[6450-01-P]

DEPARTMENT OF ENERGY

10 CFR Parts 429 and 430

[Docket No. EERE-2014-BT-TP-0007]

RIN: 1904-AD17

Energy Conservation Program: Test Procedures for Ceiling Fan Light Kits

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

ACTION: Notice of proposed rulemaking.

SUMMARY: In this notice of proposed rulemaking (NOPR), the U.S. Department of Energy (DOE) proposes to revise its test procedures for ceiling fan light kits (CFLKs). DOE proposes to update the current test procedures (appendix V) by replacing references to ENERGY STAR test procedures with references to DOE lamps test procedures for medium screw base lamps and to industry test procedures for pin-based fluorescent lamps. DOE also proposes to establish new test procedures (appendix V1) that would support amendments to CFLK energy conservation standards that are currently being considered by DOE. Specifically, these new test procedures would establish an efficacy-based metric for all lamps packaged with CFLKs and for CFLKs with integrated solid-state lighting circuitry. DOE proposes that CFLKs with lamp types without corresponding DOE test procedures would be tested using current industry test procedures for those lamp types. This NOPR also clarifies the energy conservation standards for ceiling fan light kits by replacing references to ENERGY STAR with tables that contain the specific performance requirements from the ENERGY STAR documents. Finally, DOE also addresses

standby and off-mode power consumption and provides updated guidance related to accent lighting in CFLKs. DOE is also announcing a public meeting to discuss and receive comments on the content presented in this rulemaking.

DATES:

Meeting: DOE will hold two public meetings on November 18, 2014 and November 19, 2014, from 9:00 a.m. to 4:00 p.m., in Washington, DC. The meeting will also be broadcast as a webinar. See section V, "Public Participation," for webinar registration information, participant instructions, and information about the capabilities available to webinar participants.

Comments: DOE will accept comments, data, and information regarding this notice of proposed rulemaking (NOPR) before and after the public meeting, but no later than [**INSERT DATE 75 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**]. See section V, "Public Participation," for details.

ADDRESSES: The public meeting on November 18 will be held at the U.S. Department of Energy, Forrestal Building, Room 8E-089, 1000 Independence Avenue SW., Washington, DC 20585-0121. The public meeting on November 19 will be held at the U.S. Department of Energy, Forrestal Building, Room 6E-069, 1000 Independence Avenue SW., Washington, DC 20585-0121.

For additional information about attending the meeting, see section V of this document, "Public Participation."

Any comments submitted must identify the NOPR for Test Procedures for CFLKs and provide docket number EE-2014–BT–TP–0007 and/or regulatory information number (RIN) number 1904-AD17. Comments may be submitted using any of the following methods:

1. Federal eRulemaking Portal: www.regulations.gov. Follow the instructions for submitting comments.
2. E-mail: **CFLK2014TP0007@ee.doe.gov.** Include the docket number and/or RIN in the subject line of the message.
3. Postal Mail: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, Mailstop EE-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. 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: Ms. Brenda Edwards, U.S. Department of Energy, Building Technologies Program, 950 L'Enfant Plaza, SW., Suite 600, Washington, DC, 20024. Telephone: (202) 586-2945. If possible, please submit all items on a CD. 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 document, "Public Participation."

Docket: The docket is available for review at www.regulations.gov, including Federal Register notices, public meeting attendee lists and transcripts, comments, and other supporting

documents/materials. All documents in the docket are listed in the www.regulations.gov index. However, not all documents listed in the index may be publicly available, such as information that is exempt from public disclosure.

A link to the docket web page can be found at: http://www.regulations.gov/#!docketDetail;D=EERE-2014-BT-TP-0007. This web page will contain a link to the docket for this notice on the www.regulations.gov website. The www.regulations.gov webpage 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, review other public comments and the docket, or participate in the public meeting, contact Ms. Brenda Edwards at (202) 586-2945 or by email: Brenda.Edwards@ee.doe.gov.

FOR FURTHER INFORMATION CONTACT:

Ms. Lucy deButts, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Program, EE-5B, 1000 Independence Avenue, SW., Washington, DC, 20585-0121. Telephone: (202) 287-1604. E-mail: ceiling_fan_light_kits@ee.doe.gov.

Ms. Jennifer Tiedeman, U.S. Department of Energy, Office of the General Counsel, GC-71, 1000 Independence Avenue, S.W., Washington, DC, 20585-0121. Telephone: (202) 287-6111. Email: Jennifer.Tiedeman@hq.doe.gov.

SUPPLEMENTARY INFORMATION:

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I. Authority and Background

Title III, Part B[1] of the Energy Policy and Conservation Act of 1975 (EPCA), Pub. L. 94-163 (42 U.S.C. 6291-6309, as codified), established the Energy Conservation Program for Consumer Products Other Than Automobiles, a program covering the ceiling fan light kits (CFLKs) that are the focus of this notice.[2] (42 U.S.C. 6291(5), 6293(b)(16)(A)(ii), 6295(ff)(2)-(5))

Under EPCA, the energy conservation program consists essentially of four parts: (1) testing, (2) labeling, (3) energy conservation standards, and (4) certification and enforcement procedures. The testing requirements consist of test procedures that manufacturers of covered products must follow in order to produce data that is used for (1) certifying to DOE that their products comply with the applicable energy conservation standards adopted under EPCA, and (2) making representations about the efficiency of those products. (42 U.S.C. 6293(c); 42 U.S.C. 6295(s)) Similarly, DOE must use these test requirements to determine whether products comply with any relevant standards established under EPCA. (42 U.S.C. 6295(s))

General Test Procedure Rulemaking Process

Under 42 U.S.C. 6293, EPCA sets forth the criteria and procedures that 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 must be reasonably designed to produce test results which measure energy efficiency, energy use or estimated annual

[1] For editorial reasons, upon codification in the U.S. Code, Part B was re-designated Part A.
[2] All references to EPCA in this document refer to the statute as amended through the American Energy Manufacturing Technical Corrections Act (AEMTCA), Pub. L. 112-210 (Dec. 18, 2012).

operating cost of a covered product during a representative average use cycle or period of use and must not be unduly burdensome to conduct. (42 U.S.C. 6293(b)(3))

In addition, 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)) Finally, in any rulemaking to amend a test procedure, DOE must determine to what extent, if any, the proposed test procedure would alter the product's measured energy efficiency as determined under the existing test procedure. (42 U.S.C. 6293(e)(1)) If DOE determines that the amended test procedures would alter the measured efficiency of a covered product, DOE must amend the applicable energy conservation standard accordingly. (42 U.S.C. 6293(e)(2))

The existing energy conservation standards for CFLKs were established by EPACT 2005 and later amended by EPCA. (42 U.S.C. 6295(ff)) Specifically, EPACT 2005 established and set separate energy conservation standards for three groups of CFLKs: (1) those with medium screw base sockets (hereafter "product class 1"), (2) those with pin-based sockets for fluorescent lamps (hereafter "product class 2"), and (3) all other CFLKs not included in product class 1 or 2 (hereafter "product class 3"). (42 U.S.C. 6295(ff)(2)-(4)) In a technical amendment published on October 18, 2005, DOE codified the statute's requirements for the first two groups of CFLKs, those with medium screw base sockets and with pin-based sockets for fluorescent lamps. 70 FR 60413. For the third group of CFLKs, EPACT 2005 specified that the prescribed standard for these CFLKs would become effective only if DOE failed to issue a final rule on energy conservation standards for CFLKs by January 1, 2007. (42 U.S.C. 6295(ff)(4)(C)) Because DOE

did not issue a final rule on standards for CFLKs by the statutory deadline, on January 11, 2007, DOE published a technical amendment that codified the statute's requirements for product class 3 CFLKs. 72 FR 1270. Another technical amendment to reflect the statutory requirements on March 3, 2009 (74 FR 12058) added a provision that CFLKs with sockets for pin-based fluorescent lamps must be packaged with lamps to fill all sockets.

EPCA allows DOE to amend energy conservation standards for CFLKs any time after January 1, 2010. (42 U.S.C. 6295(ff)(5)) In a separate rulemaking proceeding, DOE is considering amending energy conservation standards for CFLKs (hereafter the "ECS rulemaking for CFLKs").[3] DOE initiated that rulemaking by publishing a Federal Register notice announcing a public meeting and availability of the framework document on March 15, 2013. 78 FR 16443. DOE held a public meeting to discuss the framework document for the CFLK standards rulemaking on March 22, 2013.[4]

Additionally, the Energy Independence and Security Act of 2007 (EISA 2007), Pub. L. 110-140, amended EPCA to require that at least once every 7 years, DOE conduct an evaluation of all covered products and either amend the test procedures (if the Secretary determines that amended test procedures would more accurately or fully comply with the requirements of 42 U.S.C. 6293(b)(3) or publish a determination in the Federal Register not to amend them. (42

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[3] DOE has published a framework document and preliminary analysis for amending energy conservation standards for CFLKs. Further information is available at www.regulations.gov under Docket ID: EERE-2012-BT-STD-0045.
[4] The framework document and public meeting information are available online at regulations.gov, docket number EERE-2012-BT-STD-0045 at http://www.regulations.gov/#!documentDetail;D=EERE-2012-BT-STD-0045-0001.

