



**[6450-01-P]**

**DEPARTMENT OF ENERGY**

**10 CFR Part 431**

**EERE-2019-BT-TP-0013**

**FRIN 1904-AC72**

**Energy Conservation Program: Test Procedure for Illuminated Exit Signs**

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

**ACTION:** Request for information.

**SUMMARY:** The U.S. Department of Energy (DOE) is initiating a data collection process through this request for information (RFI) to consider whether to amend DOE's test procedure for illuminated exit signs. Specifically, DOE seeks data and information pertinent to whether amended test procedures would more accurately or fully comply with the requirement that the test procedure produces results measure energy use during a representative average use cycle or period of use for the product without being unduly burdensome to conduct, or reduce testing burden. DOE welcomes written comments from the public on any subject within the scope of this document (including topics not raised in this RFI), as well as the submission of data and other relevant information.

**DATES:** Written comments and information are requested and will be accepted on or before **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

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

comments. Alternatively, interested persons may submit comments, identified by docket number EERE-2019-BT-TP-0013, by any of the following methods:

1. *Federal eRulemaking Portal*: <https://www.regulations.gov>. Follow the instructions for submitting comments.
2. *E-mail*: [exitsigns2019TP0013@ee.doe.gov](mailto:exitsigns2019TP0013@ee.doe.gov). Include docket number EERE-2019-BT-TP-0013 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 <https://www.regulations.gov>. All documents in the docket are listed in the

*https://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

*https://www1.eere.energy.gov/buildings/appliance\_standards/standards.aspx?productid=13.*

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

*https://www.regulations.gov.*

**FOR FURTHER INFORMATION CONTACT:** Ms. Lucy deButts, 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. E-mail:

*ApplianceStandardsQuestions@ee.doe.gov.*

Ms. Jennifer Tiedeman, U.S. Department of Energy, Office of the General Counsel, GC-33, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone: 202-287-6111. E-mail: *Jennifer.Tiedeman@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 e-mail: *ApplianceStandardsQuestions@ee.doe.gov.*

## **SUPPLEMENTARY INFORMATION:**

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## **I. Introduction**

Illuminated exit signs are included in the list of “covered products” for which DOE is authorized to establish and amend energy efficiency standards and test procedures. (42 U.S.C. 6295(w) and 42 U.S.C. 6293(b)(9)) DOE’s test procedure for illuminated exit signs is prescribed at title 10 of the Code of Federal Regulations (CFR) part 431, subpart L. The following sections discuss DOE’s authority to establish and amend the test procedure for illuminated exit signs, as well as relevant background information regarding DOE’s consideration of test procedures for this product.

### A. Authority and Background

The Energy Policy and Conservation Act of 1975, as amended (EPCA),<sup>1</sup> 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) Title III, Part B<sup>2</sup> of EPCA established the Energy Conservation Program for Consumer Products Other Than Automobiles, which sets forth

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<sup>1</sup> 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).

<sup>2</sup> For editorial reasons, upon codification in the U.S. Code, Part B was redesignated Part A.

a variety of provisions designed to improve energy efficiency. These products include illuminated exit signs, the subject of this RFI. (42 U.S.C. 6293(b)(9); 42 U.S.C. 6295(w))<sup>3</sup>

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 procedures. Relevant provisions of EPCA include definitions (42 U.S.C. 6291), energy conservation standards (42 U.S.C. 6295), test procedures (42 U.S.C. 6293), labeling provisions (42 U.S.C. 6294), and the authority to require information and reports from manufacturers (42 U.S.C. 6296).

Federal energy efficiency requirements for covered products established under EPCA generally supersede State laws and regulations concerning energy conservation testing, labeling, and standards. (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. 6297(d))

The Federal testing requirements consist of test procedures that manufacturers of covered products must use as the basis for (1) certifying to DOE that their products comply with the applicable energy conservation standards adopted pursuant to EPCA (42 U.S.C. 6295(s)), and (2) making certain other representations about the efficiency of those consumer products (42 U.S.C.

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<sup>3</sup> Although illuminated exit signs are covered products pursuant to EPCA, as a matter of administrative convenience and to minimize confusion among interested parties, DOE codified illuminated exit sign provisions into subpart L of 10 CFR part 431 (containing DOE regulations that apply to commercial and industrial equipment) because typically businesses, rather than individuals, purchase them. 70 FR 60407, 60409 (Oct. 18, 2005). DOE refers to illuminated exit signs as either “products” or “equipment.”

