: DOE seeks comment and information on whether and why the existing test procedure for determining the average full-load efficiency of small electric motors requires revision, and, if so, what these revisions should be. DOE also requests comment on the impact to test burden from any suggested revisions.
NEMA Comment: The required name plate efficiency values listed in 431.25 are harmonized with NEMA nominal efficiency values. DOE's insistence on using Average Efficiency for small electric motor standards does not follow any industry standards or conventions. The conflict between the Electric Motor standards and Small Electric Motor standards causes confusion in the market. To encourage wider compliance with and easier enforcement of standards, NEMA recommends DOE adopt the NEMA Nominal efficiency convention, which is harmonized with global IEC and other standards.

The current test procedure is adequate, as is DOE's new approach to regulate the Extended Product. However, per our comments to Issue 10, one potentially beneficial improvement would be the addition of IEC 61800-9 series, IE and IES procedures to accommodate the testing of variable speed systems.

Issue 12: DOE requests comment and input on the availability of methods for testing other topologies (motors other than CSCR, CSIR, and polyphase) listed in Table II-6 in this RFI. If a new test procedure is needed, DOE requests information on any additional instructions that would be required to test these motor topologies.
NEMA Comment: Per our comments to Issues 10 and 11, all new technologies presented by DOE in Table II-6 could be tested using the IEC 61800-9-2 "PDS" standard series, which would assist with classification and testing of motors with integrated or non-integrated controls and those motors with variable speed systems.

Issue 13: DOE requests comment on any other design features of a motor that could require modifications to an industry standard for testing, what these modifications should be, and why. In particular, DOE requests comment on whether testing instructions similar to the ones found in

section 4 of appendix B to subpart B of part 431 would apply to any new motors that may be included in a possible test procedure rulemaking.
NEMA Comment: Existing DOE Test Procedure adequately prescribe additional test instructions for today's covered products. If the scope is expanded by HP or technology then testing methods would need to be reviewed.

Issue 14: DOE requests comment and input regarding the existing testing provisions for air-over motors in section 8.2.1 of IEEE 114-2010, section 5 of CSA C747-09, and in the NEMA Air-over Motor Efficiency Test Method. Specifically, DOE requests feedback and supporting data on the repeatability and level of accuracy of these methods, and on whether these or other methods would lead to equivalent results when applied to the same motor.
NEMA Comment: Per our comments to issue #4, DOE should not regulate air-over motors. DOE should regulate the extended product or power drive system.

Issue 15: DOE understands that customers may provide air-velocity specifications for air over motors. DOE requests comment on whether testing air-over motors according to customer air-velocity specifications is currently used by the industry and why. Additionally DOE requests comment on whether testing air-over motors according to customer air-velocity specifications would allow comparability of efficiency across motors.
NEMA Comment: DOE should not regulate air-over motors. DOE should regulate the extended product or power drive system.

Issue 16: DOE is aware that, because efficiency is inversely correlated to temperature, conducting the temperature test using a different target temperature for polyphase air-over motors depending on the motor's insulation class may lead to measured efficiency values that are not comparable across insulation classes. When measuring polyphase air-over motor efficiency, DOE requests comment on whether the temperature test should be conducted using a single target temperature in order to allow relative comparability of polyphase air-over motor efficiency across insulation classes. If not, DOE requests comment on a justification for why testing polyphase air-over motors using a temperature test at different target temperatures depending on the motor's insulation class would still provide comparable efficiency results across insulation classes.
NEMA Comment: DOE should not regulate air-over motors. DOE should regulate the extended product or power drive system.

Issue 17: DOE also requests comment regarding any additional instructions for testing electronically commutated motors or other categories of motors with controls (e.g., variable speed drives), and how controls affect average full load efficiency of the motor.
NEMA Comment: DOE should regulate the system and not the components. We reiterate our previous recommendation to DOE that they review the new IEC 61800-9 standard series for the classification and testing of motors with integrated or non-integrated control. While adding a

variable speed control may lower the overall efficiency of the motor and control system or PDS itself, the overall motor driven system's power savings can be substantially improved due to the reduced speeds and load.