U.S.C. 6293(b)(1)(A))) Pursuant to this requirement, DOE must review the test procedures for CFLKs not later than December 19, 2014 (i.e., 7 years after the enactment of EISA 2007). Thus, the final rule resulting from this rulemaking will satisfy the requirement to review the test procedures for CFLKs within 7 years of the enactment of EISA 2007.

For test procedures of covered products that do not fully account for standby mode and off mode energy consumption, EISA 2007 directs DOE to amend its test procedures to account for standby mode and off mode energy consumption, if technically feasible. (42 U.S.C. 6295(gg)(2)(A)) If integrated test procedures are technically infeasible, DOE must prescribe separate standby mode and off mode test procedures for the covered product, if technically feasible. Id. EISA 2007 also amended EPCA to require that any new or amended energy conservation standard adopted after July 1, 2010, incorporate standby mode and off mode energy use into a single standard if feasible, or otherwise adopt a separate standard for such energy use for that product, pursuant to 42 U.S.C. 6295(o). (42 U.S.C. 6295(gg)(3))

II. Summary of the Notice of Proposed Rulemaking

In this NOPR, DOE proposes to amend DOE's current test procedures for CFLKs contained in 10 CFR part 430, subpart B, appendix V; 10 CFR 429.33; and 10 CFR 430.23.[5] DOE proposes to (1) clarify that lamp efficacy measurements to meet existing CFLK energy conservation standards should be made according to DOE lamp test procedures, where they

[5] On December 8, 2006, DOE published a final rule in the Federal Register for test procedures for CFLKs. 71 FR 71340.

exist; (2) replace references to outdated ENERGY STAR[6] requirements in appendix V with references to the latest versions of industry standards; and (3) replace references to ENERGY STAR requirements in existing CFLK standards contained in 10 CFR 430.32(s) with the specific requirements. DOE has tentatively concluded that these proposed amendments will not affect any measurements required to comply with existing standards. DOE also proposes to modify previously issued guidance regarding accent lighting in CFLKs to specify that such light sources in CFLKs must be tested and are subject to standards.

In order to support the ongoing ECS rulemaking for CFLKs, DOE also proposes to adopt a single efficiency metric measured in lumens per watt (hereafter, "efficacy"), that would be applicable to all product classes. DOE proposes, where possible, to determine the CFLK efficiency by measuring the efficacy of the lamp(s) packaged with the CFLK (hereafter, "lamp efficacy") and require using existing DOE lamp test procedures. Where it is technically infeasible to measure lamp efficacy (e.g., for CFLKs with integrated solid-state lighting[7] circuitry), DOE proposes to determine CFLK efficiency by measuring the efficacy of the CFLK itself (hereafter, "luminaire efficacy"). For those lamp types used in CFLKs that do not have corresponding DOE test procedures, DOE proposes to incorporate by reference current industry standard test procedures. Further, DOE proposes to establish a new appendix V1 that will specify test procedures for CFLKs packaged with lamp types for which DOE test procedures do not exist and for CFLKs packaged with inseparable light sources that require luminaire efficacy. Because

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[6] ENERGY STAR is a joint program of the U.S. Environmental Protection Agency (EPA) and DOE that establishes a voluntary rating, certification, and labeling program for highly energy efficient consumer products and commercial equipment. Information on the program is available at: http://www.energystar.gov.

[7] Solid-state lighting or "SSL" refers to a class of lighting technologies based on semiconductor materials. Light emitting diodes (LEDs) are the most common type of SSL on the market today.

these proposed amendments will likely change the measured values required to comply with the existing CFLK standards for CFLKs in product classes 2 and 3, DOE proposes the use of the new appendix V1 and associated updates to the regulations be required concurrent with the compliance date of standards established by the ongoing ECS rulemaking for CFLKs. 78 FR 16443.

This notice also addresses DOE's requirement to account for standby mode and off-mode power consumption in test procedures that support energy conservation standards. (42 U.S.C. 6295(gg)(2)(A) and (3)) DOE believes that CFLKs do not consume power in off mode and consume power in standby mode only if they are controlled via remote control. DOE proposes that the standby mode energy consumption of CFLKs be accounted for under the efficiency metric for ceiling fans rather than under the CFLK efficiency metric. The rationale for this approach is that control of the CFLK is initiated through the ceiling fan because the standby sensor and controller are nearly always shared between the ceiling fan and the CFLK, and the remote control receiver is essentially always installed in the ceiling fan housing.

III. Discussion

A. Amendments to Existing Test Procedures

The current DOE standards for CFLKs in product class 1 (those with medium base sockets) (42 U.S.C. 6295(ff)(2)) use the efficacy of the lamp(s) packaged with the CFLK (lumens emitted per watt consumed [lm/W]) as the measure of CFLK efficiency. The current DOE standards for CFLKs in product class 2 (pin-based sockets for fluorescent lamps) (42 U.S.C. 6295(ff)(3)) use the efficacy of the lamp and ballast system(s) (lm/W) (hereafter "system

efficacy") packaged with the CFLK as the measure of CFLK efficiency. The standard for product class 3 is based on maximum allowable operating wattage, which is regulated as a design standard that requires including a wattage limiter in these products. Accordingly, DOE has not established test procedures for product class 3 CFLKs. 72 FR 1270.

The current DOE test procedures for product class 1 CFLKs incorporate by reference sections 3 and 4 of the "CFL Requirements for Testing" of the "ENERGY STAR Program Requirements for Compact Fluorescent Lamps," Version 3.0, which in turn references the Illuminating Engineering Society of North America (IES) LM-66-00 test procedures for lamp efficacy testing (IES LM-66-00, "Electrical and Photometric Measurements of Single-Ended Compact Fluorescent Lamps"). The current DOE test procedures for product class 2 CFLKs incorporate by reference sections 3 and 4 of the "ENERGY STAR Program Requirements for Residential Light Fixtures," Version 4.0, which also reference IES LM-66-00 and IES LM-9-99 for system efficacy testing, depending on lamp type. Table 1 summarizes the current metrics and test procedures for CFLKs.

Table 1 CFLKs Efficiency Metrics and Reference Test Procedures by Product Class

Product Class	**Efficiency or Design Metric**	**Industry Test Procedures Incorporated into DOE's Regulations**
1 (CFLKs with medium screw base sockets)	Lamp efficacy (lm/W)	"CFL Requirements for Testing" of the "ENERGY STAR Program Requirements for Compact Fluorescent Lamps," Version 3.0, which references IES LM-66-00 for lamp efficacy measurements
2 (CFLKs with pin-based fluorescent sockets)	System efficacy (lm/W)	"ENERGY STAR Program Requirements for Residential Light Fixtures," Version 4.0, which references IES LM-66-00 and IES LM-9-99 for system efficacy measurements

Product Class	Efficiency or Design Metric	Industry Test Procedures Incorporated into DOE's Regulations
3 (All other CFLKs)	Wattage	N/A

The ENERGY STAR program procedures incorporated into the DOE test procedures for CFLKs, and the IES test procedures referenced therein, are no longer current. DOE's regulations incorporate Version 3.0 of the "ENERGY STAR Program Requirements for Compact Fluorescent Lamps," which was replaced by Version 4.3. Further, on September 30, 2014, Version 4.3 was replaced by "ENERGY STAR Program Requirements for Lamps Version 1.0" (finalized on August 28, 2013). Version 4.0 of the "ENERGY STAR Program Requirements for Residential Light Fixtures" has been replaced by the "ENERGY STAR Program Requirements for Luminaires Version 1.2." Moreover, the IES test procedures referenced in these ENERGY STAR test procedures have been updated. For example, the current version of IES LM-66 is the 2011 version (IES LM-66-11), whereas the version referenced in the current DOE test procedures is the 2000 version (IES LM-66-00).

Because these procedures referenced in the DOE test procedures for CFLKs, and the IES test procedures referenced therein, are no longer current, DOE is proposing to update the CFLK test procedures to reference existing DOE lamp test procedures for covered lamps. For those lamp types without a corresponding DOE test procedure, DOE proposes to reference the latest industry standard test procedures and also add clarifications to existing sampling requirements. This NOPR also presents updates to prior DOE guidance related to accent lighting.

As described in section I, when DOE amends test procedures, it must consider to what extent the proposed test procedure would alter the measured energy efficiency as determined

under the existing test procedure. (42 U.S.C. 6293(e)(1)) For CFLKs this requirement only applies to CFLKs with medium screw base sockets and pin-based sockets for fluorescent lamps—the only CFLK product classes with test procedures, both of which DOE is proposing to amend. These amendments are discussed further in the sections that follow.