6293(c)). Similarly, DOE must use these test procedures to determine whether the products comply with relevant standards promulgated under EPCA. (42 U.S.C. 6295(s))

Under 42 U.S.C. 6293, EPCA 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 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))

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. 6293(b)(2))

In addition, EPCA requires that DOE amend its test procedures for all covered products to integrate measures of standby mode and off mode energy consumption into the overall energy efficiency, energy consumption, or other energy descriptor, taking into consideration the most current versions of Standards 62301 and 62087 of the International Electrotechnical Commission (IEC), unless the current test procedure already incorporates standby mode and off mode energy consumption or such integration is technically infeasible. (42 U.S.C. 6295(gg)(2)(A)) If an integrated test procedure is technically infeasible, DOE must prescribe separate standby mode and off mode energy use test procedures for the covered product, if a separate test is technically feasible. *Id.*

EPCA also requires that, at least once every 7 years, DOE evaluate test procedures for each type of covered product, including illuminated exit signs, to determine whether amended test procedures would more accurately or fully comply with the requirements for the test procedures to be reasonably designed to produce test results that reflect energy efficiency, energy use, and estimated operating costs during a representative average use cycle or period of use and not to be unduly burdensome to conduct. (42 U.S.C. 6293(b)(1)(A)) If the Secretary determines, on his own behalf or in response to a petition by any interested person, that a test procedure should be prescribed or amended, the Secretary shall promptly publish in the *Federal Register* proposed test procedures and afford interested persons an opportunity to present oral and written data, views, and arguments with respect to such procedures. (42 U.S.C. 6293(b)(2)) The comment period on a proposed rule to amend a test procedure shall be at least 60 days and may not exceed 270 days. In prescribing or amending a test procedure, the Secretary shall take into account such information as the Secretary determines relevant to such procedure, including technological developments relating to energy use or energy efficiency of the type (or class) of covered products involved. *Id.* If DOE determines that test procedure revisions are not appropriate, DOE must publish its determination not to amend the test procedures. DOE is publishing this RFI to collect data and information to inform its decision pursuant to EPCA's 7-year review requirement. (42 U.S.C. 6293(b)(1)(A))

## B. Rulemaking History

The Energy Policy Act of 2005 (EPACT 2005) amended EPCA to provide a test procedure for illuminated exit signs, requiring that the procedure “be based on the test method

used under version 2.0 of the ENERGY STAR<sup>4</sup> program of the Environmental Protection Agency for illuminated exit signs.” (42 U.S.C. 6293(b)(9)) In 2006, DOE published a final rule adopting a test procedure for illuminated exit signs at 10 CFR 431.204. 71 FR 71340, 71372-71373 (Dec. 8, 2006). Certification, compliance and enforcement (CCE) requirements for illuminated exit signs, including sample size, sampling plan, compliance, calculations and reporting, are found at 10 CFR 429.48 and 10 CFR 429.11.

On August 6, 2013, DOE published final guidance<sup>5</sup> clarifying that energy conservation standards apply to illuminated exit signs with auxiliary functions such as integrated egress lighting and/or audible alarms (sometimes referred to as combination exit signs).<sup>6</sup> DOE stated that the addition of auxiliary features or hardware in a combination exit sign does not transform an illuminated exit sign into non-covered equipment or otherwise exempt it from regulatory requirements, although the added features or hardware are not subject to the relevant energy conservation standard. In the August 2013 guidance, DOE noted that using the current DOE procedure used to test combination illuminated exit sign models may result in measured values that are not representative of solely the illuminated exit sign component’s input power demand due to the typically larger battery required to accommodate operation of the auxiliary features. DOE’s current test procedure does not provide a methodology for excluding the power consumed in charging the battery to operate auxiliary features from the power consumed to

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<sup>4</sup> ENERGY STAR is a U.S. Environmental Protection Agency (EPA) voluntary program that allows manufacturers to label products as ENERGY STAR qualified if they meet certain performance requirements for energy efficiency.

<sup>5</sup> The August 6, 2013 guidance is available at: [https://www1.eere.energy.gov/buildings/appliance\\_standards/pdfs/exitsigns\\_faq\\_2013-8-6\\_final.pdf](https://www1.eere.energy.gov/buildings/appliance_standards/pdfs/exitsigns_faq_2013-8-6_final.pdf) (“August 2013 guidance”).

