[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Parts 429 and 430

[Docket No. EERE-2016-BT-TP-0005]

RIN 1904-AD64

Energy Conservation Program: Test Procedures for Certain Categories of General Service Lamps

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

ACTION: Supplemental notice of proposed rulemaking.

SUMMARY: This supplemental notice of proposed rulemaking (SNOPR) proposes to establish test procedures for certain categories of general service lamps (GSLs) to support the ongoing energy conservation standards rulemaking. Specifically, this rulemaking proposes new test procedures for determining the initial lumen output, input power, lamp efficacy, power factor, and standby mode power of GSLs that are not integrated light-emitting diode (LED) lamps, compact fluorescent lamps (CFLs), or general service incandescent lamps (GSILs). This SNOPR revises the previous proposed test procedures for GSLs by referencing Illuminating Engineering Society (IES) LM-79-08 for the testing of non-integrated LED lamps. The U.S. Department of Energy (DOE) is also proposing

to clarify references to the existing lamp test methods and sampling plans for determining the represented values of integrated LED lamps, CFLs, and GSILs.

DATES: DOE will accept comments, data, and information regarding this SNOPR no later than [**INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**]. See section V, "Public Participation," for details.

ADDRESSES: Any comments submitted must identify the SNOPR for Test Procedures for Certain Categories of General Service Lamps, and provide docket number EERE-2016-BT-TP-0005 and/or regulatory information number (RIN) 1904-AD64. Comments may be submitted using any of the following methods:

1. Federal eRulemaking Portal: www.regulations.gov. Follow the instructions for submitting comments.
2. Email: GSL2016TP0005@ee.doe.gov. Include the docket number EERE-2016-BT-TP-0005 and/or RIN 1904-AD64 in the subject line of the message.
3. Mail: Ms. Lucy deButts, U.S. Department of Energy, Building Technologies Office, Mailstop EE-5B, 1000 Independence Avenue, SW, Washington, DC, 20585-0121. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.
4. Hand Delivery/Courier: Ms. Lucy deButts, U.S. Department of Energy, Building Technologies Office, 950 L'Enfant Plaza, SW, Suite 600, Washington, DC, 20024. Telephone: (202) 586-2945. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

For detailed instructions on submitting comments and additional information on the rulemaking process, see section V of this SNOPR, "Public Participation."

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

A link to the docket web page can be found at https://www.regulations.gov/#!docketDetail;D=EERE-2016-BT-TP-0005. The docket web page contains simple instructions on how to access all documents, including public comments, in the docket. See section V, "Public Participation," for information on how to submit comments through www.regulations.gov.

For further information on how to submit a comment or review other public comments and the docket, contact Ms. Lucy deButts at (202) 287-1604 or by email: Lucy.deButts@ee.doe.gov.

FOR FURTHER INFORMATION CONTACT:

Ms. Lucy deButts, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE-2J, 1000 Independence Avenue,

SW., Washington, DC, 20585-0121. Telephone: (202) 287-1604. E-mail: Lucy.deButts@ee.doe.gov.

Mr. Pete Cochran, U.S. Department of Energy, Office of the General Counsel, GC-71, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone: (202) 586-9496. E-mail: Peter.Cochran@hq.doe.gov.

SUPPLEMENTARY INFORMATION:

DOE proposes to incorporate by reference into 10 CFR part 430 specific sections of the following industry standards:

1) IEC 62301 ("IEC 62301-DD"), Household electrical appliances—Measurement of standby power (Edition 2.0, 2011-01).

A copy of IEC 62301-DD may be obtained from the International Electrotechnical Commission, available from the American National Standards Institute, 25 W. 43rd Street, 4th Floor, New York, NY 10036, (212) 642-4900, or go to http://webstore.ansi.org.

2) IES LM-9-09 ("IES LM-9-09-DD"), IES Approved Method for the Electrical and Photometric Measurement of Fluorescent Lamps.

3) IES LM-20-13, IES Approved Method of Photometry of Reflector Type Lamps.

4) IES LM-45-15, IES Approved Method for the Electrical and Photometric Measurement of General Service Incandescent Filament Lamps.

5) IES LM-79-08 ("IES LM-79-08-DD"), IES Approved Method for the Electrical and Photometric Measurement of Solid-State Lighting Products.

Copies of IES LM-9-09-DD, IES LM-20-13, IES LM-45-15, and IES LM-79-08-DD can be obtained from Illuminating Engineering Society of North America, 120 Wall Street, Floor 17, New York, NY 10005-4001, or by going to www.ies.org/store.

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

Table of Contents

I. Authority and Background

Title III of the Energy Policy and Conservation Act of 1975 (42 U.S.C. 6291, et seq.; "EPCA" or "the Act") sets forth a variety of provisions designed to improve energy efficiency.[1] Part B of title III, which for editorial reasons was redesignated as Part A upon incorporation into the U.S. Code (42 U.S.C. 6291–6309, as codified), establishes the "Energy Conservation Program for Consumer Products Other Than Automobiles." These consumer products include general service lamps, the subject of this supplemental notice of proposed rulemaking (SNOPR).

Under EPCA, the energy conservation program consists essentially of four parts: (1) testing, (2) labeling, (3) Federal energy conservation standards, and (4) certification and enforcement procedures. The 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 under EPCA (42 U.S.C. 6295(s)), and (2) making representations about the energy use or efficiency of those products (42 U.S.C. 6293(c)). Similarly, DOE must use these test

[1] All references to EPCA refer to the statute as amended through the Energy Efficiency Improvement Act of 2015, Public Law 114-11 (April 30, 2015).

procedures to determine whether the products comply with any relevant standards promulgated under EPCA. (42 U.S.C. 6295(s))

DOE is developing energy conservation standards for general service lamps (GSLs) and published a notice of proposed rulemaking on March 17, 2016 (March 2016 GSL ECS NOPR). In support of the standards rulemaking, DOE has undertaken several rulemakings to amend existing test procedures and to adopt new test procedures for GSLs. On July 1, 2016, DOE published a final rule adopting test procedures for integrated light-emitting diode (LED) lamps. 81 FR 43404 (July 2016 LED TP final rule). DOE has proposed to amend test procedures for medium base compact fluorescent lamps (MBCFLs) and to adopt test procedures for new metrics for all compact florescent lamps (CFLs) including hybrid CFLs and CFLs with bases other than a medium screw base. 80 FR 45724 (July 31, 2015) (July 2015 CFL TP NOPR).

On March 17, 2016, DOE published a NOPR (March 2016 GSL TP NOPR) that proposed test procedures for certain categories of GSLs not currently covered under these existing test procedures. 81 FR 14632. This SNOPR revises the test procedures proposed in the March 2016 GSL TP NOPR by referencing Illuminating Engineering Society (IES) LM-79-08 for the testing of non-integrated LED lamps. Manufacturers of lamps subject to this rulemaking would be required to use these test procedures to assess performance relative to any potential energy conservation standards the lamps must comply with in the future and for any representations of energy efficiency.

EPCA sets forth the criteria and procedures DOE must follow when prescribing or amending test procedures for covered products. EPCA provides, in relevant part, that any test procedures prescribed or amended under this section shall 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 shall not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3)) Pursuant to this authority, DOE proposes to prescribe test procedures for certain categories of GSLs in support of the GSL standards rulemaking.

II. Synopsis of the Supplemental Notice of Proposed Rulemaking

In this SNOPR, DOE proposes test procedures for determining initial lumen output, input power, lamp efficacy, power factor, and standby mode power for certain categories of GSLs for which DOE does not have an existing regulatory test procedure. Based on public comment received in response to the March 2016 GSL TP NOPR, DOE proposes to reference IES LM-79-08 for the testing of non-integrated LED lamps. DOE's proposals for the standby mode test procedure, represented value calculations, and certification and rounding requirements remain unchanged from the March 2016 GSL TP NOPR. DOE also notes that representations of energy use or energy efficiency must be based on testing in accordance with this rulemaking, if adopted, beginning 180 days after the publication of a test procedure final rule.

III. Discussion

A. Scope of Applicability

GSL is defined by EPCA to include GSILs, CFLs, general service light-emitting diode (LED) lamps (including organic LEDs (OLEDs)), and any other lamp that DOE determines is used to satisfy lighting applications traditionally served by GSILs. (42 U.S.C. 6291(30)(BB)) In the March 2016 GSL ECS NOPR, DOE proposed to include in the definition for general service lamp a lamp that has an ANSI[2] base, operates at any voltage, has an initial lumen output of 310 lumens or greater (or 232 lumens or greater for modified spectrum GSILs), is not a light fixture, is not an LED downlight retrofit kit, and is used in general lighting applications.[3] 81 FR 14541. This SNOPR proposes test procedures for GSLs that are not GSILs, CFLs, or integrated LED lamps.