1. Test Procedures for CFLKs Packaged With Medium Screw Bases

For CFLKs with medium screw base sockets, the current DOE test procedures reference the "CFL Requirements for Testing" of the "ENERGY STAR Program Requirements for Compact Fluorescent Lamps," Version 3.0, which in turn reference the Illuminating Engineering Society of North America (IES) LM-66-00 test procedures for lamp efficacy testing. DOE proposes to replace the reference to the ENERGY STAR specification with a reference to the current DOE test procedures for medium screw base compact fluorescent lamps (located at 10 CFR 430, subpart B, appendix W), which references IES LM-66-11. DOE analyzed the potential differences in the methodologies incorporated by reference in the current and proposed test procedures (i.e., LM-66-00 for the existing test procedure and LM-66-11 for the proposed test procedure). DOE found that there are subtle, clarification-type differences between the two methods, but that the measurement of efficacy is the same. Thus, DOE believes that any differences in the test procedures would be unlikely to yield differences in the measured values of lamp efficacy for CFLKs with medium screw base sockets. In addition, DOE's proposal would eliminate an extra layer of documents referenced. Thus, for CFLKs packaged with medium screw base lamps, DOE proposes to reference appendix W, the DOE test procedure for medium base compact fluorescent lamps (MBCFLs) and 10 CFR 429.35, DOE's sampling requirements for MBCFLs. DOE proposes to implement this change by removing the current test

specifications for CFLKs packaged with medium screw bases from appendix V and amending 10 CFR 429.33 and 10 CFR 430.23 to reference respectively, 10 CFR 429.35 and appendix W for CFLKs packaged with medium screw base compact fluorescent lamps. DOE requests comments on the proposed changes for existing test procedures for CFLKs packaged with medium screw base lamps.

2. Test Procedures for CFLKs Packaged With Pin-Based Fluorescent Lamps

DOE also proposes to update the test procedure for CFLKs with pin-based sockets for fluorescent lamps. The current DOE test procedures for CFLKs with pin-based sockets for fluorescent lamps reference the "ENERGY STAR Program Requirements for Residential Light Fixtures," Version 4.0, which in turn references IES LM-66-00 (for compact fluorescent lamps [CFLs]) and IES LM-9-99 (for all other fluorescent lamps). DOE proposes to remove the ENERGY STAR references and update the test procedures with direct references to the current industry test procedures, namely IES LM-66-11 and IES LM-9-09. The ENERGY STAR program requirements specify that the efficacy of the lamp should be measured using the ballast with which it is packaged rather than a reference ballast. DOE notes that although both IES LM-66-11 and IES LM-9-09 specify that lamps with external ballasts (e.g., pin-based fluorescent lamps) be tested on a reference ballast, they also contain provisions that allow for such lamps to be tested on commercially available ballasts, rather than on a reference ballast when it is desirable to measure the performance (e.g., system efficacy) of a specific lamp ballast platform. Because changing the current test procedure to require measurement of pin-based fluorescent lamps on a reference ballast would result in a change in measured values, DOE proposes to specify in appendix V that system efficacy testing of pin-based fluorescent lamps be conducted

with ballasts that are packaged with CFLKs. Further, DOE found that there are subtle, clarification-type differences between IES LM-66-00 and IES LM-66-11 and between IES LM-9-99 and LM-9-09 but that the general measurement of system efficacy is the same. Thus, DOE believes that any differences in the current and proposed test procedures would be unlikely to yield differences in the measured values of system efficacy for CFLKs with pin-based fluorescent lamps but would eliminate an extraneous layer of reference documents. DOE therefore proposes to amend appendix V to reference IES LM-66-11 and IES LM-9-09, as applicable, depending on the type of pin-based lamp that is packaged with the CFLK.

DOE notes that EPCA requires CFLK test procedures to be based on the test procedures referenced in the ENERGY STAR specifications for "Residential Light Fixtures and Compact Fluorescent Light Bulbs", as in effect on August 8, 2005. (42 U.S.C. 6293(b)(16)(A)(ii)) DOE believes it will remain in compliance with this requirement after updating references as described above, as the older industry standards referenced in the ENERGY STAR version and the latest versions of these industry standards have not changed substantively.

DOE requests comments on the proposed changes for existing test procedures for CFLKs packaged with pin-based fluorescent lamps.

3. Clarifications to Energy Conservation Standard Text at 10 CFR 430.32(s)

CFLK energy conservation standards are codified in 10 CFR 430.32(s). Currently the text in 10 CFR 430.32(s) refers to the ENERGY STAR Program requirements for Compact Fluorescent Lamps version 3, for standards applicable to CFLKs packaged with medium screw

base lamps and the ENERGY STAR Program requirements for Residential Light Fixtures, version 4.0, for standards applicable to CFLKs packaged with pin-based fluorescent lamps. To state more clearly the minimum requirements for these products, DOE proposes to replace the references to ENERGY STAR with tables that contain the specific performance requirements from the ENERGY STAR documents.

For CFLKs packaged with medium screw base CFLs the standards table would include the efficacy, lumen maintenance at 1,000 hours, lumen maintenance at 40 percent of lifetime, rapid cycle stress, and lifetime requirements specified in the ENERGY STAR Program requirements for Compact Fluorescent Lamps, version 3. For CFLKs packaged with medium screw base light sources other than CFLs, the standards table would include the efficacy requirements specified in the ENERGY STAR Program requirements for Compact Fluorescent Lamps, version 3. For CFLKs packaged with pin-based fluorescent lamps, the standards table would include the system efficacy in the ENERGY STAR Program requirements for Residential Light Fixtures version 4.0. DOE requests comment on replacing references to ENERGY STAR documents with the specific requirements from the ENERGY STAR documents referenced in CFLK energy conservation standards, codified at 10 CFR 430.32(s).

4. Clarifications for Accent Lighting

DOE previously issued guidance on accent lighting used in CFLKs in a test procedure technical amendment (71 FR 71347 [December 8, 2006]), and recorded this guidance for easier

reference in its Guidance and Frequently Asked Questions (FAQ) website.[8] In this guidance DOE stated, "DOE does not consider ceiling fan accent lighting that is not a significant light source to be part of the 190-watt limitation." Because it is difficult to quantitatively define "a significant light source" in a CFLK as it may vary depending on the application in which it is used and may require a subjective determination of what provides accent lighting versus overall illumination, DOE believes that this may result in inconsistency in the application of CFLK standards. Therefore, DOE proposes to withdraw the current guidance on accent lighting 30 days after the publication of the final rule. DOE proposes to consider all lighting packaged with any CFLK to be subject to energy conservation requirements. DOE requests comment on its withdrawal of current guidance on accent lighting in CFLKs and proposal to consider all lighting packaged with any CFLKs to be subject to energy conservation requirements.

B. Amendments To Implement An Efficacy Metric For All CFLKs

In this document DOE also proposes to include amendments to the CFLK test procedures that would expand the efficacy metric to all covered CFLKs in support of the amended standards being considered as part of the ongoing ECS rulemaking for CFLKs. In that rulemaking, DOE is proposing to require that all covered CFLKs meet minimum efficacy requirements, as is currently required for CFLKs in product class 1 and product class 2. 78 FR 16443. Thus, DOE proposes to establish a new appendix V1 and amend 10 CFR 429.33 and 10 CFR 430.23 to provide test procedures to measure the lamp efficacy of each basic model of a lamp type packaged with a CFLK and to measure the luminaire efficacy of each basic model of CFLK with

[8] Available at: http://www1.eere.energy.gov/buildings/appliance_standards/pdfs/ceilingfanlk_faq_2010-07-16.pdf.

integrated SSL circuitry. For CFLKs with both consumer replaceable lamps and integrated SSL circuitry, DOE proposes that each of the components individually must be tested for lamp or luminaire efficacy as applicable. DOE proposes that the use of the new appendix V1 and associated updates would be required concurrent with the compliance date of standards established by the ongoing ECS rulemaking for CFLKs. The following sections describe the change in metric for certain CFLKs and how DOE proposes measuring lamp and luminaire efficacy.

1. Proposed Metric

As noted previously, DOE's current CFLK energy conservation standards establish minimum CFLK efficiency in three different ways depending on product class: lamp efficacy for product class 1, system efficacy for product class 2, and wattage for product class 3. This variation makes it difficult for consumers to compare the efficiency of different types of CFLKs. DOE is therefore proposing amendments to the CFLK test procedures to use a single metric (efficacy) to quantify the energy efficiency of all CFLKs. To the extent technologically feasible, DOE proposes to use lamp efficacy as the measure of efficiency, as described in this section.