<sup>6</sup> As described in section 0 of this RFI, “combination exit signs” require larger capacity batteries than illuminated exit signs without features such as egress lighting and/or audible alarms.

illuminate the exit sign faces. As such, DOE stated that manufacturers may seek a waiver from the DOE test procedure to test and certify combination illuminated exit sign models if manufacturers do not believe the result of the DOE test procedure is representative of an illuminated exit sign's input power demand.

DOE granted a waiver to Acuity Brands Lighting (Acuity), published on March 16, 2018, requiring Acuity to use an alternate test procedure to test and rate the combination illuminated exit sign basic models for which it requested a waiver. 83 FR 11740 (“March 2018 Acuity waiver”). DOE granted a waiver to Beghelli North America (Beghelli) published on June 21, 2019, for certain combination exit sign models similar to those basic models identified by Acuity in its waiver petition. 84 FR 29186 (“June 2019 Beghelli waiver”). DOE granted a waiver to Signify North America Corporation (Signify) published on January 31, 2020 for certain combination exit sign models, also similar to those identified by Acuity and Beghelli. 85 FR 5652 (“January 2020 Signify waiver”). Under applicable regulations, after issuing a waiver, DOE must update the relevant test procedure to establish how to test those basic models granted a waiver. 10 CFR 431.401(l). Therefore, DOE is considering an alternate test procedure for combination illuminated exit signs.

## **II. Request for Information and Comments**

In the following sections, DOE has identified a variety of issues on which it seeks input to aid in the development of technical and economic analyses used to determine whether an amended test procedure for illuminated exit signs would more accurately or fully comply with the requirements in EPCA that test procedures: (1) be reasonably designed to produce test results which reflect energy use during a representative average use cycle or period of use; and (2) not

be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)). DOE also requests comment on any opportunities to streamline and simplify testing requirements for illuminated exit signs.

Additionally, DOE welcomes comment 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. 82 FR 9339 (Feb. 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 illuminated exit signs, consistent with the requirements of EPCA.

#### A. Scope and Definitions

This notice concerns illuminated exit signs; an illuminated exit sign is defined as a sign that is designed to be permanently fixed in place to identify an exit and consists of an electrically powered integral light source that both illuminates the legend “EXIT” and any directional indicators, and provides contrast between the legend, any directional indicators, and the background. (42 U.S.C. 6291(37)); *see also* 10 CFR 431.202. DOE’s current energy conservation standards for illuminated exit signs limit input power demand to 5 W or less per face. 10 CFR 431.206. For example, a single face illuminated exit sign (*e.g.*, mounted flush to a wall with only one side illuminated) must have an input power demand of 5 W or less, and a two face illuminated exit sign (*e.g.*, mounted perpendicular to a wall, or ceiling mounted with two sides illuminated) must have an input power demand of 10 W or less.

As noted above, the August 2013 guidance clarified that energy conservation standards for illuminated exit signs apply to illuminated exit signs with integrated egress lighting or other auxiliary features (*i.e.*, “combination exit signs”). The guidance stated that a product meeting the statutory and regulatory definition of “illuminated exit sign” is subject to the applicable DOE regulations, regardless of whether that product also provides additional features. As explained in the August 2013 guidance; however, DOE interprets the input demand standard as a limit only on the energy use of components that illuminate the face(s), not on the energy use of other components beyond the definition of illuminated exit sign (*e.g.*, egress lighting, alarms).

DOE is considering whether a definition for “combination illuminated exit sign” is needed, in conjunction with test procedure provisions specific to combination illuminated exit signs (see section II.B.5 of this RFI). DOE is considering defining combination illuminated exit signs as illuminated exit signs that include or are packaged with (1) at least one auxiliary feature (*i.e.*, an electrically connected component or device with a function that does not support the illumination of the face(s) of an exit sign, such as egress lighting and audible alarms) and (2) a battery electrically connected to the illumination source for the face. Combination illuminated exit signs have auxiliary features (*e.g.*, egress lighting and/or audible alarms) that require larger capacity batteries than do illuminated exit signs without such features.