DOE received comments from China[4] regarding the scope of applicability of this rulemaking. China noted that OLED lamps are classified as general service lamps and would be subject to the test procedures proposed in the March 2016 GSL TP NOPR. China commented that OLED lamps are unique from existing lighting technologies, and that International Commission on Illumination (CIE) and related researchers are

[2] A lamp base standardized by the American National Standards Institute.
[3] The definition also specified several exemptions, including: general service fluorescent lamps; incandescent reflector lamps; mercury vapor lamps; appliance lamps; black light lamps; bug lamps; colored lamps; infrared lamps; marine signal lamps; mine service lamps; plant light lamps; sign service lamps; traffic signal lamps; and medium screw base incandescent lamps that are left-hand thread lamps, marine lamps, reflector lamps, rough service lamps, shatter-resistant lamps (including a shatter-proof lamp and a shatter-protected lamp), silver bowl lamps, showcase lamps, 3-way incandescent lamps, vibration service lamps, G shape lamps as defined in ANSI C78.20 and ANSI C79.1-2002 with a diameter of 5 inches or more, T shape lamps as defined in ANSI C78.20 and ANSI C79.1-2002 and that use not more than 40 watts or have a length of more than 10 inches, and B, BA, CA, F, G16-1/2, G-25, G30, S, or M-14 lamps as defined in ANSI C79.1-2002 and ANSI C78.20 of 40 watts or less.
[4] DOE received two comments from China, both of which provided essentially the same comments regarding the March 2016 GSL TP NOPR. (EERE-BT-TP-0005-008 and EERE-BT-TP-0005-0009) For the purpose of this SNOPR, DOE provides reference to the first comment submitted by China.

considering developing a specialized test method for OLED lamps. China therefore suggested that DOE develop specific regulations and test procedures for OLED lamps instead of using existing LED lamp test procedures. (China, No. 8 at p. 1) [5]

DOE understands that the current industry practice is to test OLED lamps according to IES LM-79-08, a test standard that is applicable to solid-state lighting products, including both LED and OLED lamps. In this SNOPR, DOE proposes to reference LM-79-08 to determine initial lumen output, input power, lamp efficacy, and power factor for OLED lamps. If a new test procedure is developed by industry members and/or related researchers, DOE will consider it in a future revision of this test procedure.

China commented that in section III.A of the March 2016 GSL TP NOPR, DOE referred to its proposed definition of a GSL from the March 2016 GSL ECS NOPR, which includes lamps with an initial lumen output of 310 lumens or greater. China noted that in Energy Star Lamps Specification V2.0, the lumen range of products used to replace a 25 watt (W) incandescent lamp is between 250 and 449 lumens. China stated that the difference between the proposed definition of GSL in the March 2016 GSL ECS NOPR and the products covered in the Energy Star Lamps Specification V2.0 would cause confusion on how to test lamps with lumen outputs less than 310 lumens.

[5] A notation in this form provides a reference for information that is in the docket of DOE's rulemaking to develop test procedures for GSLs (Docket No. EERE-2016-BT-TP-0005), which is maintained at www.regulations.gov. This notation indicates that the statement preceding the reference was made by China, is from document number 8 in the docket, and appears at page 1 of that document.

Therefore, China suggested that DOE clarify the test requirements for lamps below 310 lumens. (China, No. 8 at p. 1)

DOE notes that this SNOPR proposes test procedures for GSLs that are not GSILs, CFLs, or integrated LED lamps. The March 2016 GSL ECS NOPR proposed a definition of GSL that would be limited to products with a lumen output of 310 lumens or greater (or 232 lumens or greater for modified spectrum general service incandescent lamps). 81 at FR 14628. DOE recognizes that ENERGY STAR Lamps Specification V2.0 includes products with a lumen output of less than 310 lumens. To determine how such lamps should be evaluated under ENERGY STAR Lamps Specification V2.0, interested parties will need to consult the ENERGY STAR document.

China commented that, while section III.B of the March 2016 GSL TP NOPR stated that the term GSL includes many types of lamps using varying lighting technologies, it understood from the discussion in section III.A that halogen lamps were excluded from the definition of GSL. China requested clarification on whether the proposed rule would cover halogen lamps. (China, No. 8 at p. 1)

As noted in this preamble, a definition of GSL was proposed in the March 2016 GSL ECS NOPR, and that proposed definition does not exclude halogen lamps generally. This SNOPR proposes test procedures for other incandescent lamps, i.e., incandescent lamps that are GSLs but not GSILs. “Incandescent lamp” is currently defined, in part, as a lamp in which light is produced by a filament heated to incandescence by an electric current. 10 CFR 430.2. This description depicts the method of producing light in a

halogen lamp. In addition, paragraph (1) of the definition of "incandescent lamp" in 10 CFR 430.2 expressly includes tungsten halogen lamps. A halogen lamp (other than a halogen lamp that was a GSIL) within the definition of GSL as adopted in the energy conservation standards final rule would be subject to the test procedures proposed in this SNOPR if adopted. Test procedures for GSILs are located in appendix R to subpart B of part 430.

China commented that section III.B of March 2016 GSL TP NOPR did not provide definitions for the eight general purpose lamps mentioned in Table III.1, making it difficult to distinguish between "other non-incandescent reflector type," "general purpose incandescent," "compact fluorescent lamps," and "other types of fluorescent lamps." China recommended that DOE use IEC 61231, which it stated is internationally accepted for classifying the types of lamps mentioned in Table III.1 of the March 2016 GSL TP NOPR. (China, No. 8 at pp. 1-2)

Table III.1 of the March 2016 GSL TP NOPR referenced the test procedures that would be applicable to GSLs based on lamp technology: GSILs, CFLs, integrated LED lamps, other incandescent lamps that are not reflector lamps, other incandescent lamps that are reflector lamps, other fluorescent lamps, OLED lamps, and non-integrated LED lamps. 81 FR 14634. DOE notes that definitions for many of these lamp types either already exist in 10 CFR 430.2 or were proposed in the March 2016 GSL ECS NOPR. GSIL is currently defined at 10 CFR 430.2. A definition of CFL was proposed to be added to 10 CFR 430.2 in the July 2015 CFL TP NOPR. 80 FR at 45739. A definition of integrated LED lamp was recently added to 10 CFR 430.2 in the July 2016 LED TP final

rule. 81 FR at 43426. The references to "other incandescent lamps" in Table III.1 were to lamps that meet the definition of GSL (as would be established in a GSL standards final rule) that are incandescent lamps other than GSILs. A definition of "reflector lamp" has been proposed in the March 2016 GSL ECS NOPR. 81 FR 14629. Regarding fluorescent lamps, reference to "other fluorescent lamps" in Table III.1 of the March 2016 GSL TP NOPR was to fluorescent lamps that meet the definition of GSL (to be finalized in the standards final rule) but do not meet the definition of CFL (which is another lamp type specifically included in the GSL term) or general service fluorescent lamp (which is a lamp type specifically excluded from the GSL term). DOE has proposed definitions for non-integrated lamp and OLED lamp in the March 2016 GSL ECS NOPR. 81 FR 14628-14629. Thus, DOE has tentatively determined that all of the various kinds of lamps included in this rulemaking have either existing or proposed definitions that sufficiently identify which test procedures are applicable to each kind of lamp.

China commented that section III.B of the March 2016 GSL TP NOPR includes integrated and non-integrated LEDs, with corresponding test procedures. China pointed out that IEC 62838:2015 includes semi-integrated LEDs as well. China recommended that DOE include semi-integrated LEDs and their corresponding referenced test procedure. (China, No. 8 at p. 2) DOE notes that it has proposed definitions for integrated and non-integrated lamps in the March 2016 GSL ECS NOPR. 81 FR 14628. Under the proposed definitions of integrated lamp and non-integrated lamp, semi-integrated LEDs would be considered a type of non-integrated lamp because, as described in IEC 62838:2015, they require the use of some external components.

China commented that section III.B of the March 2016 GSL TP NOPR referenced the integrated LED lamp test procedure in appendix BB of 10 CFR part 430 subpart B. However, China noted that this appendix is not yet published. China recommended that DOE publish the documents corresponding to this appendix. (China, No. 8 at p. 2) DOE notes that appendix BB of 10 CFR part 430 subpart B, containing the integrated LED test procedure, was adopted in the July 2016 LED TP final rule. 81 FR at 43427-43428.