In the public comments received in response to the framework document for the CFLK standards rulemaking,[9] stakeholders described problems with the current regulatory structure for product class 3 CFLKs. Hunter Fan Company (Hunter) argued that wattage limiters are prone to

[9] Ceiling Fan and Ceiling Fan Light Kits Framework Document (http://www.regulations.gov/#!documentDetail;D=EERE-2012-BT-STD-0045-0001) and Notice of Public Meeting, *Federal Register*, 78 FR 16443 (March 15, 2013) (http://www.regulations.gov/#!documentDetail;D=EERE-2012-BT-STD-0045-0002)

failure, thereby significantly increasing the costs associated with product warrantees. (Hunter Fan Company, No. 37 at p. 2)[10] A survey commissioned by the American Lighting Association (ALA) and submitted to DOE found that the added warranty cost due to servicing the failures of wattage limiters averaged $46.43 per claim. (ALA, No. 39 at p. 21)

DOE is sensitive to the concerns raised by stakeholders and recognizes that the maximum wattage limit approach currently prescribed for product class 3 CFLKs has limitations. Unlike efficacy, wattage alone gives no indication of the amount of lighting service (lumens) delivered per unit of power consumed (watts). Because consumers have traditionally associated wattage with brightness, consumers may erroneously believe that a product with a low wattage rating does not produce adequate light. Furthermore, DOE acknowledges the cost concerns and technology problems associated with wattage limiters that stakeholders raised. DOE further notes that wattage limiters are a potential failure point for CFLKs and may create design challenges for some CFLKs because of the physical space they require. Finally, DOE notes that wattage limiters may be unnecessary in CFLKs that use lighting technologies that are inherently high efficiency and/or wattage limiting.

As a result of these concerns, DOE proposes replacing wattage with efficacy as the metric for all CFLKs, including those currently in product class 3. Efficacy more accurately captures the efficiency of a light source by expressing the light output relative to the input power.

[10] A notation in this form provides a reference for information that is in the docket of DOE's rulemaking to develop energy conservation standards for ceiling fans and ceiling fan light kits (Docket No. EERE-2012-BT-STD-0045). This notation indicates that the statement preceding the reference is included in document number 37 in the docket for the ceiling fans and ceiling fan light kits energy conservation standards rulemaking, at page 2.

The efficacy metric is universally used by lighting industry organizations (e.g., the National Electrical Manufacturers Association and the Illuminating Engineering Society) and governmental bodies (e.g., DOE, ENERGY STAR, California Energy Commission) to quantify and characterize the efficiency of both lamps and luminaires. Therefore, DOE proposes requiring efficacy, expressed in lumens per watt, as the efficiency metric for all CFLKs. For CFLKs with externally ballasted lamps (also known as non-integrated lamps), DOE proposes shifting from the current approach, which uses system efficacy as measured on the ballast packaged with the CFLK (appendix V), to one that uses lamp efficacy, as measured on a reference ballast.

As described in the preceding paragraphs, DOE proposes to use lamp efficacy as the basis of its energy efficiency standards for CFLKs where technically feasible. Where that is not possible (e.g., for CFLKs with integrated solid-state lighting circuitry), DOE proposes to use luminaire efficacy. DOE requests comments on its proposal to use lamp efficacy when technically feasible and otherwise luminaire efficacy to determine the efficiency of CFLKs.

2. Proposed Test Procedure

DOE notes that the large majority of CFLKs currently on the market are packaged with lamps for which DOE or industry test procedures exist. In this NOPR, DOE proposes test procedure updates to require an efficacy metric for all light sources packaged with CFLKs. For these test procedure updates, DOE also proposes to reference existing DOE test procedures and to reference industry standard test procedures only where DOE test procedures do not exist. As noted above, DOE proposes to minimize the overall lamps testing burden and update the CFLK test procedures by replacing references to ENERGY STAR test procedures with references to

existing DOE lamp test procedures, where applicable. CFLKs that are packaged with lamps that have already been tested per DOE lamp test procedures may not require additional testing. For CFLKs with lamp types that do not have a corresponding current DOE test procedure, DOE proposes to reference current test procedures of the IES. The IES periodically updates its test procedures. Under the proposed approach, DOE would incorporate by reference a specific version of an IES test procedure (e.g., LM-79-08). In a future rulemaking, DOE may consider updating references to more recent versions of IES test procedures, if they exist; however, the required version would not change absent DOE rulemaking, even if the IES publishes an update to the test procedure.

Further, DOE is currently engaged in two test procedure rulemakings for lamp types that are used in CFLKs. Specifically, DOE is amending appendix W to update existing test procedures for medium base compact fluorescent lamps and to include test procedures for additional CFL metrics and CFL types, including externally-ballasted CFLs (i.e., non-integrated CFLs). DOE has also proposed a new appendix BB setting forth test procedures for integrated LED lamps.[11] DOE expects both of these appendices would be effective by the time that the new CFLK test procedure implementing a single efficacy metric for CFLKs (i.e., appendix V1 and associated CFR updates) would be effective. Therefore, DOE references these proposed appendices in the proposed amendments to the CFLK test procedures.

[11] DOE published a NOPR on April 9, 2012 (77 FR 21038), a supplemental NOPR on June 3, 2014 (79 FR 32019), and a second supplemental NOPR on June 26, 2014 (79 FR 36242). Information on the LED lamps test procedure can be found at: http://www.regulations.gov/#!docketDetail;D=EERE-2011-BT-TP-0071

DOE notes that some CFLKs with solid-state lighting have designs for which it is not technically feasible to measure lamp efficacy without destructive disassembly of the CFLK circuitry and, even where it is possible to disassemble the lighting in a non-destructive manner, measurements may not be accurate or consistent representations of the light source efficacy. This applies to two cases: (1) CFLKs that have SSL drivers and/or light sources (e.g., an LED array or module) that are not consumer replaceable, and (2) CFLKs that have SSL drivers and light sources that are consumer replaceable, but the SSL driver and light source are separated by additional intermediate circuitry within the CFLK (e.g., wiring between a replaceable driver and a replaceable light source). DOE refers to these designs – which have light sources, drivers, or intermediate circuitry that is integrated into the CFLK – as "CFLKs with integrated SSL circuitry" and proposes to evaluate the efficiency of these CFLKs by measuring their luminaire efficacy.

DOE considered alternative approaches to quantifying CFLK efficiency for certain CFLKs with integrated SSL circuitry to determine if it was feasible to measure lamp efficacy, rather than luminaire efficacy, but determined that it is not. Specifically, some CFLK designs may have SSL light sources that are consumer replaceable (i.e., to facilitate repairs and maintenance) but LED drivers that are hardwired in the CFLK. For this scenario, DOE explored whether lamp efficacy could be measured on the consumer replaceable SSL light source using a "reference driver" in much the same way that reference ballasts are used for measuring the lamp efficacy of certain pin-based CFLs. However, SSL light sources do not have industry-specified reference drivers in the manner that CFLs have reference ballasts and, therefore, this method could result in varying efficacy measurements of the light source. Similarly, for designs with

consumer replaceable SSL light sources and drivers, DOE considered measuring lamp efficacy of the combined consumer replaceable components, but this approach may also result in varying measurements of the light source efficacy depending on the additional SSL components packaged with the CFLK. Additionally, these types of measurements are outside the stated scope of IES LM-79-08, which addresses only luminaires and integrated LED lamps.

In the ongoing ECS rulemaking for CFLKs, DOE is considering that each lamp and/or integrated light source packaged with the CFLK meet prescribed minimum efficacy requirements. 78 FR 16443. For CFLKs that utilize multiple lamp models, DOE proposes that each lamp model be tested according to the corresponding lamp test procedure. For CFLKs that have both consumer replaceable lamps and integrated SSL circuitry, DOE proposes that the lamp efficacy of the consumer replaceable lamps be measured and that the luminaire efficacy of the CFLK integrated SSL circuitry be measured after the consumer replaceable lamps are removed. Each component would individually be required to meet the minimum standard. For CFLKs with dimmable lighting, DOE proposes that active mode testing be conducted at full power.

Table 2 summarizes the proposed active mode test procedures for determining efficacy.

Table 2: Proposed Test Procedures for CFLKs based on Lighting Technology

Lighting Technology	**Lamp or Luminaire Efficacy Measured**	**Referenced Test Procedure**
Compact fluorescent lamps (CFLs)	Lamp Efficacy	Appendix W to Subpart B of 10 CFR 430
Other (non-CFL) fluorescent lamps	Lamp Efficacy	IES LM-9-09
Integrated LED lamps	Lamp Efficacy	Appendix BB to Subpart B of 10 CFR 430
All Other SSL lamps	Lamp Efficacy	IES LM-79-08
CFLKs with integrated SSL circuitry	Luminaire Efficacy	IES LM-79-08

DOE requests comment on its proposal to measure luminaire efficacy for CFLKs with integrated SSL circuitry and to measure lamp efficacy for all other types of CFLKs.

DOE requests comment on its assessment that it is technically infeasible to measure the lamp efficacy of CFLKs with integrated SSL circuitry either because it would require destructive disassembly of the CFLK or measurement of consumer replaceable light source and driver, which would not result in valid representations of the light source efficacy.

DOE requests comment on its approach to testing CFLKs that have both consumer replaceable lamps and integrated SSL circuitry.