DOE is also considering revising or adding supporting definitions. For example, the existing definition of “face” is an illuminated side of an illuminated exit sign. DOE is considering aligning the definition of “face” with the definition of “illuminated exit sign” by specifying that each face must include the legend “EXIT” (read from left to right), and any directional indicators, if present. To illustrate the need for further clarity in the definition of

“face,” DOE notes three configurations of edge-lighted illuminated exit signs<sup>7</sup> of which the Department is aware: (1) one side is illuminated and reads “EXIT” from left to right and the other side is not illuminated; (2) one side is illuminated and reads “EXIT” left to right and the other side is illuminated and displays a reversed, illegible version of the same text; and (3) both sides are illuminated and both sides read “EXIT” from left to right. DOE considers configurations (1) and (2) to have a single face because the legend “EXIT” can be read correctly (*i.e.*, from left to right) only when viewed from one side of the sign. DOE considers configuration (3) to have two faces because the legend can be read correctly from either side of the sign. The considered definition, above, would clarify that each view of the legend “EXIT” that can be read correctly constitutes one face. Based on this definition, it would be clear that configuration (3) has two faces, while configurations (1) and (2) each have one face.

Some illuminated exit signs can be configured by the user to have different numbers of faces (*e.g.*, an illuminated exit sign can be configured with one or two face(s)). The energy conservation standard for illuminated exit signs is a maximum input power demand per face. 10 CFR 431.206. To provide additional direction for calculating input power demand per face, DOE is considering defining “face count” as the lowest number of faces with which an exit sign can be configured with all electric light sources connected and energized. For example, if an illuminated exit sign can be configured with either one or two faces, while having all electric light sources connected and energized, then the number of faces would be one under the definition DOE is considering.

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<sup>7</sup> Edge-lighted illuminated exit signs employ an enclosed light source that directs light output through a light transmitting plate.

*Issue 1:* DOE requests comment on whether it should adopt definitions for any of the following terms: “combination illuminated exit sign,” “face,” and “face count.” DOE also requests comment on the definitions it is considering for these terms. Additionally, DOE requests comment on whether DOE should adopt any definitions in addition to those specified here, and the appropriate content of any such definitions.

## B. Test Procedure

### 1. Standby Mode and Off Mode

EPCA requires energy conservation standards adopted for any covered product after July 1, 2010, to address standby mode and off mode energy use. (42 U.S.C. 6295(gg)(3)). EPCA defines “active mode” as the condition in which an energy-using product is connected to a main power source, has been activated, and provides one or more main functions. (42 U.S.C. 6295)(gg)(1)(A)(i)). “Standby mode” is the condition in which an energy-using product is connected to a main power source and offers one or more of the following user-oriented or protective functions: facilitating the activation or deactivation of other functions (including active mode) by remote switch (including remote control), internal sensor, or timer; or providing continuous functions, including information or status displays (including clocks), or sensor-based functions. (42 U.S.C. 6295)(gg)(1)(A)(iii)). “Off mode” is the condition in which an energy-using product is connected to a main power source and is not providing any standby mode or active mode function. (42 U.S.C. 6295)(gg)(1)(A)(ii)).

Building safety codes generally require that exit signs be continuously illuminated.<sup>8</sup> Additionally, a preliminary review of the market indicates that illuminated exit signs may not operate in either standby mode or off mode, either through remote switching technology or continuous user-oriented or protection functions.

*Issue 2:* DOE requests comment on whether any illuminated exit sign models on the market or being developed for the market operate in standby mode and/or in off mode. If so, DOE requests information on the standby mode power consumption and/or off mode power consumption, as compared to the active mode power consumption of such models.

## 2. References to ENERGY STAR

DOE's current test procedure for illuminated exit signs incorporates by reference EPA's "ENERGY STAR Program Requirements for Exit Signs," Version 2.0 (hereafter "ENERGY STAR V2.0"), and requires determining the energy consumption of an illuminated exit sign by conducting the test procedure set forth in ENERGY STAR V2.0 section 4 (Test Criteria), "Conditions for testing" and "Input power measurement." 10 CFR 431.204. The ENERGY STAR exit sign program was suspended in 2008 after EPACK 2005 established energy conservation standards for this equipment at the same input power demand limit as the ENERGY STAR specification. DOE is considering removing the incorporation by reference to ENERGY STAR V2.0 and providing specifications and requirements for testing illuminated exit signs directly in 10 CFR 431.204.

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<sup>8</sup> An example is the National Fire Protection Agency (NFPA) 101, which is the most widely used source for fire safety codes across the U.S. (See section 7.10.5.2.1 of NFPA 101: LIFE SAFETY CODE<sup>®</sup>, 2015, available at: [www.nfpa.org/101](http://www.nfpa.org/101)).