B. Proposed Method for Determining Initial Lumen Output, Input Power, Lamp Efficacy, and Power Factor

As described in section III.A, both the statutory definition and proposed regulatory definition of GSL cover many types of lamps using a variety of lighting technologies. For several of the included lamp types, energy conservation standards and test procedures already exist. GSILs are required to comply with the energy conservation standards in 10 CFR 430.32(x), and test procedures for these lamps are in Appendix R to subpart B of 10 CFR part 430. In a separate test procedure rulemaking, DOE has proposed to amend the test procedures for MBCFLs and to establish new test procedures for all other CFLs. 80 FR 45724. Once finalized, the updated and new test procedures will appear at appendix W to subpart B of 10 CFR part 430. In addition, DOE recently issued test procedures for integrated LED lamps. 81 FR 43404. Although integrated LED lamps are not currently required to comply with energy conservation standards, DOE has proposed standards for them in the March 2016 GSL ECS NOPR. 81 FR 14530. The test procedures for integrated LED lamps will be located in new appendix BB to subpart B of 10 CFR part 430.

If DOE test procedures already exist or were proposed in an ongoing rulemaking (such as for GSILs, CFLs, and integrated LED lamps), DOE proposed in the March 2016 GSL TP NOPR to reference those specific provisions in the GSL test procedures. For all other GSLs, DOE proposed new test procedures, intending to reference the most recently published versions of relevant industry standards. 81 FR 14631, 14633. Of the proposed test procedures, DOE received comments on those for non-integrated LED lamps, other fluorescent lamps, and other incandescent lamps that are reflector lamps.

DOE received comments from three stakeholders regarding the proposed test procedures for non-integrated LED lamps. Private citizen Mat Roundy voiced support for DOE's proposed reference of CIE S 025/E:2015, stating that requiring manufacturers to use the same standard would improve effectiveness when implementing an energy conservation standard and promoting energy efficiency. (Roundy, No. 5 at p. 1) However, Osram Sylvania, Inc. (OSI) and the National Electrical Manufacturers Association (NEMA) commented that, although non-integrated LED lamps are not within the intended scope of IES LM-79-08, it is common industry practice to use IES LM-79-08 to test non-integrated LED lamps. NEMA and OSI both noted that the test procedure for ceiling fan light kits in appendix V1 to subpart B of 10 CFR 430 directs manufacturers to test other solid-state lighting (SSL) products using IES LM-79-08. NEMA and OSI therefore recommended that DOE allow manufacturers flexibility in choosing the test procedure for non-integrated lamps LED lamps. (OSI, No. 3 at p. 2; NEMA, No. 6 at p. 2)

In proposing test procedures for non-integrated LED lamps in the March 2016 GSL TP NOPR, DOE reviewed existing industry standards. In its review DOE initially determined that IES LM-79-08 was not intended for non-integrated LED lamps given that LM-79-08 states in section 1.1 that the test method covers "LED-based SSL products with control electronics and heat sinks incorporated, that is, those devices that require only AC mains power or a DC voltage power supply to operate." Non-integrated LED lamps require external electronics; that is, the lamps are intended to connect to ballasts/drivers rather than directly to the branch circuit through an ANSI base and corresponding ANSI standard lamp holder (socket). Because non-integrated LED lamps require external electronics, DOE tentatively determined that IES LM-79-08 was not appropriate for non-integrated LED lamps, and therefore would not be the most relevant industry standard for these lamps.

Based on the comments received from NEMA and OSI, DOE investigated whether IES LM-79-08 is the more relevant test procedure for non-integrated LED lamps, regardless of the defined scope of the industry standard. In addition to the statements made by NEMA and OSI that IES LM-79-08 is relied upon by industry to test non-integrated lamps, DOE found one manufacturer of these products that states on its website that the performance specifications it reports are based on testing according to IES LM-79-08.[6] Other manufacturers did not identify the test method used. DOE also contacted independent test laboratories to determine which test procedure they used. DOE found that the laboratories generally used IES LM-79-08 when testing non-

[6] http://www.maxlite.com/item/lm79?=13PLG24QVLED27.

integrated LED lamps because, even though it does not specifically include them, the laboratories view IES LM-79-08 as the most applicable industry standard. DOE preliminarily concluded that once it is determined how to supply the power to the lamp or on which ballast/driver to operate the lamp for testing, there is little difference in testing an integrated versus a non-integrated LED lamp. Further, DOE notes that some of these products have been tested and the results have been reported in the LED Lighting Facts Database and the qualified products list for the Lighting Design Lab. Both of these organizations specify IES LM-79-08 as a test method for all included products.

Upon reviewing the available information, DOE has tentatively determined that for the testing of non-integrated LED lamps, IES LM-79-08 is the more relevant industry standard at the present time, as compared to CIE S 025/E:2015. Further, DOE has reviewed IES LM-79-08 and finds it appropriate for testing non-integrated LED lamps for the purpose of determining compliance with the applicable energy efficiency standards.

However, because non-integrated LED lamps are not included in the applicable scope of this industry standard, DOE finds that additional instruction is necessary to ensure consistent and repeatable results. Specifically, DOE finds that IES LM-79-08 provides no information on which external ballast/driver or power supply to use for testing. After reviewing the approaches of independent test laboratories, DOE proposes that non-integrated LED lamps be tested according to IES LM-79-08, using the manufacturer-declared input voltage and current as the power supply. These quantities are typically not reported on the product packaging or in manufacturer literature. (DOE

noted only two companies that do so.) DOE is therefore proposing to revise the requirements for certification reports to include these quantities for non-integrated LED lamps. While manufacturers usually list compatible ballasts/drivers for these products, DOE notes that it is unknown on which ballast/driver these lamps may operate when installed in the field. Furthermore, the test procedure should produce consistent and repeatable results. By requiring these lamps to be tested using the manufacturer-declared input voltage and current as the power supply, DOE's proposed approach is consistent with the industry practice of using reference ballasts for non-integrated lamps, such as non-integrated CFLs and GSFLs. For those products, industry standards (and DOE's test procedures) specify electrical settings for reference ballasts and each product is tested using those same settings. Because industry has not yet developed reference ballast/driver settings for non-integrated LED lamps, DOE proposes that the manufacturers report the settings that are used. The use of reference settings allows for a consistent and comparable assessment of the lamp's performance. Therefore, DOE proposes the requirement that non-integrated LED lamps be tested according to IES LM-79-08, using the manufacturer-declared input voltage and current as the power supply. DOE requests DOE requests comment on the appropriateness of referencing IES LM-79-08 for the testing of non-integrated LED lamps. DOE also requests comment on the proposed requirement that manufacturers report the settings used for testing, specifically input voltage and current, and whether additional settings are needed to ensure consistent, repeatable results. Finally, DOE requests comment on whether the manufacturer-declared settings should be made available to the public so that accurate comparisons across products could be made.

Regarding the testing of other fluorescent lamps, OSI and NEMA commented that testing per sections 4 through 6 of IES LM-9-09 would be appropriate for double-ended fluorescent lamps, but questioned whether double-ended fluorescent lamps would be subject to the test procedures as these lamps would likely be considered general service fluorescent lamps, a type of lamp excluded from the definition of GSL. OSI suggested that sections 4 through 6 of IES LM-66-14 would be more applicable to cite as the test procedure for "other fluorescent lamps." Specifically, OSI stated that IES LM-66-14 was the appropriate industry standard to reference for the commercially available induction lamps meeting the definition of GSL. (OSI, No. 3 at p. 2; NEMA, No. 6 at p. 3)

DOE has proposed to define compact fluorescent lamp as an integrated or non-integrated single-base, low-pressure mercury, electric-discharge source in which a fluorescing coating transforms some of the ultraviolet energy generated by the mercury discharge into light; the term does not include circline or U shaped fluorescent lamps. 80 FR at 45739. This proposed definition of CFL aligns with the scope of IES LM-66-14, which states that it describes test procedures for obtaining measurements of single-based fluorescent lamps, including both electrode and electrodeless (i.e., induction) versions. The introduction of IES LM-66-14 states, as does DOE's definition of CFL, that it does not include circline or U-shaped fluorescent lamps. Thus, DOE has tentatively concluded that lamps meeting DOE's definition of CFL will be required to use test procedures in appendix W to subpart B of 10 CFR 430, which predominantly references IES LM-66-14 for test methods. DOE expects that single-based fluorescent lamps that are GSLs will be within the definition of CFL, and thus subject to the test procedures that reference IES LM-66-14.

While DOE is unaware of any lamps currently on the market that would be subject to testing as "other fluorescent lamps," test procedures must be established for all potentially covered products. To address other fluorescent lamps that would not meet the definition of CFL but would otherwise be defined as GSLs (i.e., double-ended fluorescent lamps), DOE has maintained the reference to IES LM-9-09 in this SNOPR.