C. Standby Mode and Off Mode

As required by statute, DOE is addressing standby mode and off mode power consumption in this NOPR. EPCA defines ‘‘standby mode’’ as ‘‘the condition in which an energy-using product—(I) is connected to a main power source; and (II) offers 1 or more of the following user-oriented or protective functions: (aa) To facilitate the activation or deactivation of other functions (including active mode) by remote switch (including remote control), internal sensor, or timer. (bb) Continuous functions, including information or status displays (including clocks) or sensor-based functions.’’ (42 U.S.C. 6295(gg)(1)(A)(iii)) EPCA defines ‘‘off mode’’ as ‘‘the condition in which an energy-using product—(I) is connected to a main power source; and (II) is not providing any standby or active mode function.’’ (42 U.S.C.6295(gg)(1)(A)(ii))

ALA provided comments on the framework document of the ongoing ECS rulemaking for CFLKs indicating that a ceiling fan without a wireless remote does not consume energy in off mode, and a ceiling fan with a wireless remote control has an average power consumption of 1.4 W in standby mode. (ALA, 39 at pg.13).

Based on a review of specification sheets of CFLKs on the market and data provided by ALA, DOE believes that CFLKs do not consume power in off mode, and that only CFLKs offering the functionality of a wireless remote control may consume power in standby mode. Because the standby sensor and controller nearly always provide functionality shared between the ceiling fan and the CFLK, DOE proposed in the framework document to account for the energy consumption in standby mode under the ceiling fan efficiency metric rather than under the CFLK efficiency metric. 78 FR 16443.

Further efforts to address standby energy usage in the CFLK test procedure may produce test results that are unnecessarily confusing to the consumer. If standby power were incorporated into a single efficiency metric, a CFLK with standby energy usage would have a different efficacy from the lamps packaged with it. Furthermore, two CFLKs with the same lamps, one with and one without a remote control, would have different efficacy ratings. This could be confusing to consumers and potentially misleading since remote controls often include dimmers, which may reduce active mode power consumption by allowing consumers to run lamps at less than full power. Additionally, DOE is concerned that requiring standby power testing for CFLKs in addition to standby power testing for ceiling fans would impose an unnecessary testing burden on manufacturers, given that the standby power consumption is shared between the ceiling fan

and the CFLK, has its genesis in the ceiling fan, and can be captured in the ceiling fan test procedure alone. Therefore, DOE has tentatively concluded that standby energy usage for CFLKs is adequately addressed in the ceiling fan test procedure. For these reasons, DOE is not proposing a test procedure for standby mode power consumption for CFLKs in this NOPR. DOE requests comment on its approach to addressing standby power consumption in CFLKs.

D. Effective Date and Compliance Date for Amended Test Procedures

The effective date for any amended test procedures is 30 days after publication of any final test procedures in the Federal Register. (5 U.S.C. 553) The compliance date for the amended test procedures specified for appendix V would be 180 days after publication of the test procedure final rule in the Federal Register. The compliance date for appendix V1 would be concurrent with the ongoing ECS rulemaking for CFLKs. Manufacturers would be permitted to make representations based on testing in accordance with appendix V1 early, if such representations would demonstrate compliance with any amended energy conservation standards.

IV. Procedural Issues and Regulatory Review

A. Review Under Executive Order 12866

The Office of Management and Budget 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 Office of Management and Budget (OMB).

B. Review under the Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 et seq., as amended by the Small Business Regulatory Enforcement Fairness Act of 1996) requires preparation of an initial regulatory flexibility analysis (IFRA) for any rule that by law must be proposed for public comment and a final regulatory flexibility analysis (FRFA) for any such rule that an agency adopts as a final rule, unless the agency certifies that the rule, if promulgated, will not have a significant economic impact on a substantial number of small entities. A regulatory flexibility analysis examines the impact of the rule on small entities and considers alternative ways of reducing negative effects. Also, 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 at: http://energy.gov/gc/office-general-counsel.

DOE reviewed this proposed rule under the provisions of the Regulatory Flexibility Act and the policies and procedures published on February 19, 2003. The proposed rule prescribes the test procedure amendments that would be used to determine compliance with energy conservation standards for CFLKs.

DOE analyzed the burden to small manufacturers in both the context of the proposed modifications to the existing CFLK test procedures made in appendix V and associated CFR sections, as well as the in the context of the proposed test procedures to implement an efficacy

metric for all covered CFLKs by establishing appendix V1 and amending associated CFR sections. With respect amendments to existing CFLK test procedures, DOE determined that proposed changes would not have a material impact on small U.S. manufacturers because the proposed changes would not alter the test procedures themselves, but rather, how they would be referenced. Consequently, DOE certifies that the proposed testing procedure amendments would not have a significant economic impact on a substantial number of small entities and the preparation of an IRFA is not warranted for these amendments.

With respect to proposed test procedures to implement an efficacy metric for all covered CFLKs, DOE found that because the proposed amendments would require efficiency performance testing of certain CFLKs that had not required testing previously, all manufacturers, including a substantial number of small manufacturers, would experience a financial burden associated with new testing requirements. Therefore, the preparation of an IRFA is required for these amendments. DOE has transmitted a copy of this IRFA to the Chief Counsel for Advocacy of the Small Business Administration for review.

The Small Business Administration (SBA) has set a size threshold for manufacturers, which defines those entities classified as "small businesses" for the purposes of the statute. DOE used the SBA's small business size standards to determine whether any small entities would be subject to the requirements of the rule. 65 FR 30836, 30849 (May 15, 2000), as amended at 65 FR 53533, 53545 (Sept. 5, 2000) and codified at 13 CFR part 121. The size standards are listed by North American Industry Classification System (NAICS) code and industry description and are available at http://www.sba.gov/sites/default/files/files/Size_Standards_Table.pdf. CFLK

manufacturing is classified under NAICS code 335210,[12] "Small Electrical Appliance Manufacturing." SBA sets a threshold of 750 employees or less for an entity to be considered a small business for this category.

DOE conducted a focused inquiry into small business manufacturers of products covered by this rulemaking. To identify CFLK manufacturers, DOE reviewed ALA's list of ceiling fan manufacturers,[13] the ENERGY STAR Product Databases for Ceiling Fans,[14] the California Energy Commission's Appliance Database for Ceiling Fans,[15] the Federal Trade Commission's Appliance Energy Database for Ceiling Fans,[16] and DOE's Compliance Certification Database.[17] DOE then reviewed these data to determine whether the entities met the SBA's definition of a "small business manufacturer" of CFLKs and screened out companies that do not offer products subject to this rulemaking, do not meet the definition of a "small business," or are foreign-owned and operated. Based on this review, and using data on the companies for which DOE was able to obtain information on the numbers of employees, DOE estimates that there are between 25 and 35 small business CFLK manufacturers in the U.S. DOE invites interested parties to comment on the number of small business manufacturers of CFLKs.

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[12] Although NAICS 335121, "Residential Electric Lighting Fixture Manufacturing" could also apply to CFLK manufacturers, DOE chose a NAICS code that applied to both ceiling fans and light kits because CFLK manufacturers are generally also ceiling fan manufacturers.

[13] The American Lighting Association, list of Manufacturers & Representatives (Available at: http://www.americanlightingassoc.com/Members/Resources/Manufacturers-Representatives.aspx).

[14] The U.S. Environmental Protection Agency and the U.S. Department of Energy, ENERGY STAR Ceiling Fans—Product Databases for Ceiling Fans (Available at: http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CF).

[15] The California Energy Commission, Appliance Database for Ceiling Fans (Available at: http://www.appliances.energy.ca.gov/QuickSearch.aspx).

[16] The Federal Trade Commission, Appliance Energy Databases for Ceiling Fans (Available at: http://www.ftc.gov/bcp/conline/edcams/eande/appliances/ceilfan.htm).

[17] The Department of Energy, Compliance Certification Database (Available at: http://www.regulations.doe.gov/certification-data).

Based on the analysis described in the remainder of this section, DOE expects the proposed test procedures to implement an efficacy metric for all covered CFLKs to increase direct testing costs to small CFLK manufacturers, but that the savings from eliminating the design standard that requires wattage limiters for product class 3 CFLKs will likely more than offset these costs. DOE believes that, in sum, typical small manufacturers are likely to benefit financially from the proposed changes, as detailed below.

CFLK testing costs may also be impacted by the concurrent ceiling fans test procedure rulemaking, which has proposed a change in scope that could increase the number of CFLKs requiring testing. Specifically, in that rulemaking DOE is proposing to reinterpret the definition of ceiling fans to include hugger fans. If this proposed reinterpretation is adopted, products that provide light from hugger fans would fall under that statutory definition of CFLKs (42 U.S.C. 6291(50)) and, therefore, be subject to CFLK standards. If manufacturers use different CFLKs on their hugger fans than on their other ceiling fans, this could increase test burden. This IRFA therefore presents costs under two scenarios: one in which hugger fans are not included in the definition of ceiling fans, and another in which they are included.