*Issue 3:* DOE requests comment on removing the reference to ENERGY STAR V2.0 and providing specifications and requirements for testing illuminated exit signs directly in 10 CFR 431.204.

### 3. Input Voltage for Testing

The current test procedure specifies that an illuminated exit sign under test be operated at the rated input voltage which represents normal operation pursuant to section 4 of ENERGY STAR V2.0. Some illuminated exit signs are rated for multiple voltages, including the following combinations of voltages: 120/277 V, 120/347 V, 277/347 V, or 120/277/347 V. To ensure that the test procedure provides results that are representative of an average period of use while not being unduly burdensome to conduct, as required by EPCA, DOE is considering specifying the input voltage at which to test any unit that is rated for multiple voltages. This approach is also intended to improve the clarity of the test procedure.

Specifically, DOE is considering requiring that illuminated exit signs rated at multiple voltages be tested at 277 V if rated to operate at that voltage and, if not, at 120 V if rated to operate at that voltage. DOE notes that commercial buildings most commonly provide 277 V for illuminated exit signs; therefore, DOE is considering requiring testing at 277 V, if possible. If an illuminated exit sign is not rated to operate at either 277 V or 120 V, DOE is considering requiring testing at the highest rated input voltage specified by the manufacturer. Finally, if no rated input voltage is provided for the illuminated exit sign, DOE is considering requiring testing it at 277 V. Table II.1 summarizes the input voltages DOE is considering for specific scenarios.

**Table II.1 Input Voltage for Testing (Under Consideration)**

<b>Rated Input Voltage</b>	<b>Input Voltage for Testing</b>
120 / 277 V	277 V
120 / 347 V	120 V
277 / 347 V	277 V
120 / 277 / 347 V	277 V
Neither 120 V nor 277 V	The highest rated input voltage specified
No rated input voltage	277 V

*Issue 4:* DOE requests comment on whether, for each scenario of multiple rated input voltages in Table II.1, the test input voltage being considered by DOE will provide results representative of an average period of use. For illuminated exit signs that are rated to operate at multiple input voltages, DOE requests information on how such equipment is currently tested. DOE requests information on whether there are currently models of illuminated exit signs on the market, or in development for, the market for which the manufacturer does not provide an input rated voltage and, if there is such equipment, which input voltage is used for testing.

#### 4. Conditioning Period

To ensure that test units are sufficiently stable for taking accurate and reproducible measurements, they must be operated for a period of time, *i.e.* conditioned, prior to taking measurements. The DOE test procedure, per section 4 of ENERGY STAR V2.0, specifies that prior to input power measurements, an exit sign model shall be operated at the rated input voltage for a period of 100 hours. For those units with an internal battery, the DOE test procedure requires that a unit under test be operated using the battery for an additional one-and-

one-half hours (*i.e.*, 90 minutes),<sup>9</sup> and then recharged for the period specified by the sign manufacturer prior to input power measurements. On the other hand, the National Electrical Manufacturers Association’s (NEMA) standard EM 1-2010, “Exit Sign Visibility Testing Requirements for Safety and Energy Efficiency” (hereafter “NEMA EM 1-2010”) states that the sign shall be energized for at least 100 hours before testing procedures begin, and immediately prior to testing the exit sign shall be energized for a manufacturer-specified time, but no less than 20 minutes. NEMA EM 1-2010 does not provide any additional steps for exit signs with internal batteries (*e.g.*, operating the internal battery for 90 minutes or recharging the internal battery prior to testing). Although NEMA EM 1-2010 has been rescinded, DOE considers it reflective of industry practice because it was developed based on a consensus among manufacturers. As such, it may not be necessary to require any illuminated exit sign with an internal battery to operate on battery power for at least 90 minutes and then recharge the battery in accordance with manufacturer specifications after the 100 hours of operation and prior to measuring input power demand. DOE is considering eliminating this requirement.