OSI and NEMA supported the use of IES LM-20-13 for other incandescent lamps that are reflector lamps, but disagreed with referencing sections 4 through 8, especially section 7, as well as the lack of specific instructions to deviate from IES LM-20-13. OSI and NEMA noted that the March 2016 GSL ECS NOPR did not propose any requirements for beam angle, beam lumens, center beam candlepower, or beam pattern classification (the lamp characteristics measured under the test procedures in section 7 of IES LM-20-13) and thus recommended omitting reference to this section. NEMA also expressed confusion regarding DOE's inclusion of section 7, wondering whether its inclusion was an indication that goniophotometer systems may be allowed to measure luminous flux. NEMA recommended instead that DOE reference Appendix R to subpart B of 10 CFR 430 (test procedures for incandescent reflector lamps) for the testing of other incandescent lamps that are reflector lamps. (NEMA, No. 6 at p. 3)

For this SNOPR, DOE again reviewed the referenced sections (i.e., sections 4 through 8) of IES LM-20-13. DOE agrees that referencing section 7 of LM-20-13 is unnecessary because it addresses the measurement of values for which standards have not been proposed, such as beam angle, field angle, and beam flux values. Furthermore, section 7 specifies the use of a goniophotometer. As proposed in the March 2016 GSL TP

NOPR and maintained in this document, the active mode test procedure does not allow the use of a goniophotometer. For these reasons, the reference to section 7 of IES LM-20-13 has been removed from the test procedure in this SNOPR.

DOE has determined not to reference appendix R for the testing of other incandescent lamps that are reflector lamps. DOE notes that the content of the referenced sections (sections 4, 5, 6, and 8) of IES LM-20-13 are consistent with the content of the sections of IES LM-20-94 referenced in appendix R. However, DOE has chosen not to reference Appendix R in order to avoid potential confusion; appendix R is applicable to incandescent reflector lamps but these lamps are not included in the definition of GSL. Therefore, for GSLs that are other incandescent lamps that are reflector lamps, DOE proposes referencing sections 4, 5, 6, and 8 of IES LM-20-13.

DOE did not receive any comments on referring to appendix R for general service incandescent lamps, to Appendix BB for integrated LED lamps, to IES LM-45-15 for other incandescent lamps that are not reflector lamps, or to IES LM-79-08 for OLED lamps. DOE did, however, review all references to industry standards to ensure that only necessary sections were referenced, as described in the previous paragraph. DOE removed all references to sections describing luminous intensity and/or color measurements as these are not necessary for the metrics covered by the test procedure. DOE also made references to IES LM-79-08 consistent with sections referenced in the July 2016 LED TP final rule; that is, DOE added a reference to section 1.3 (Nomenclature and Definitions) and removed the reference to section 6.0 (Operating Orientation). DOE instead specifies the appropriate operating orientation directly in

appendix DD. DOE requests comment on the industry standards and sections of the industry standards referenced.

Table III.1 Test Procedures for General Service Lamps

Lamp Type	Referenced Test Procedure
General service incandescent lamps	Appendix R to Subpart B of 10 CFR 430
Compact fluorescent lamps	Appendix W to Subpart B of 10 CFR part 430
Integrated LED lamps	Appendix BB to Subpart B of 10 CFR part 430
Other incandescent lamps that are not reflector lamps	IES LM-45-15, sections 4-6, and section 7.1
Other incandescent lamps that are reflector lamps	IES LM-20-13, sections 4-6, and section 8
Other fluorescent lamps	IES LM-9-09, sections 4-6, and section 7.5
OLED lamps	IES LM-79-08, sections 1.3 (except 1.3[f]), 2.0, 3.0, 5.0, 7.0, 8.0, 9.1 and 9.2
Non-integrated LED lamps	IES LM-79-08, sections 1.3 (except 1.3[f]), 2.0, 3.0, 5.0, 7.0, 8.0, 9.1 and 9.2

C. Laboratory Accreditation

In the March 2016 GSL TP NOPR, DOE proposed to require that testing of initial lumen output, input power, lamp efficacy, power factor, and standby mode power (if applicable) for GSLs be conducted by test laboratories accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) or an accrediting organization recognized by the International Laboratory Accreditation Cooperation (ILAC). DOE tentatively determined that since NVLAP is a member of ILAC, test data collected by

any laboratory accredited by an accrediting body recognized by ILAC would be acceptable. 81 FR 14634. DOE noted that under existing test procedure regulations, testing for other regulated lighting products (such as general service fluorescent lamps, incandescent reflector lamps, and fluorescent lamp ballasts), in addition to general service lamps that must already comply with energy conservation standards (such as general service incandescent lamps and medium base compact fluorescent lamps), must be conducted in a similarly accredited facility. 10 CFR 430.25.

DOE received several comments regarding lab accreditation. OSI and NEMA disagreed with what they understood to be DOE's shift from the use of test laboratories accredited by NVLAP or an accrediting organization recognized by NVLAP, to test laboratories accredited by an Accreditation Body that is a signatory member to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA). Citing to a 2013 version of the regulations, NEMA commented that the March 2016 GSL TP NOPR did not adequately explain why the non-GSL portions of the existing regulation needed to be changed. (NEMA, No. 6 at p. 3)

The comments received suggest that some commenters may not be familiar with the current regulatory text with regard to requirements for test laboratories. DOE notes that it did not propose to change the existing regulation as it relates to non-GSLs, but simply to include the testing of GSLs in the existing regulatory provision. The existing text in 10 CFR 430.25 states that the enumerated lamp types, including general service fluorescent lamps and incandescent reflector lamps (which are not general service lamps), must be tested by laboratories accredited by "an Accreditation Body that is a signatory

member to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA).” The discussion regarding NVLAP in the preamble to the 2016 March GSL TP NOPR was intended to clarify that testing could be conducted by a test laboratory accredited by NVLAP given that NVLAP is a signatory member to the ILAC MRA. 81 FR 14634.

TÜV SÜD commented that the proposed language for §429.57(b)6, which requires each test report to include an NVLAP identification number or other NVLAP-approved identification, contradicts §430.25, which requires testing to be performed in a laboratory accredited by an ILAC member. TÜV SÜD elaborated that this prevents laboratories accredited by, for example, SCC (Canada) or DAkks (Germany) from issuing a report with an NVLAP identification number unless it has another accreditation with NVLAP. TÜV SÜD recommended that DOE update the relevant portion of § 429.57(b)6 to read, “...ILAC's accreditation bodies identification number or other ILAC accreditation bodies - approved identification...” (TÜV SÜD, No. 2 at p. 1) DOE agrees with this comment and is proposing to update the language in §429.57(b) to be consistent with §430.25 and to include the recommended text. Similarly, DOE also proposes to update §§ 429.27(b) and 429.35(b) to be consistent with §430.25.

UL commented that luminous efficacy results from lamp testing can range from +25% to -25% due to variations in laboratory accuracy and precision, which represents a significant range in the context of the efficacy levels proposed in the March 2016 GSL ECS NOPR. UL further commented that NVLAP accreditation is an accepted means to minimize variability between different labs. UL noted that NVLAP is an ILAC member,

but NVLAP also requires participation in the National Institute of Standards and Technology (NIST) proficiency-testing program for SSL, which assists labs in improving and maintaining measurement accuracy and precision. UL recommended that DOE require any lab accredited by an ILAC member, other than NVLAP, to participate in the NIST SSL proficiency program. UL noted that this has been a requirement of the ENERGY STAR SSL program for many years. (UL, No. 4 at p. 2)

DOE notes that ISO/IEC 17025 states that a laboratory shall have quality control procedures for monitoring the validity of tests and calibrations undertaken.[7] This monitoring may include the participation in inter-laboratory comparisons or proficiency testing programs. Other means may include the regular use of reference materials, or replicate tests or calibrations using the same or different methods. By these mechanisms a laboratory can provide evidence of its competence to its clients, parties and accreditation bodies. Participation in proficiency testing is not required to become an ILAC signatory. However, ILAC and many of the accreditation bodies that are signatories of the MRA encourage participation in proficiency testing or inter-laboratory comparisons.[8] Therefore, DOE has tentatively concluded that requiring participation in proficiency testing is unnecessary, as the accreditation process is designed to ensure the competency of the testing laboratory through a variety of mechanisms.

NEMA recommended not deleting references to other products and applicable test methods, such as the following quoted portion: “The testing for general service

[7] http://ilac.org/news/ilac-p9062014-published/
[8] http://ilac.org/ilac-mra-and-signatories/purpose/

fluorescent lamps, general service incandescent lamps, and incandescent reflector lamps shall be performed in accordance with Appendix R to this subpart. The testing for medium base compact fluorescent lamps shall be performed in accordance with appendix W of this subpart." (NEMA, No. 6 at p. 3)

It appears that in its comments NEMA is referencing a prior version of 10 CFR 430.25. An amendment was made to 10 CFR 430.25 on June 5, 2015. 80 FR 31982. DOE notes that the text cited by NEMA does not currently exist in 10 CFR 430.25 and that the testing provisions are specified in 10 CFR 430.23.