DOE requires testing each basic model of a product to establish compliance with energy conservation standards. Products included in a single basic model must have essentially identical electrical, physical, and functional characteristics that affect energy efficiency. Because the efficiency of CFLKs with integrated SSL circuitry is based on luminaire efficacy, variation in light kit designs will likely impact efficiency and result in a greater number of basic models for

these types of CFLKs. Many aesthetic features that affect the optics of CFLKs with integrated SSL circuitry also affect their luminaire efficacy and, therefore, would require a new basic model. For CFLKs with consumer replaceable lamps, efficiency is based on lamp efficacy and will likely not be impacted by the design of the light kit, and thus the number of basic models may be limited for these types of CFLKs. Because these CFLKs require lamp testing, changes in luminaire optics, like lens choice, would not affect the measured efficacy, and therefore would not require a new basic model. For these CFLKs, manufacturers would be able to limit the testing burden by using the same lamp model for many CFLK models and/or by obtaining appropriate lamp test results from their lamp supplier(s).

To provide a framework for DOE's analysis, Table 3 summarizes the market share of different current CFLK product classes that would be affected by the proposed changes in testing requirements and avoided wattage limiter costs. The market share projections in Table 3 are for the expected compliance year of the ongoing ECS rulemaking for CFLKs (2019), when testing costs would be highest because both existing and new basic models need to be tested; in subsequent years testing would only be required on new basic models because manufacturers already would have tested existing basic models.

Table 3: Projections of CFLK Market Shares in 2019 for the Current Product Classes (Excluding Hugger Fans)

Product Class*	Percent of market in 2019	Current testing required	Proposed future testing	New testing costs?	Savings from removal of wattage limiter under proposal?
1	10%	100% lamp efficacy	100% lamp efficacy	No	No
3	90%	None	70% lamp efficacy	Yes	Yes
			30% luminaire efficacy	Yes	Yes

* Product class 2 (light kits with pin-based sockets) is ignored for purposes of this analysis because its market share is insignificant, at less than 1 percent.

As shown in Table 3, the proposed test procedures do not affect testing burden for product class 1, because no new testing requirements are proposed for this product class; additionally, no savings related to wattage limiters are realized. Product class 2 (light kits with pin-based sockets) is ignored for purposes of this analysis because its market share is insignificant, at less than 1 percent. DOE assumes that 30 percent of product class 3 (socket types other than medium or pin-based) will transition to CFLKs with integrated SSL circuitry (requiring luminaire efficacy measurements) by 2019, while the remaining 70 percent will transition to CFLKs requiring lamp efficacy measurements.[18] Although testing burden would increase for product class 3 under the proposal, because the test procedures would be new for this class, removing the wattage limiter requirement would offset these costs.

[18] DOE estimated that between 15% and 40% of the CFLK market in 2019 would be CFLKs with integrated SSL circuitry. The lower bound of the estimated range was based on the reference case projection of LED penetration in Navigant Consulting, Inc.'s report, *Energy Savings Potential for Solid-State Lighting in General Illumination Applications*, U.S. Department of Energy, January 2012. Half of the LED penetration from that report was assumed to come from CFLKs with integrated SSL circuitry and the other half from LED lamps. The higher bound of the estimated range was based on manufacturer estimates of the market share of integral-LED CFLKs in 2018 from manufacturer interviews. For this analysis, DOE assumed a rounded mid-point value: that 27% of all CFLKs would have integrated SSL circuitry (30% of CFLKs in product class 3).

If DOE changes its interpretation to include hugger fans in the scope of ceiling fans, this would effectively increase the size of the CFLK market by about 15 percent, and would be expected to lead to a corresponding increase in testing burden. That decision is outside of the scope of this rulemaking, and is therefore not the focus of this IRFA. This IRFA focuses on the additional testing costs and the avoided wattage limiter costs expected to result from the proposed CFLK test procedure amendments, and it considers these cost-benefit impacts for two cases: case 1 does not include huggers in the scope of ceiling fans, while case 2 does include huggers in the scope of ceiling fans.

Table 4 summarizes the results of DOE's IRFA analysis for the two cases. In addition to presenting the estimated additional testing costs and the reduced wattage limiter costs that would result for the proposed amendments to CFLK test procedures, the table presents the assumptions underlying the calculations and intermediate results such as the estimated number of CFLKs sold by typical small CFLK manufacturers in the U.S. The table notes describe how DOE generated the inputs. The final results are rounded to two significant digits.

Table 4: Cost-Benefit Implications of Proposed Test Procedures in Appendix V1 for Typical Small Manufacturers

	Case 1 No hugger fans	Case 2 With hugger fans
Total Annual CFLK Shipments[1]	19,000,000	21,850,000
Percent of Shipments Attributed to Small Manufacturers[2]	15%	15%
Number of Small Manufacturers Producing CFLKs[2]	30	30
Number of CFLKs Sold by Typical Small Manufacturers[3]	95,000	109,250
Number of Basic Models Sold by Typical Small Manufacturer[4]	15	17
Units Sold per Basic Model[3]	6,333	6,426

	Case 1 No hugger fans	Case 2 With hugger fans
Percent of Market Requiring New Lamp Testing[5]	63%	64%
Percent of Market Requiring New Luminaire Testing[5]	27%	27%
Percent of Market Benefitting for Removal of Wattage Limiter[5]	90%	90%
Percent of Basic Models Requiring New Lamp Efficacy Testing[6]	50%	50%
Average Number of New Lamp Tests Required per Typical Small Manufacturer[3]	4.7	5.4
Average Number of New Luminaire Tests Required per Small Manufacturer[3]	4.1	4.7
Testing cost per Basic Lamp Model[7]	$3,000	$3,000
Testing cost per Basic Luminaire Model[8]	$750	$750
Cost of a Wattage Limiter[9]	$1.50	$1.50
Total 1st Year Cost of Additional Testing per Typical Small Manufacturer as a Result of CFLK Test Procedure Amendments[3]	$17,000	$20,000
Total Annual Savings from Wattage Limiter Removal per Typical Small Manufacturer as a Result of CFLK Test Procedure Amendments [3]	$130,000	$150,000

(1) This estimate is based on historical shipments of low-volume ceiling fans (LVCF) derived from: (1) data from *Appliance* magazine's Statistical Review from the period 1991-2006, (2) data from Energy Star Annual Reports from the period 2003-2011, (3) and data purchased from NPD Research Group from 2007-2011. CFLK shipments are assumed to be 88% of LVCF shipments based on sales of LVCFs with and without CFLKs. Shipments in 2019 are based on a stock turnover model that accounts for replacements of retired units in existing stock, installations in new construction, and the addition of CFLKs to existing buildings.

(2) The estimate is based on market shares of CFLK brands derived from NPD Research Group and limited publicly available data on small CFLK businesses.

(3) This value is calculated from other values in this table.

(4) This estimate is based on a review of manufacturer websites.

(5) For the no-hugger fans case, these values follow from the market breakdown shown in Table 3. For the hugger-fans case, the "Percent of Market" values in Table 3 were adjusted to account for a 15% increase in market size associated with CFLKs on hugger fans, assuming that 70% of the hugger CFLKs use lamps only and 30% are integral SSL.

(6) This estimate is based on the assumption that for 50% of lamp models used in CFLKs, appropriate test results will be available, precluding the need for additional testing.

(7) This estimate assumes 10 lamp samples tested at $300 per test.

(8) This estimate assumes 2 luminaire samples tested at $375 per test.

(9) This estimate conservatively is based on the low end of wattage limiter prices available for sale on the Internet.

DOE estimates that the proposed test procedures would increase direct testing costs by approximately $17,000 to $20,000 for a typical small manufacturer in the first year of required compliance, depending on whether hugger fans are excluded or included in the definition of ceiling fans. DOE expects testing costs to be lower in subsequent years as testing would only be needed for newly introduced basic models of CFLKs since existing basic models would already have the necessary test results for certification. DOE estimates that the elimination of wattage limiters would yield a typical small manufacturer approximately $110,000 to $130,000 in reduced manufacturing costs in that year.

The degree to which testing costs are offset by savings from the elimination of the wattage limiter requirement depends significantly on the number of CFLKs produced per basic model. That is, testing costs are fixed per basic model, but the costs associated with the wattage limiter requirement increase in direct proportion with the total number of CFLKs subject to the requirement. As shown in Table 4, DOE estimates that small manufacturers typically produce about 6,300 to 6,400 CFLKs per basic model per year, and that they are likely to see a net financial benefit from the proposed changes provided that they produce more than approximately 850 CFLK units per basic model.

In summary, DOE notes that the estimated savings of the proposed test procedures greatly exceed the estimated costs to small manufacturers. While these estimates are based on a number of projections and assumptions which have inherent uncertainties, given the degree to which projected savings exceed projected costs, DOE tentatively concludes that the test procedures proposed to implement an efficacy metric for all covered CFLKs will not increase

compliance costs for small manufacturers of CFLKs. DOE requests input on its tentative conclusion that the test procedures proposed in appendix V1 will not increase compliance costs for small manufacturers of CFLKs.

In developing amendments to the CFLK test procedures, DOE has attempted to avoid conflicts with other rules and regulations. Certain CFLKs utilize lamps that are subject to DOE standards and test procedures as specified in lamp rulemakings. As described in preceding sections, to avoid conflicts with existing DOE regulations, the test procedures proposed in this NOPR reference existing test procedures for these types of CFLKs. DOE is not aware of any other Federal rules that duplicate, overlap or conflict with these test procedures.