Issue 18: DOE requests comment on industry standards applicable to synchronous motors and their applicability to the horsepower range (i.e., ≥ 0.125 hp and ≤ 15 hp) that DOE is considering in a potential test procedure rulemaking (e.g., IEEE 115-2009, IEEE 1812-2014, IEC 60034-2-1: 2014, and CSA C747-09). DOE also requests comment on the applicability of IEEE 115-2009 to AC permanent magnet synchronous and synchronous reluctance motors.
NEMA Comment: While either IEEE 115 or 1812 are both acceptable design specification standards for synchronous motors they are not appropriate test procedures for motors. These standards are not sufficiently comprehensive to obtaining repeatable results.

We note that IEEE1812-2014 has been released for trial-use; it is not a recognized standard.

AC permanent magnet synchronous and synchronous reluctance motors are best addressed through the use of test procedures from IEC 61800-9-2.

Issue 19: DOE requests comment on the feasibility of testing motors that are components of other equipment. Specifically, DOE requests comments on whether some motors that only enter commerce as components of another product require modifications to an industry standard for testing and on what these modifications should be and why.
NEMA Comment: Existing DOE Test Procedures[1] adequately prescribe additional test instructions for today's covered products, and no major modifications are needed.

In many cases, these motors are covered by existing appliance regulations that account for electrical energy consumption and can be more effectively evaluated as part of an Extended Product. Again, the IEC 61800-9 standards are useful in this case.

Issue 20: DOE requests comment and supporting data on testing times and associated costs of efficiency testing. Specifically, how many hours it takes to test a motor per each industry standard listed in Table II-6, if manufacturers test their own models or hire a third-party for testing, if manufacturers need to purchase additional test equipment according to the industry standards in Table II-6, and if there are any other costs associated with testing.
NEMA Comment: It can take as little as 8 hours and as long as 32 hours to run a test, stretching over 1-3 days' time for the entire process of setup to teardown and running/checking the motor afterward to ensure proper operation. Setup for testing includes placing thermocouples, mounting the motor, and waiting for thermal stabilization. The larger the motor the longer the test takes. Teardown also takes a several hours.

[1] Final Rule 78th FR No. 240 of 12/13/2013 outlines methods to test partial/component motors

Associated costs of testing include NVLAP accreditation and/or UL and CSA third party energy efficiency verification. Motor and Control testing can also add 4-8 hours depending on the type of control and its ease of access to set up.
The potential additional test requirements of the CCE rulemaking[2] are likely to require lab expansion to increase capacity, and acquisition of additional equipment (dynamometers and associated test apparatus). Additional staff would also need to be hired and trained for any lab expansion.

TABLE II–6—PRIMARY MOTOR TOPOLOGIES AND EXISTING INDUSTRY STANDARDS

Motor topology	Existing industry standard
Permanent-Split Capacitor	IEEE 114–2010; IEC 60034–2–1: 2014 †; CSA C747–09.
Capacitor-Start (CSCR, CSIR)	IEEE 114–2010*; IEC 60034–2–1: 2014; CSA C747–09.
Split-phase	IEEE 114–2010; IEC 60034–2–1: 2014; CSA C747–09.
Shaded-Pole	IEEE 114–2010; IEC 60034–2–1: 2014; CSA C747–09.
Line-Start Permanent Magnet	IEC 60034–2–1: 2014; CSA C747–09.
AC Permanent Magnet Synchronous	IEEE 115–2009; IEEE 1812–2014 ‡; IEC 60034–2–1: 2014; CSA C747–09. (The IEC and CSA standards may not apply to auxiliary starting motor designs).
Polyphase induction, squirrel cage	IEEE 112–2004 (Method A and B)**; IEC 60034–2–1: 2014; CSA C390–10; CSA C747–09.
Reluctance Synchronous	CSA C747–09.
DC Brushed Permanent Magnet	IEC 60034–2–1: 2014.
Switched Reluctance ***	CSA C747–09.
DC Brushless Permanent Magnet ***	CSA C747–09.

* Includes testing provisions for air-over motors.
** Does not include all polyphase induction squirrel cage motors (*e.g.*, air over motors, inverter-only motors).
*** These motors are often referred to as electronically commutated motors (ECM).
† IEC 60034–2–1: 2014, "Rotating electrical machines—Part 2–1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles).".
‡ IEEE 1812–2014 "IEEE Trial-Use Guide for Testing Permanent Magnet Machines."