D. Effective Date and Compliance Dates

DOE received comments regarding the compliance date proposed in the March 2016 GSL TP NOPR. OSI and NEMA commented that the 180-day compliance date places an undue burden on manufacturers. OSI and NEMA commented that until there is a need to comply with an efficacy standard, mandatory testing in CIE S 025 accredited laboratories would be an excessive requirement. NEMA commented that this burden is exacerbated given that many of the products proposed to be tested to CIE S 025 will likely not be compliant with 2020 standards and thus will cease manufacture and sales, causing a lost certification/accreditation investment. (OSI, No. 3 at pp. 3-4; NEMA, No. 6 at pp. 3-4)

As discussed in section III.B, DOE is not incorporating CIE S 025 by reference and therefore tentatively concludes that the compliance date will not introduce

unnecessary burden. As noted previously, the referenced industry standard, IES LM-79-08, represents common industry practice for testing non-integrated LED lamps.

If adopted, the test procedures proposed in this SNOPR for GSLs that are not integrated LED lamps, CFLs, or GSILs, would be effective 30 days after publication in the Federal Register (referred to as the "effective date"). Pursuant to EPCA, manufacturers of covered products would be required to use the applicable test procedure as the basis for determining that their products comply with the applicable energy conservation standards. 42 U.S.C. 6295(s)) On or after 180 days after publication of a final rule, any representations made with respect to the energy use or efficiency of GSLs that are not integrated LED lamps, CFLs, and GSILs would be required to be made in accordance with the results of testing pursuant to the new test procedures. (42 U.S.C. 6293(c)(2))

DOE proposes that after the effective date and prior to the compliance date of a GSL test procedure final rule, manufacturers may voluntarily begin to make representations with respect to the energy use or efficiency of GSLs that are not integrated LED lamps, CFLs, and GSILs and when doing so must use the results of testing pursuant to that final rule.

IV. Procedural Issues and Regulatory Review

A. Review Under Executive Order 12866

The Office of Management and Budget (OMB) has determined that test procedure rulemakings do not constitute "significant regulatory actions" under section 3(f) of

Executive Order 12866, Regulatory Planning and Review, 58 FR 51735 (Oct. 4, 1993). Accordingly, this action was not subject to review under the Executive Order by the Office of Information and Regulatory Affairs (OIRA) in the OMB.

B. Review Under the Regulatory Flexibility Act

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

DOE reviewed the test procedures for GSLs proposed in this SNOPR under the provisions of the Regulatory Flexibility Act and the procedures and policies published on February 19, 2003. DOE certifies that the proposed rule, if adopted, would not have a significant economic impact on a substantial number of small entities. The factual basis for this certification is set forth in the following paragraphs.

The Small Business Administration (SBA) considers a business entity to be a small business, if, together with its affiliates, it employs less than a threshold number of

workers specified in 13 CFR part 121. These size standards and codes are established by the North American Industry Classification System (NAICS). Manufacturing of GSLs is classified under NAICS 335110, "Electric Lamp Bulb and Part Manufacturing." The SBA sets a threshold of 1,250 employees or less for an entity to be considered as a small business for this category.

In the March 2016 GSL TP NOPR, to estimate the number of companies that could be small businesses that sell GSLs, DOE conducted a market survey using publicly available information. DOE's research involved information provided by trade associations (e.g., the National Electrical Manufacturers' Association) and information from DOE's Compliance Certification Management System (CCMS) Database, the Environmental Protection Agency's ENERGY STAR Certified Light Bulbs Database, LED Lighting Facts Database, previous rulemakings, individual company websites, SBA's database, and market research tools (e.g., Hoover's reports). DOE screened out companies that did not meet the definition of a "small business" or are completely foreign owned and operated. DOE identified approximately 118 small businesses that sell GSLs in the United States. 81 FR 14635.

For this SNOPR, DOE reviewed its estimated number of small businesses. DOE updated its list of small businesses by revisiting the information sources described in this preamble. DOE screened out companies that do not meet the definition of a "small business," or are completely foreign owned and operated. DOE determined that nine companies are small businesses that maintain domestic production facilities for general service lamps.

In the March 2016 GSL TP NOPR, DOE proposed test procedures for determining initial lumen output, input power, lamp efficacy, power factor, and standby power of GSLs. DOE noted that several of the lamp types included in the definition of general service lamp must already comply with energy conservation standards and therefore test procedures already existed for these lamps. If DOE test procedures already existed or were proposed in an ongoing rulemaking (such as for general service incandescent lamps, compact fluorescent lamps, and integrated LED lamps), DOE proposed to reference them directly. For all other general service lamps, DOE proposed new test procedures in the March 2016 GSL TP NOPR. For the new test procedures, DOE proposed to reference the most recent versions of relevant industry standards.

DOE estimated the testing costs and burden associated with conducting testing according to the new test procedures proposed in the March 2016 GSL TP NOPR for general service lamps. DOE did not consider the costs and burdens associated with DOE test procedures that already exist or that have been proposed in other ongoing rulemakings because these have been or are being addressed separately. DOE also assessed elements (testing methodology, testing times, and sample size) in the proposed CFL and integrated LED lamp test procedures that could affect costs associated with complying with this rule. Except for lab accreditation costs associated with CIE S 025/E:2015, which has been replaced with IES LM-79-08, the cost estimates of this SNOPR are the same as those determined under the March 2016 GSL TP NOPR. The following is an analysis of both in-house and third party testing costs associated with this rulemaking.

In the March 2016 GSL TP NOPR, DOE estimated that the labor costs associated with conducting in-house testing of initial lumen output, input power, and standby mode power were $41.68 per hour. DOE determined that calculating efficacy and power factor of a GSL would not result in any incremental testing burden beyond the cost of conducting the initial lumen output and input power testing. The cost of labor was then calculated by multiplying the estimated hours of labor by the hourly labor rate. For lamps not capable of operating in standby mode, DOE estimated that testing in-house in accordance with the appropriate proposed test procedure would require, at most, four hours per lamp by an electrical engineering technician. For lamps capable of operating in standby mode, DOE estimated that testing time would increase to five hours per lamp due to the additional standby mode power consumption test. DOE noted that these estimates are representative of the time it would take to test the most labor intensive technology, LED lamps. In total, DOE estimated that using the test method prescribed in the March 2016 GSL TP NOPR to determine initial light output and input power would result in an estimated labor burden of $1,670 per basic model of certain GSLs and $2,080 per basic model of certain GSLs that can operate in standby mode.

Because accreditation bodies[9] impose a variety of fees during the accreditation process, including fixed administrative fees, variable assessment fees, and proficiency testing fees, DOE included as an example the costs associated with maintaining a NVLAP-accredited facility or a facility accredited by an organization recognized by

[9] As discussed in section III.D, laboratories can be accredited by any accreditation body that is a signatory member to the ILAC MRA. DOE based its estimate of the costs associated with accreditation on the NVLAP accreditation body.

NVLAP in the March 2016 GSL TP NOPR. In the first year, for manufacturers without NVLAP accreditation who choose to test in-house, DOE estimated manufacturers on average would experience a maximum total cost burden of about $2,210 per basic model tested or $2,630 per basic model with standby mode power consumption testing.[10]

Additionally, DOE requested pricing from independent testing laboratories for testing GSLs. DOE estimated the cost for testing at an independent laboratory to be up to $1,070 per basic model. This estimate included the cost of accreditation as quotes were obtained from accredited laboratories.

DOE received comments from NEMA and OSI regarding the burden of testing non-integrated LED lamps in laboratories accredited to CIE standard CIE S 025/E:2015. NEMA and OSI commented that the small product sector of non-integrated LED lamps did not justify accrediting a lab to the CIE standard for such limited testing needs. (OSI, No. 3 at p. 2; NEMA, No. 6 at p. 2) They noted that the test facilities generally used by the lighting industry are not accredited for this referenced CIE test method, and would need to obtain and maintain this accreditation. OSI and NEMA commented that certifying a lab to CIE S 025 could cost approximately $10,000.00, which would be burdensome for all labs, regardless of size. OSI and NEMA noted that the current cost for CIE S 025/E:2015 is $241.00, compared to $25.00 for IES LM-79-08. OSI and NEMA further stated that the cost of the normative standards associated with CIE S 025/E:2015 must also be considered, including CIE 84-1989, which costs €98.46 and is not currently

[10] NVLAP costs are fixed and were distributed based on an estimate of 28 basic models per manufacturer.

available from familiar sources. OSI and NEMA believe these costs could be burdensome for a small manufacturer. (OSI, No. 3 at pp. 3-4; NEMA, No. 6 at pp. 3-4)

As discussed in section III.B, DOE is no longer referencing CIE S 025 to test non-integrated LED lamps. Instead, DOE proposes to reference IES LM-79-08 which is also referenced for the testing of integrated LED lamps and OLED lamps. Because labs are already required to be accredited to IES LM-79-08 for testing integrated LED lamps per DOE's test procedure in Appendix BB and per ENERGY STAR's Lamps specification, DOE believes the majority of manufacturers and independent laboratories already have this accreditation. Therefore, DOE does not believe it is unduly burdensome to manufacturers or independent laboratories to be properly accredited to this standard.