DOE considered alternatives to the proposed test procedures for CFLKs with integrated SSL circuitry to determine if it was feasible to measure lamp efficacy rather that luminaire efficacy. Specifically, DOE explored the possibility of testing the consumer replaceable SSL light sources drivers for CFLKs with integrated SSL circuitry rather testing the entire CFLK. DOE explored the possibility of adopting IES LM-82, "Characterization of LED Light Engines and LED Lamps for Electrical and Photometric Properties as a Function of Temperature," for CFLKs with integrated SSL circuitry. Such a method would potentially reduce testing costs (particularly if the same LED module and driver were used in multiple basic models of CFLKs) and would yield test procedures more analogous to the test procedures proposed for all other CFLK types. DOE believes this approach is not technically feasible, however, because: (1) DOE could not be certain that test results of the LED module and driver would accurately represent the performance of the system when it was installed in the CFLK because the CFLK could provide

heat sinking to the LED module in a manner that affected performance; and (2) it was not clear that it would be possible to test for compliance without destructively altering the product being tested because in some CFLK designs LED modules and drivers are highly integrated into the CFLK. Furthermore, DOE was not able to determine if such an approach would increase or decrease testing burden.

DOE also considered alternatives to the proposed test procedures for measuring lamp efficacy. Specifically, DOE considered maintaining the current design standard that requires wattage limiters for certain types of CFLKs. As discussed previously, DOE tentatively concluded that the test procedures proposed will not increase compliance costs and are in fact more likely to decrease compliance cost because of the cost savings from eliminating the wattage limiter requirement.

C. Review Under the Paperwork Reduction Act of 1995

Manufacturers of CFLKs must certify to DOE that their products comply with any applicable energy conservation standards. To certify compliance, manufacturers must first obtain test data for their products according to the DOE test procedures including any amendments adopted for those test procedures on the date that compliance is required. DOE has established regulations for the certification and recordkeeping requirements for all covered consumer products and commercial equipment, including CFLKs. 76 FR 12422 (March 7, 2011).The collection-of-information requirement for the certification and recordkeeping is subject to review and approval by OMB under the Paperwork Reduction Act (PRA). This requirement has been approved by OMB under OMB control number 1910-1400. Public reporting burden for the

certification is estimated to average 20 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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

D. Review Under the National Environmental Policy Act of 1969

In this proposed rule, DOE proposes test procedure amendments for CFLKs to measure more accurately the energy consumption of these products. 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 would amend the existing test procedures without affecting the amount, quality, or distribution of energy usage, and, therefore, would not result in any environmental impacts. Thus, this rulemaking is covered by Categorical Exclusion A5 under 10 CFR part 1021, subpart D, which applies to any rulemaking that interprets or amends an existing rule without changing the environmental effect of that rule. 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 has determined that it would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. EPCA governs and prescribes Federal preemption of State regulations as to energy conservation for the products that are the subject of today's 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

When reviewing existing regulations or promulgating new regulations, section 3(a) of Executive Order 12988, "Civil Justice Reform," 61 FR 4729 (Feb. 7, 1996), imposes on Federal agencies the general duty to adhere to the following requirements: (1) eliminate drafting errors and ambiguity; (2) write regulations to minimize litigation; (3) provide a clear legal standard for affected conduct rather than a general standard; and (4) promote simplification and burden reduction. Section 3(b) of Executive Order 12988 specifically requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) clearly specifies the preemptive

effect, if any; (2) clearly specifies any effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct while promoting simplification and burden reduction; (4) specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. Section 3(c) of Executive Order 12988 requires Executive agencies to review regulations in light of applicable standards in sections 3(a) and 3(b) to determine whether they are met or it is unreasonable to meet one or more of them. DOE has completed the required review and determined that, to the extent permitted by law, the proposed rule meets the relevant standards of Executive Order 12988.

G. Review Under the Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA) requires each Federal agency to assess the effects of Federal regulatory actions on State, local, and Tribal governments and the private sector. Pub. L. No. 104-4, sec. 201 (codified at 2 U.S.C. 1531). For a proposed regulatory action likely to result in a rule that may cause the expenditure by State, local, and Tribal governments, in the aggregate, or by the private sector of $100 million or more in any one year (adjusted annually for inflation), section 202 of UMRA requires a Federal agency to publish a written statement that estimates the resulting costs, benefits, and other effects on the national economy. (2 U.S.C. 1532(a), (b)) The UMRA also requires a Federal agency to develop an effective process to permit timely input by elected officers of State, local, and Tribal governments on a proposed "significant intergovernmental mandate," and requires an agency plan for giving notice and opportunity for timely input to potentially affected small governments before establishing any requirements that might significantly or uniquely affect small governments. On March 18, 1997, DOE published a statement of policy on its process for

intergovernmental consultation under UMRA. 62 FR 12820; also available at http://energy.gov/gc/office-general-counsel. DOE examined today's proposed rule according to UMRA and its statement of policy and determined these requirements do not apply because the rule contains neither an intergovernmental mandate nor a mandate that may result in the expenditure of $100 million or more in any year.

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

Section 654 of the Treasury and General Government Appropriations Act, 1999 (Pub. L. 105-277) requires Federal agencies to issue a Family Policymaking Assessment for any rule that may affect family well-being. This rule would not have any impact on the autonomy or integrity of the family as an institution. Accordingly, DOE has concluded that it is not necessary to prepare a Family Policymaking Assessment.

I. Review Under Executive Order 12630

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

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

Section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note) provides for agencies to review most disseminations of information to the public under guidelines established by each agency pursuant to general guidelines issued by OMB. OMB's guidelines were published at 67 FR 8452 (Feb. 22, 2002), and DOE's guidelines

were published at 67 FR 62446 (Oct. 7, 2002). DOE has reviewed today's proposed rule under the OMB and DOE guidelines and has concluded that it is consistent with applicable policies in those guidelines.

K. Review Under Executive Order 13211

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

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

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

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

The proposed rule would incorporate testing methods contained in the following commercial standards: IES LM-66-2011, "IES Approved Method Electrical and Photometric Measurements of Single-Ended Compact Fluorescent Lamps" and IES LM-79-2008, "IES Approved Method Electrical and Photometric Measurements of Solid-State Lighting Products." The Department 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 the Attorney General and the Chairman of the FTC concerning the impact of these test procedures on competition, prior to prescribing a final rule.

V. Public Participation

A. Attendance at the Public Meeting

The time, date, and location of the public meeting are listed in the DATES and ADDRESSES sections at the beginning of this document. If you plan to attend the public

meeting, please notify Ms. Brenda Edwards at (202) 586-2945 or Brenda.Edwards@ee.doe.gov. As explained in the ADDRESSES section, foreign nationals visiting DOE Headquarters are subject to advance security screening procedures.

In addition, you can attend the public meeting via webinar. Webinar registration information, participant instructions, and information about the capabilities available to webinar participants will be published on DOE's website, http://www1.eere.energy.gov/buildings/appliance_standards/rulemaking.aspx/ruleid/66. Participants are responsible for ensuring their systems are compatible with the webinar software.

B. Procedure for Submitting Requests to Speak and Prepared General Statements For Distribution

Any person who has plans to present a prepared general statement may request that copies of his or her statement be made available at the public meeting. Such persons may submit requests, along with an advance electronic copy of their statement in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format, to the appropriate address shown in the ADDRESSES section at the beginning of this notice. The request and advance copy of statements must be received at least one week before the public meeting and may be emailed, hand-delivered, or sent by mail. DOE prefers to receive requests and advance copies via email. Please include a telephone number to enable DOE staff to make a follow-up contact, if needed.

C. Conduct of the Public Meeting

Please note that foreign nationals participating in the public meeting are subject to advance security screening procedures which require advance notice prior to attendance at the public meeting. If a foreign national wishes to participate in the public meeting, please inform DOE of this fact as soon as possible by contacting Ms. Brenda Edwards at (202) 586-2945 so that the necessary procedures can be completed. DOE requires visitors to have laptops and other devices, such as tablets, checked upon entry into the building. Please report to the visitor's desk to have devices checked before proceeding through security.

Due to the REAL ID Act implemented by the Department of Homeland Security (DHS), there have been recent changes regarding ID requirements for individuals wishing to enter Federal buildings from specific states and U.S. territories. Driver's licenses from the following states or territory will not be accepted for building entry and one of the alternate forms of ID listed below will be required.

DHS has determined that regular driver's licenses (and ID cards) from the following jurisdictions are not acceptable for entry into DOE facilities: Alaska, American Samoa, Arizona, Louisiana, Maine, Massachusetts, Minnesota, New York, Oklahoma, and Washington.

Acceptable alternate forms of Photo-ID include: U.S. Passport or Passport Card; an Enhanced Driver's License or Enhanced ID-Card issued by the states of Minnesota, New York or Washington (Enhanced licenses issued by these states are clearly marked Enhanced or Enhanced Driver's License); a military ID or other Federal government issued Photo-ID card.