DOE is considering proposing that if, after the 100-hour conditioning period, a sample unit is disconnected from the main power source, the unit must be stabilized prior to taking power measurements. Specifically, this would require operating the equipment until it is energized, which DOE has tentatively determined would be at least 20 minutes. This aligns with direction provided in NEMA EM 1-2010 that the exit sign be energized immediately prior to testing for a time period specified by the manufacturer, but no less than 20 minutes. It is also consistent with results reported from testing conducted by the Lighting Research Center (LRC), a

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<sup>9</sup> As ENERGY STAR V2.0 states, one-and-one-half hours is the minimum period of emergency operation specified in NFPA’s “Life Safety Code (Section 4).”

leading center for research and education in lighting. To evaluate the power characteristics of illuminated exit signs (both with and without an internal battery) the LRC took the following steps: 1) conditioned them for a minimum of 100 hours and 2) operated for at least 20 minutes immediately before taking measurements.<sup>10</sup>

*Issue 5:* DOE requests comment and information on whether the 100-hour conditioning requirement alone sufficiently charges an illuminated exit sign's internal battery and whether units with an internal battery require a 90-minute charging period and recharging prior to testing. DOE also requests comment on whether a minimum stabilization period of 20 minutes is appropriate if the illuminated exit sign (with or without an internal battery) is disconnected from the main power source after conditioning.

#### 5. Alternate Test Procedure for Combination Illuminated Exit Signs

As discussed in section II.A, a combination exit sign has auxiliary features (*e.g.*, egress lighting and/or audible alarms) that require a larger capacity battery than an illuminated exit sign without such features. When alternating current (AC) power fails, the larger capacity battery operates not only the faces, but also the auxiliary features of the illuminated exit sign. When a combination illuminated exit sign runs on AC power (*i.e.* power delivered to buildings from the electric grid), it may draw additional power to maintain a full battery charge, as compared to a sign with a smaller capacity battery and no auxiliary features. Further, the combination

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<sup>10</sup> Lighting Research Center, [Specifier Reports: Exit Signs](#), Vol. 2 No. 2 (January 1994) National Lighting Product Information Program, Rensselaer Polytechnic Institute (Available at: [www.lrc.rpi.edu/programs/NLPIP/PDF/VIEW/SRExit.pdf](http://www.lrc.rpi.edu/programs/NLPIP/PDF/VIEW/SRExit.pdf)) (Last accessed April 15, 2019).

illuminated exit sign may require a higher-capacity rechargeable battery system, which requires a higher maintenance charge,<sup>11</sup> to operate the faces and the auxiliary features.

Hence, the input power demand of combination illuminated exit signs is influenced by the larger battery used for operation. DOE defines input power demand as the amount of power required to continuously *illuminate* an exit sign model. 10 CFR 431.202 (emphasis added). As explained in the August 2013 guidance, because auxiliary features such as egress lighting and/or audible alarms do not support the illumination of the faces of the exit sign, measurement of the input power demand consumed by these models may result in measured values that are not representative solely of the energy consumption of the exit sign's illuminated components.

DOE is considering an alternate test procedure for combination illuminated exit signs. For illuminated exit signs in which the face(s) remain illuminated when the battery is disconnected, and all auxiliary features can be disconnected in a manner that permits reinstallation using only the original parts as assembled by the manufacturer, testing could be conducted with the battery and all auxiliary features disconnected, and the input power demand measured in accordance with the current test procedure for illuminated exit signs. This method would require that the battery can be disconnected while allowing the illumination of the faces. This is only possible when the battery is connected in parallel rather than in series with the exit sign circuitry. Additionally, both the battery and any auxiliary features must be removable *via* a reversible process that requires no additional materials (such as tape, glue, or solder) for reinstallation; otherwise, the test unit would be altered so that it would no longer be the same

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<sup>11</sup> A maintenance charge is the power required to maintain the battery in a fully charged condition so that when it is called into service, it will be able to deliver its full charge capacity.

product. This method would allow for a direct measurement of the input power demand required only for the illumination of all faces of the unit that is being tested.

Some units, however, do not permit such reversible removal of supplemental components there exists a unit that is equivalent except that it is not combination illuminated exit sign. The March 2018 Acuity waiver, the June 2019 Beghelli waiver, and the January 2020 Signify waiver addressed such cases with substantively similar alternate test procedures. 83 FR 11740 (Mar. 16, 2018); 84 FR 29186 (June 21, 2019); 85 FR 5652 (Jan. 31, 2020). For these cases, DOE is considering an alternate test procedure similar to those established in the March 2018 Acuity waiver, June 2019 Beghelli waiver, and January 2020 Signify waiver.