Issue 21: DOE requests comment on the benefits and burdens of adopting any already existing voluntary consensus-based or other appropriate test procedure, without modification.
NEMA Comment: As noted in our opening remarks and in several responses to issues, beginning with item 10, NEMA recommends the DOE review and consider the IEC 61800-9-2 standards for Power Drive Systems. Aside from these, the test procedures within the current regulations are sufficient for individual motors.

Issue 22: DOE requests comment on how industry currently determines the full-load, or rated, horsepower of a motor, and how DOE should specify this quantity.
NEMA Comment: Motor rating is determined per NEMA or IEC standards, based on application, load variation & environment. It would be unnecessary and confusing were DOE to specify any rating matrix.

Issue 23: DOE requests comment and input on a method to determine full-load, or rated, horsepower of a motor based on the breakdown torque of a motor as specified in NEMA MG 1-2014.

[2] http://www.regulations.gov/document?D=EERE-2014-BT-CE-0019-0003

NEMA Comment: Single phase small electric motors are typically rated based on the breakdown torque per NEMA MG1 limits.

Issue 24: DOE requests comment and input on a method to determine full-load, or rated, horsepower of a motor based on the load which results in a temperature rise associated with the insulation class of the motor (i.e., service factor load). DOE also requests comment on whether all motors have an associated NEMA insulation class (i.e., A, B, F, and H) that is known by the manufacturer, and if it is not known if there are methods a manufacturer can use to determine the insulation class. DOE also requests comment on the temperature rise that should be associated with each insulation class for this method (e.g., values from NEMA MG 1-2014 or IEEE 112-2004).
NEMA Comment: An electric motor's rating is not derived from temperature rise limit or the Insulation class of the machine.

With respect to insulation classes, each insulation class is rated for continuous operation at specified temperature limit. While all motors operate within the temperature limits of that insulation class, not all motors operate continuously at the same temperature. The insulation class for any given motor could be selected based on continuous use at an elevated temperature or it may be selected to protect motors due to spikes in temperature that cannot be controlled but are not the typical/normal operating points.

We do not recommend DOE attempt to correlate insulation class to full load torque or efficiency.

Issue 25: DOE requests comment on applying (1) the sampling plan in DOE's separate notice of proposed rulemaking (81 FR 41378, [June 24, 2016]) and (2) the represented value calculation [AEDM] for small electric motors to new motors DOE may consider regulating.
NEMA Comment: We believe the sampling plan is appropriate.

We refer the DOE to our comments to Issue 11: the small motor regulation is based on an average efficiency values while the motor industry is accustomed to NEMA nominal. The accepted global practice is to use NEMA nominal.

Non-numbered RFI Questions

26. Other Test Procedure Topics

In addition to the issues identified earlier in this document, DOE welcomes comment on any other aspect of the existing test procedures for small electric motors not already addressed by the specific areas identified in this document. DOE particularly seeks information that would improve the repeatability, reproducibility, and consumer representativeness of the test procedures. DOE also requests information that would help DOE create a procedure that would

limit manufacturer test burden through streamlining or simplifying testing requirements.

Comments regarding repeatability and reproducibility are also welcome.

NEMA Comment: The current test procedures as well as IEC 61800-9-2 and 60034-2-1 are the only truly repeatable tests. Having options with respect to the allowable test methods allows manufacturers to select the best option for their in-house skill sets and equipment as well as the technology being tested, with a better outcome in terms of accuracy as a result.
The hazard in streamlining or simplifying existing test procedures is that accuracy or repeatability might suffer. If simplifications of the procedures become possible, those standards organizations will document them in future revisions.
It follows that testing an extended product precludes having to test individual components separately, which saves test time and cost.

27. DOE seeks comment on the degree to which the DOE test procedure should consider and be harmonized with the most recent relevant industry standards for small electric motors and whether there are any changes to the Federal test method that would provide additional benefits to the public.
NEMA Comment: Adding IEC Standards 60034-2-1, 61800-9-1 and 61800-9-2 would further harmonize DOE procedures with industry practice. Note that each manufacturer might not utilize the same method, but each method is repeatable.

28. Additionally, DOE requests comment on whether the existing test procedures limit a manufacturer's ability to provide additional features to consumers of small electric motors. DOE particularly seeks information on how the test procedures could be amended to reduce the cost of these new or additional features and make it more likely that such features are included on small electric motors.
NEMA Comment: The current test procedures do not limit motor manufacturers' ability to provide features to the consumer.