DOE notes that its proposed test procedures directly reference existing industry standards that have been approved for widespread use by lamp manufacturers and test laboratories. The quantities that are directly measured, namely initial lumen output and input power, are commonly reported by the manufacturer on product packaging and on product specification sheets. Thus, testing for these quantities is already being conducted. Additionally, these quantities are required to be reported to ENERGY STAR if manufacturers certify the lamps as meeting the program requirements. Standby mode power consumption is also a reported quantity for the ENERGY STAR program, though it may not be a commonly reported value for lamps that are not certified with ENERGY STAR. In reviewing the lamps for which DOE proposes new test procedures in this rulemaking, DOE notes that very few products can operate in standby mode and therefore very few products would be required to make representations of standby mode energy

consumption. Although DOE has proposed the requirement that all testing be conducted in accredited laboratories, DOE believes that many manufacturers of these products have already accredited their own in-house laboratories because they also make products such as general service incandescent lamps and medium base compact fluorescent lamps that are required to be tested in similarly accredited laboratories.

In summary, DOE does not consider the test procedures proposed in this SNOPR to have a significant economic impact on small entities. The final cost per manufacturer primarily depends on the number of basic models the manufacturer sells. These are not annual costs because DOE does not require manufacturers to retest a basic model annually. The initial test results used to generate a certified rating for a basic model remain valid as long as the basic model has not been modified from the tested design in a way that makes it less efficient or more consumptive, which would require a change to the certified rating. If a manufacturer has modified a basic model in a way that makes it more efficient or less consumptive, new testing is required only if the manufacturer wishes to make representations of the new, more efficient rating.

Based on the criteria outlined earlier and the reasons discussed in this preamble, DOE tentatively concludes and certifies that the new proposed test procedures would not have a significant economic impact on a substantial number of small entities, and the preparation of an IRFA is not warranted. DOE will transmit the certification and supporting statement of factual basis to the Chief Counsel for Advocacy of the SBA for review under 5 U.S.C. 605(b).

C. Review Under the Paperwork Reduction Act of 1995

DOE established regulations for the certification and recordkeeping requirements for certain covered consumer products and commercial equipment. 10 CFR part 429, subpart B. This collection-of-information requirement was approved by OMB under OMB control number 1910-1400.

DOE requested OMB approval of an extension of this information collection for three years, specifically including the collection of information proposed in the present rulemaking, and estimated that the annual number of burden hours under this extension is 30 hours per company. In response to DOE's request, OMB approved DOE's information collection requirements covered under OMB control number 1910-1400 through November 30, 2017. 80 FR 5099 (January 30, 2015).

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

D. Review Under the National Environmental Policy Act of 1969

In this proposed rule, DOE proposes test procedures for certain categories of GSLs that will be used to support the ongoing GSL standards rulemaking. DOE has determined that this rule falls into a class of actions that are categorically excluded from review under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and DOE's implementing regulations at 10 CFR part 1021. Specifically, this proposed

rule adopts existing industry test procedures for certain categories of general service lamps, so it will not affect the amount, quality or distribution of energy usage, and, therefore, will not result in any environmental impacts. Thus, this rulemaking is covered by Categorical Exclusion A6 under 10 CFR part 1021, subpart D. Accordingly, neither an environmental assessment nor an environmental impact statement is required.

E. Review Under Executive Order 13132

Executive Order 13132, "Federalism," 64 FR 43255 (August 4, 1999), imposes certain requirements on agencies formulating and implementing policies or regulations that preempt State law or that have Federalism implications. The Executive Order requires agencies to examine the constitutional and statutory authority supporting any action that would limit the policymaking discretion of the States and to carefully assess the necessity for such actions. The Executive Order also requires agencies to have an accountable process to ensure meaningful and timely input by State and local officials in the development of regulatory policies that have Federalism implications. On March 14, 2000, DOE published a statement of policy describing the intergovernmental consultation process it will follow in the development of such regulations. 65 FR 13735. DOE has examined this proposed rule and determined that it will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the products that are the subject of this proposed rule. States can petition DOE for exemption from such preemption to the extent, and based on criteria, set

forth in EPCA. (42 U.S.C. 6297(d)) No further action is required by Executive Order 13132.

F. Review Under Executive Order 12988

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

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. Public Law No. 104-4, sec. 201 (codified at 2 U.S.C. 1531). For a proposed regulatory action resulting in a rule that may cause the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector of $100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed "significant intergovernmental mandate," and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect small governments. On March 18, 1997, DOE published a statement of policy on its process for intergovernmental consultation under UMRA. 62 FR 12820; also available at http://energy.gov/gc/office-general-counsel. DOE examined this proposed rule according to UMRA and its statement of policy and determined that the rule contains neither an intergovernmental mandate, nor a mandate that may result in the expenditure of $100 million or more in any year, so these requirements do not apply.

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

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

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

I. Review Under Executive Order 12630

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

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

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

K. Review Under Executive Order 13211

Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use," 66 FR 28355 (May 22, 2001), requires Federal agencies to prepare and submit to OMB, a Statement of Energy Effects for any significant energy action. A "significant energy action" is defined as any action by an

agency that promulgated or is expected to lead to promulgation of a final rule, and that (1) is a significant regulatory action under Executive Order 12866, or any successor order; and (2) is likely to have a significant adverse effect on the supply, distribution, or use of energy; or (3) is designated by the Administrator of OIRA as a significant energy action. For any significant energy action, the agency must give a detailed statement of any adverse effects on energy supply, distribution, or use if the regulation is implemented, and of reasonable alternatives to the action and their expected benefits on energy supply, distribution, and use.

This regulatory action to propose test procedures for certain categories of GSLs is not a significant regulatory action under Executive Order 12866. Moreover, it would not have a significant adverse effect on the supply, distribution, or use of energy, nor has it been designated as a significant energy action by the Administrator of OIRA. Therefore, it is not a significant energy action, and, accordingly, DOE has not prepared a Statement of Energy Effects.

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

Under section 301 of the Department of Energy Organization Act (Public Law 95–91; 42 U.S.C. 7101), DOE must comply with section 32 of the Federal Energy Administration Act of 1974, as amended by the Federal Energy Administration Authorization Act of 1977. (15 U.S.C. 788; FEAA) Section 32 essentially provides in relevant part that, where a proposed rule authorizes or requires use of commercial standards, the notice of proposed rulemaking must inform the public of the use and background of such standards. In addition, section 32(c) requires DOE to consult with

the Attorney General and the Chairman of the Federal Trade Commission (FTC) concerning the impact of the commercial or industry standards on competition.

The proposed test procedures for certain categories of GSLs incorporate testing methods contained in certain sections of the following commercial standards:

1) IES LM-45-15, "IES Approved Method for the Electrical and Photometric Measurement of General Service Incandescent Filament Lamps," 2015;
2) IES LM-20-13, "IES Approved Method for Photometry of Reflector Type Lamps," 2013;
3) IES LM-79-08, "Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products," 2008;
4) IES LM-9-09, "IES Approved Method for the Electrical and Photometric Measurement of Fluorescent Lamps," 2009; and
5) IEC Standard 62301 (Edition 2.0), "Household electrical appliances – Measurement of standby power," 2011.

DOE has evaluated these standards and is unable to conclude whether they fully comply with the requirements of section 32(b) of the FEAA (i.e., that they were developed in a manner that fully provides for public participation, comment, and review.) DOE will consult with both the Attorney General and the Chairman of the FTC concerning the impact of these test procedures on competition, prior to prescribing a final rule.

M. Description of Materials Incorporated by Reference

In this SNOPR, DOE proposes to incorporate by reference certain sections of the test standard published by IEC, titled "Household electrical appliances – Measurement of standby power (Edition 2.0)," IEC 62301-DD. IEC 62301-DD is an industry accepted test standard that describes measurements of electrical power consumption in standby mode, off mode, and network mode. The test procedures proposed in this SNOPR reference sections of IEC 62301-DD for testing standby mode power consumption of GSLs. IEC 62301-DD is readily available on IEC's website at https://webstore.iec.ch/home.