Specifically, this alternate test procedure would require the manufacturer to identify a unit of a non-combination illuminated exit sign (“non-combination unit”) equivalent to the combination unit. A non-combination unit would be equivalent only if it consists entirely of electricity-consuming components identical to all of those of the combination unit, but does not include any auxiliary features, and contains an electrically connected battery. The equivalent non-combination unit would also need to have the same number of faces as the combination unit and be produced by the same manufacturer. The manufacturer would test the equivalent non-combination unit using the DOE test procedure and assign the measured input power demand of the non-combination unit as the input power demand of the combination unit.

DOE is also considering specifying that, for each combination illuminated exit sign unit selected, the manufacturer would assign the measured input power demand of a separate corresponding equivalent non-combination unit. For example, if DOE regulations require testing of two units, the manufacturer would be required to identify and measure the input power

demand of two equivalent non-combination units, and assign the measured input power of each unit to each of the two combination units, respectively. In those instances where only a single, non-combination unit is available, the manufacturer would be required to measure the input power demand of that single unit and assign the measured input power to the combination unit.

Some basic models of combination illuminated exit signs use only light-emitting diode (LED) light sources to illuminate all face(s), and do not have an equivalent non-combination models. The March 2018 Acuity waiver addressed such cases. DOE is considering the same approach for these models, as established in the March 2018 Acuity waiver. Specifically, DOE is considering that an input power demand be assigned according to the following formula:

$$\text{input power demand} = 5 \times \text{number of faces}^{12}$$

This method would require determining the number of faces for each basic model. As discussed in section II.A, DOE is considering defining face count as the lowest number of faces (no fewer than one) with which an illuminated exit sign basic model can be configured by an end user when all electric light sources are connected and energized.

In the case where neither of the above-mentioned alternate test procedures under consideration can be applied, DOE is considering specifying that for such combination illuminated exit signs the current test procedure for illuminated exit signs remains in effect.

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<sup>12</sup> Because LED technology requires minimal power, this method reflects the determination that the power required to illuminate all faces of the basic model being tested would be no more than 5 W per face, and therefore would comply with existing energy conservation standards for illuminated exit signs.

*Issue 6:* DOE requests comment on the test methods described above for combination illuminated exit signs.

### C. 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 procedure for illuminated exit signs. DOE recently issued an RFI to seek more 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 (Mar. 18, 2019). DOE seeks comment on this issue as it pertains to the test procedure for illuminated exit signs. DOE also seeks information that would improve the repeatability and reproducibility of the test procedure and limit manufacturer test burden.

DOE seeks comment on whether there have been changes in product testing methodology or new products on the market since the last test procedure update that may create the need to make amendments to the test procedure for illuminated exit signs. With respect to non-combination illuminated exit signs, DOE seeks data and information that could enable the agency to propose that the current test procedure produces results that are representative of an average use cycle for the product and is not unduly burdensome to conduct, and therefore does not need amendment. DOE also seeks information on whether an existing private-sector developed test procedure would produce such results and should be adopted by DOE rather than DOE establishing its own test procedure, either entirely or by adopting only certain provisions of one or more private-sector developed tests.

Additionally, DOE requests comment on whether the existing test procedure limits a manufacturer's ability to provide additional features to consumers on illuminated exit signs.

DOE particularly seeks information on how the test procedure could be amended to reduce the cost of new or additional features and make it more likely that such features are included on illuminated exit signs while still meeting the requirements of EPCA.

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

Finally, DOE recently published an RFI on the emerging smart technology appliance and equipment market. 83 FR 46886 (Sept. 17, 2018). 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. DOE seeks comments, data and information on the issues presented in the RFI as they may be applicable to illuminated exit signs.

### **III. Submission of Comments**

DOE invites all interested parties to submit in writing by **[INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**, comments and information on matters addressed in this notice and on other matters relevant to DOE's consideration of amended test procedures for illuminated exit signs. These comments and information will aid in the development of a test procedure notice of proposed rulemaking for illuminated exit signs if DOE determines that amended test procedures may be appropriate for these products.

*Submitting comments via <https://www.regulations.gov>. The <https://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 <https://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 <https://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 <https://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 <https://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 <https://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 e-mail at [ApplianceStandardsQuestions@ee.doe.gov](mailto:ApplianceStandardsQuestions@ee.doe.gov).

## **Signing Authority**

This document of the Department of Energy was signed on April 30, 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, D.C., on May 20, 2020.

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Treana V. Garrett  
Federal Register Liaison Officer,  
U.S. Department of Energy

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