DOE also proposes to incorporate by reference specific sections of the test standard published by IES, titled "IES Approved Method for the Electrical and Photometric Measurement of Fluorescent Lamps," IES LM-9-09-DD. IES LM-9-09-DD is an industry accepted test standard that specifies procedures to be observed in performing measurements of electrical and photometric characteristics of fluorescent lamps under standard conditions. The test procedures proposed in this SNOPR reference sections of IES LM-9-09-DD for performing electrical and photometric measurements of other fluorescent lamps. IES LM-9-09-DD is readily available on IES's website at www.ies.org/store/.

DOE also proposes to incorporate by reference specific sections of the test standard published by IES, titled "IES Approved Method for Photometry of Reflector Type Lamps," IES LM-20-13. IES LM-20-13 is an industry accepted test standard that specifies photometric test methods for reflector lamps. The test procedures proposed in

this SNOPR reference sections of IES LM-20-13 for performing electrical and photometric measurements of other incandescent lamps that are reflector lamps. IES LM-20-13 is readily available on IES's website at www.ies.org/store.

DOE also proposes to incorporate by reference specific sections of the test standard published by IES, titled "IES Approved Method for the Electrical and Photometric Measurement of General Service Incandescent Filament Lamps," IES LM-45-15. IES LM-45-15 is an industry accepted test standard that specifies procedures to be observed in performing measurements of electrical and photometric characteristics of general service incandescent filament lamps under standard conditions. The test procedures proposed in this SNOPR reference sections of IES LM-45-15 for performing electrical and photometric measurements of other incandescent lamps that are not reflector lamps. IES LM-45-15 is readily available on IES's website at www.ies.org/store/.

DOE also proposes to incorporate by reference specific sections of the test standard published by IES, titled "IES Approved Method for the Electrical and Photometric Measurement of Solid-State Lighting Products," IES LM-79-08-DD. IES LM-79-08-DD is an industry accepted test standard that specifies electrical and photometric test methods for solid-state lighting products. The test procedures proposed in this SNOPR reference sections of IES LM-79-08-DD for performing electrical and photometric measurements of OLED lamps and non-integrated LED lamps. IES LM-79-08 is readily available on IES's website at www.ies.org/store.

V. Public Participation

A. Submission of Comments

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

Submitting comments via www.regulations.gov. The 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 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 regulations.gov cannot be claimed as CBI. Comments received through the website will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section.

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

Submitting comments via email, hand delivery, or mail. Comments and documents submitted via email, hand delivery, or mail also will be posted to www.regulations.gov. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information 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 mail or hand delivery, 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 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.

Factors of interest to DOE when evaluating requests to treat submitted information as confidential include: (1) a description of the items; (2) whether and why such items are customarily treated as confidential within the industry; (3) whether the information is generally known by or available from other sources; (4) whether the information has previously been made available to others without obligation concerning its confidentiality; (5) an explanation of the competitive injury to the submitting person which would result from public disclosure; (6) when such information might lose its confidential character due to the passage of time; and (7) why disclosure of the information would be contrary to the public interest.

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

B. Issues on Which DOE Seeks Comment

Although comments are welcome on all aspects of this proposed rulemaking, DOE is particularly interested in comments on the following issues.

1) DOE requests comment on the appropriateness of referencing IES LM-79-08 for the testing of non-integrated LED lamps. DOE also requests comment on the proposed requirement that manufacturers report the settings used for the testing of non-integrated LED lamps, specifically input voltage and current,

and whether additional settings are needed to ensure consistent, repeatable results. DOE requests comment on whether the manufacturer-declared settings should be made available to the public so that accurate comparisons across products could be made.

2) DOE requests comment on the industry standards and sections of the industry standards referenced in its proposed test methods.

VI. Approval of the Office of the Secretary

The Secretary of Energy has approved publication of this proposed rule.

List of Subjects

10 CFR part 429

Administrative practice and procedure, Confidential business information, Energy conservation, Household appliances, Reporting and recordkeeping requirements.

10 CFR part 430

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

Issued in Washington, DC, on July 8, 2016.

S. Chalk

Steven G. Chalk
Deputy Assistant Secretary for Operations
Energy Efficiency and Renewable Energy

For the reasons stated in the preamble, DOE proposes to amend parts 429 and 430 of chapter II of title 10, Code of Federal Regulations as set forth below:

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

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

Authority: 42 U.S.C. 6291-6317.

2. Section 429.27 is amended by revising paragraphs (b)(2)(i), (ii) and (iii) to read as follows:

§429.27 General service fluorescent lamps, general service incandescent lamps, and incandescent reflector lamps.

* * * * *

(b) * * *

(2) * * *

(i) General service fluorescent lamps: The testing laboratory's ILAC accreditation body's identification number or other approved identification assigned by the ILAC accreditation body, production dates of the units tested, the 12-month average lamp efficacy in lumens per watt (lm/W), lamp wattage (W), correlated color temperature in Kelvin (K), and the 12-month average Color Rendering Index (CRI).

(ii) Incandescent reflector lamps: The testing laboratory's ILAC accreditation body's identification number or other approved identification assigned by the ILAC

accreditation body, production dates of the units tested, the 12-month average lamp efficacy in lumens per watt (lm/W), and lamp wattage (W).

(iii) General service incandescent lamps: The testing laboratory's ILAC accreditation body's identification number or other approved identification assigned by the ILAC accreditation body, production dates of the units tested, the 12-month average maximum rate wattage in watts (W), the 12-month average minimum rated lifetime (hours), and the 12-month average Color Rendering Index (CRI).

* * * * *

3. Section 429.35 is amended by revising paragraph (b)(2) to read as follows:

§429.35 Bare or covered (no reflector) medium base compact fluorescent lamps.

* * * * *

(b) * * *

(2) Pursuant to §429.12(b)(13), a certification report shall include the following public product-specific information: The testing laboratory's ILAC accreditation body's identification number or other approved identification assigned by the ILAC accreditation body, the minimum initial efficacy in lumens per watt (lm/W), the lumen maintenance at 1,000 hours in percent (%), the lumen maintenance at 40 percent of rated life in percent (%), the rapid cycle stress test in number of units passed, and the lamp life in hours (h).

4. Section 429.57 is added to read as follows:

§429.57 General service lamps.

(a) Determination of represented value. Manufacturers must determine represented values, which includes certified ratings, for each basic model of general service lamp in accordance with following sampling provisions.

(1) The requirements of §429.11 are applicable to general service lamps, and

(2) For general service incandescent lamps, use §429.27(a);

(3) For compact fluorescent lamps, use §429.35(a);

(4) For integrated LED lamps, use §429.56(a);

(5) For other incandescent lamps, use §429.27(a);

(6) For other fluorescent lamps, use §429.35(a); and

(7) For OLED lamps and non-integrated LED lamps, use §429.56(a).

(b) Certification reports.

(1) The requirements of §429.12 are applicable to general service lamps;

(2) Values reported in certification reports are represented values;

(3) For general service incandescent lamps, use §429.27(b);

(4) For compact fluorescent lamps, use §429.35(b);

(5) For integrated LED lamps, use §429.56(b); and

(6) For other incandescent lamps, for other fluorescent lamps, for OLED lamps and non-integrated LED lamps, pursuant to §429.12(b)(13), a certification report must include the following public product-specific information: The testing laboratory's ILAC accreditation body’s identification number or other approved identification assigned by the ILAC accreditation body, initial lumen output, input power, lamp efficacy, and power factor. For non-integrated LED lamps, the certification report must also include the input voltage and current used for testing.

(c) Rounding requirements.

(1) Round input power to the nearest tenth of a watt.

(2) Round initial lumen output to three significant digits.

(3) Round lamp efficacy to the nearest tenth of a lumen per watt.

(4) Round power factor to the nearest hundredths place.

(5) Round standby mode power to the nearest tenth of a watt.

PART 430--ENERGY CONSERVATION PROGRAM FOR CONSUMER PRODUCTS

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

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

6. Section 430.3 is amended by:

a. Redesignating paragraph (o)(3) as (o)(4);

b. Adding paragraph (o)(3);

c. Redesignating paragraph (o)(4) as (o)(5);

d. Redesignating paragraph (o)(5) as (o)(7);

e. Redesignating paragraph (o)(6) as (o)(9);

e. Adding paragraph (o)(6);

f. Redesignating paragraph (o)(8) as (o)(11);

g. Adding paragraph (o)(8);

f. Redesignating paragraphs (o)(7) and (o)(9) as (o)(10) and (o)(12); and

g. Adding paragraphs (o)(13) and (p)(6).

The additions read as follows:

§430.3 Materials incorporated by reference.

* * * * *

(o) * * *

(3) IES LM-9-09 ("IES LM-9-09-DD"), IES Approved Method for the Electrical and Photometric Measurement of Fluorescent Lamps, approved January 31, 2009; IBR approved for appendix DD to subpart B, as follows:

(i) Section 4 – Ambient and Physical Conditions;

(ii) Section 5 – Electrical Conditions;

(iii) Section 6 – Lamp Test Procedures; and

(iv) Section 7 – Photometric Test Procedures: Section 7.5 – Integrating Sphere Measurement.

* * * * *

(6) IES LM-20-13, IES Approved Method for Photometry of Reflector Type Lamps, approved February 4, 2013; IBR approved for appendix DD to subpart B, as follows:

(i) Section 4 – Ambient and Physical Conditions;

(ii) Section 5 – Electrical and Photometric Test Conditions;

(iii) Section 6 – Lamp Test Procedures; and

(iv) Section 8 – Total Flux Measurements by Integrating Sphere Method.

* * * * *

(8) IES LM-45-15, IES Approved Method for the Electrical and Photometric Measurement of General Service Incandescent Filament Lamps, approved August 8, 2015; IBR approved for appendix DD to subpart B as follows:

(i) Section 4 – Ambient and Physical Conditions;

(ii) Section 5 – Electrical Conditions;

(iii) Section 6 – Lamp Test Procedures; and

(iv) Section 7 – Photometric Test Procedures: Section 7.1 – Total Luminous Flux Measurements with an Integrating Sphere.

* * * * *

(13) IES LM-79-08 ("IES LM-79-08-DD"), IES Approved Method for the Electrical and Photometric Measurement of Solid-State Lighting Products, approved January 31, 2009; IBR approved for appendix DD to subpart B as follows:

(i) Section 1.3 – Nomenclature and Definitions (except section 1.3[f]);

(ii) Section 2.0 – Ambient Conditions;

(iii) Section 3.0 – Power Supply Characteristics;

(iv) Section 5.0 – Stabilization of SSL Product;

(v) Section 7.0 – Electrical Settings;

(vi) Section 8.0 – Electrical Instrumentation;

(vii) Section 9 – Test Methods for Total Luminous Flux measurement: Section 9.1 Integrating Sphere with a Spectroradiometer (Sphere-spectroradiometer System); and

(viii) Section 9 – Test Methods for Total Luminous Flux measurement: Section 9.2 – Integrating Sphere with a Photometer Head (Sphere-photometer System).

* * * * *

(p) * * *

(6) IEC 62301, ("IEC 62301-DD"), Household electrical appliances—Measurement of standby power, (Edition 2.0, 2011-01); IBR approved for appendix DD to subpart B as follows:

(i) Section 5 – Measurements.

* * * * *

7. Section 430.23 is amended by adding paragraph (ff) to read as follows:

§430.23 Test procedures for the measurement of energy and water consumption.

* * * * *

(ff) General Service Lamps.

(1) For general service incandescent lamps, measure lamp efficacy in accordance with paragraph (r) of this section.

(2) For compact fluorescent lamps, measure lamp efficacy, lumen maintenance at 1,000 hours, lumen maintenance at 40 percent of lifetime, rapid cycle stress, time to failure, power factor, CRI, start time, and standby mode power in accordance with paragraph (y) of this section.

(3) For integrated LED lamps, measure lamp efficacy, power factor, and standby mode power in accordance with paragraph (ee) of this section.

(4) For other incandescent lamps, measure initial light output, input power, lamp efficacy, power factor, and standby mode power in accordance with appendix DD of this subpart.

(5) For other fluorescent lamps, measure initial light output, input power, lamp efficacy, power factor, and standby mode power in accordance with appendix DD of this subpart.

(6) For OLED and non-integrated LED lamps, measure initial light output, input power, lamp efficacy, power factor, and standby mode power in accordance with appendix DD of this subpart.

8. Section 430.25 is revised to read as follows:

§430.25 Laboratory Accreditation Program.

The testing for general service fluorescent lamps, general service lamps (with the exception of applicable lifetime testing), incandescent reflector lamps, and fluorescent lamp ballasts must be conducted by test laboratories accredited by an Accreditation Body that is a signatory member to the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement (MRA). A manufacturer's or importer's own laboratory, if accredited, may conduct the applicable testing.

9. Appendix DD to subpart B of part 430 is added to read as follows:

Appendix DD to Subpart B of Part 430 – Uniform Test Method for Measuring the Energy Consumption and Energy Efficiency of General Service Lamps that are not

General Service Incandescent Lamps, Compact Fluorescent Lamps, or Integrated LED Lamps.

Note: On or after [**INSERT DATE 180 DAYS AFTER DATE OF PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER**], any representations, including certifications of compliance (if required), made with respect to the energy use or efficiency of general service lamps that are not general service incandescent lamps, compact fluorescent lamps, or integrated LED lamps must be made in accordance with the results of testing pursuant to this appendix DD.

1. Scope: This appendix DD specifies the test methods required to measure the initial lumen output, input power, lamp efficacy, power factor, and standby mode energy consumption of general service lamps that are not general service incandescent lamps, compact fluorescent lamps, or integrated LED lamps.
2. Definitions:

   Measured initial input power means the input power to the lamp, measured after the lamp is stabilized and seasoned (if applicable), and expressed in watts (W).

   Measured initial lumen output means the lumen output of the lamp measured after the lamp is stabilized and seasoned (if applicable), and expressed in lumens (lm).

   Power factor means the measured initial input power (watts) divided by the product of the input voltage (volts) and the input current (amps) measured at the same time as the initial input power.
3. Active Mode Test Procedures

   3.1. Take measurements at full light output.

3.2. Do not use a goniophotometer.

3.3 For OLED and non-integrated LED lamps, position a lamp in either the base-up and base-down orientation throughout testing. An equal number of lamps in the sample must be tested in the base-up and base-down orientations, except that, if the manufacturer restricts the position, test all of the units in the sample in the manufacturer-specified position.

3.4. Operate the lamp at the rated voltage throughout testing. For lamps with multiple rated voltages including 120 volts, operate the lamp at 120 volts. If a lamp is not rated for 120 volts, operate the lamp at the highest rated input voltage. For non-integrated LED lamps, operate the lamp at the manufacturer-declared input voltage and current.

3.5. Operate the lamp at the maximum input power. If multiple modes occur at the same maximum input power (such as variable CCT or CRI), the manufacturer may select any of these modes for testing; however, all measurements must be taken at the same selected mode. The manufacturer must indicate in the test report which mode was selected for testing and include detail such that another laboratory could operate the lamp in the same mode.

3.6. To measure initial lumen output, input power, input voltage, and input current use the test procedures in the table in this section.

Table 3.1 References to Industry Standard Test Procedures

Lamp Type	Referenced Test Procedure
General service incandescent lamps	Appendix R to Subpart B of 10 CFR part 430
Compact fluorescent lamps	Appendix W to Subpart B of 10 CFR part 430
Integrated LED lamps	Appendix BB to Subpart B of 10 CFR part 430
Other incandescent lamps that are not reflector lamps	IES LM-45-15, sections 4-6, and section 7.1
Other incandescent lamps that are reflector lamps	IES LM-20-13, sections 4-6, and section 8
Other fluorescent lamps	IES LM-9-09-DD, sections 4-6, and section 7.5
OLED lamps	IES LM-79-08-DD, sections 1.3 (except 1.3[f]), 2.0, 3.0, 5.0, 7.0, 8.0, 9.1 and 9.2
Non-integrated LED lamps	IES LM-79-08-DD, sections 1.3 (except 1.3[f]), 2.0, 3.0, 5.0, 7.0, 8.0, 9.1 and 9.2

* (incorporated by reference, see §430.3)

3.7. Determine initial lamp efficacy by dividing the measured initial lumen output (lumens) by the measured initial input power (watts).

3.8. Determine power factor by dividing the measured initial input power (watts) by the product of the measured input voltage (volts) and measured input current (amps).

4. Standby Mode Test Procedure

4.1. Measure standby mode power only for lamps that are capable of standby mode operation.

4.2. Connect the lamp to the manufacturer-specified wireless control network (if applicable) and configure the lamp in standby mode by sending a signal to

the lamp instructing it to have zero light output. Lamp must remain connected to the network throughout testing.

4.3. Operate the lamp at the rated voltage throughout testing. For lamps with multiple rated voltages including 120 volts, operate the lamp at 120 volts. If a lamp is not rated for 120 volts, operate the lamp at the highest rated input voltage.

4.4. Stabilize the lamp prior to measurement as specified in section 5 of IEC 62301-DD (incorporated by reference; see §430.3).

4.5. Measure the standby mode power in watts as specified in section 5 of IEC 62301-DD (incorporated by reference; see §430.3).