DOE will designate a DOE official to preside at the public meeting and may also use a professional facilitator to aid discussion. The meeting will not be a judicial or evidentiary-type public hearing, but DOE will conduct it in accordance with section 336 of EPCA (42 U.S.C. 6306). A court reporter will be present to record the proceedings and prepare a transcript. DOE reserves the right to schedule the order of presentations and to establish the procedures governing the conduct of the public meeting. After the public meeting, interested parties may submit further comments on the proceedings as well as on any aspect of the rulemaking until the end of the comment period.

The public meeting will be conducted in an informal, conference style. DOE will present summaries of comments received before the public meeting, allow time for prepared general statements by participants, and encourage all interested parties to share their views on issues affecting this rulemaking. Each participant will be allowed to make a general statement (within time limits determined by DOE), before the discussion of specific topics. DOE will permit, as time permits, other participants to comment briefly on any general statements.

At the end of all prepared statements on a topic, DOE will permit participants to clarify their statements briefly and comment on statements made by others. Participants should be prepared to answer questions by DOE and by other participants concerning these issues. DOE representatives may also ask questions of participants concerning other matters relevant to this rulemaking. The official conducting the public meeting will accept additional comments or questions from those attending, as time permits. The presiding official will announce any further

procedural rules or modification of the above procedures that may be needed for the proper conduct of the public meeting.

A transcript of the public meeting will be included in the docket, which can be viewed as described in the Docket section at the beginning of this notice. In addition, any person may buy a copy of the transcript from the transcribing reporter.

D. Submission of Comments

DOE will accept comments, data, and information regarding this proposed rule before or after the public meeting, but no later than the date provided in the DATES section at the beginning of this proposed rule. Interested parties may submit comments using any of the methods described in the ADDRESSES section at the beginning of this notice.

Submitting comments via regulations.gov. The 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. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. 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 confidential 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 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 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).

E. Issues on Which DOE Seeks Comment

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

1. DOE requests comments on the proposed changes for existing test procedures for CFLKs packaged with medium screw base lamps.

2. DOE requests comments on the proposed changes for existing test procedures for CFLKs packaged with pin-based fluorescent lamps.

3. DOE requests comment on replacing references to ENERGY STAR documents with the specific requirements from the ENERGY STAR documents referenced in CFLK energy conservation standards, codified in 10 CFR 430.32(s)

4. DOE requests comment on its withdrawal of current guidance on accent lighting in CFLKs and proposal to consider all lighting packaged with all CFLKs to be subject to energy conservation requirements.

5. DOE requests comments on its proposal to use lamp efficacy when technically feasible and otherwise luminaire efficacy to determine the efficiency of CFLKs.

6. DOE requests comment on its proposal to measure luminaire efficacy for CFLKs with integrated SSL circuitry and to measure lamp efficacy for all other types of CFLKs.

7. DOE requests comment on its assessment that it is technically infeasible to measure the lamp efficacy of CFLKs with integrated SSL circuitry either because it would require destructive disassembly of the CFLK or measurement of consumer replaceable light

source and driver, which would not result in valid representations of the light source efficacy.

8. DOE requests comment on its approach to testing CFLKs that have both consumer replaceable lamps and integrated SSL circuitry.

9. DOE requests comment on its approach to addressing standby power consumption in CFLKs.

10. DOE invites interested parties to comment on the number of small business manufacturers of CFLKs.

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

Confidential business information, Energy conservation, Household appliances, Imports, 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 October 27, 2014.

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Kathleen B. Hogan,
Deputy Assistant Secretary for Energy Efficiency,
Energy Efficiency and Renewable Energy.

For the reasons stated in the preamble, DOE is proposing 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 429.33 is amended by revising paragraph (a) to read as follows:

§429.33 Ceiling fan light kits.

(a) *Sampling plan for selection of units for testing*.

(1) The requirements of §429.11 are applicable to ceiling fan light kits, except that, for ceiling fan light kits subject to a design standard, each unit must meet the design standard; and

(2) For each basic model of ceiling fan light kit, the following requirements are applicable for compliance with the January 1, 2007 energy conservation standards:

(i) For ceiling fan light kits with medium screw base sockets that are packaged with compact fluorescent lamps, the represented values of each basic model of lamp packaged with the ceiling fan light kit shall be determined in accordance with §429.35.

(ii) For ceiling fan light kits with medium screw base sockets that are packaged with integrated light-emitting diode lamps, the represented values of each basic

model of lamp packaged with the ceiling fan light kit shall be determined in accordance with §429.56 [proposed at 79 FR 36242 (June 26, 2014)].

(iii) For ceiling fan light kits with pin-based sockets that are packaged with fluorescent lamps, the represented values shall be determined in accordance with the sampling and statistical requirements in §429.35.

(iv) For ceiling fan light kits with medium screw base sockets that are packaged with incandescent lamps, the represented values of each basic model of lamp packaged with the ceiling fan light kit shall be determined in accordance with §429.27.

(v) For ceiling fan light kits with sockets or packaged with lamps other than those described in paragraph (a)(2)(i), (ii), (iii), and (iv) of this section, each unit must comply with the applicable design standard in §430.32(s)(4).

(3) For each basic model of ceiling fan light kit, the following requirements are applicable for compliance with amended energy conservation standards, if established:

(i) For ceiling fan light kits packaged with compact fluorescent lamps, the represented values of each basic model of lamp shall be determined in accordance with §429.35.

(ii) For ceiling fan light kits packaged with general service fluorescent lamps, the represented values of each basic model of lamp shall be determined in accordance with §429.27.

(iii) For ceiling fan light kits packaged with incandescent lamps, the represented values of each basic model of lamp shall be determined in accordance with §429.27.

(iv)For ceiling fan light kits packaged with integrated LED lamps, the represented values of each basic model of lamp shall be determined in accordance with §429.56.

(v) For ceiling fan light kits packaged with other fluorescent lamps (not compact fluorescent lamps or general service fluorescent lamps), the represented values of each basic model of lamp shall be determined in accordance with the sampling and statistical requirements in §429.35.

(vi) For ceiling fan light kits packaged with other SSL lamps (not integrated LED lamps), the represented values of each basic model of lamp shall be determined in accordance with the sampling and statistical requirements in §429.56.

(vii) For each basic model of ceiling fan light kit with integrated SSL circuitry, a sample of sufficient size shall be randomly selected and tested to ensure that any represented value of the energy efficiency or other measure of energy consumption of a basic model for which consumers would favor higher values shall be less than or equal to the lower of:

A. The mean of the sample, where:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$$

and, $\bar{x}$ is the sample mean; n is the number of samples; and x_i is the i^{th} sample; Or,

B. The lower 95 percent confidence limit (LCL) of the true mean divided by 0.90, where:

$$LCL = \bar{x} - t_{0.95}\left(\frac{s}{\sqrt{n}}\right)$$

And $\bar{x}$ is the sample mean; s is the sample standard deviation; n is the number of samples; and $t_{0.95}$ is the t statistic for a 95% one-tailed confidence interval with n-1 degrees of freedom (from Appendix A to subpart B).

* * * * *

PART 430--ENERGY CONSERVATION PROGRAM FOR CONSUMER PRODUCTS.

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

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

4. Section 430.3 is amended by:

a. Removing paragraph (l)(2);

b. Redesignating (l)(3), (l)(4) and (l)(5) as (l)(2), (l)(3) and (l)(4);

c. Amending paragraph (n)(2) by removing “and appendix R to subpart B” and adding in its place, ‘‘and appendices R, V and V1 of subpart B”; and

d. Adding new paragraphs (n)(8) and (n)(9)

e. Removing (t)(1); and

f. Redesignating (t)(2) as (t)(1) and reserving paragraph (t)(2).

.

The additions read as follows:

§ 430.3 Materials incorporated by reference.

* * * * *

(n) * * *

(8) IES LM-66-11, ("IES LM-66"), IES Approved Method for the Electrical and Photometric Measurement of Single-Ended Compact Fluorescent Lamps, approved April 11, 2011; IBR approved for appendix V to subpart B.

(9) IES LM-79-08, ("IES LM-79"), IES Approved Method for the Electrical and Photometric Measurement of Solid-State Lighting Products, approved December 31, 2007; IBR approved for appendix V1 to subpart B.

* * * * *

5. Section 430.23 is amended by revising paragraph (x) to read as follows:

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

* * * * *

(x) Ceiling fan light kits.

(1) For each ceiling fan light kit that is required to comply with the energy conservation standards as of January 1, 2007:

(i) For a ceiling fan light kit with medium screw base sockets that is packaged with compact fluorescent lamps, measure lamp efficacy, lumen maintenance at

1,000 hours, lumen maintenance at 40 percent of lifetime, rapid cycle stress test, and time to failure in accordance with paragraph (y) of this section.

(ii) For a ceiling fan light kit with medium screw base sockets that is packaged with integrated LED lamps, measure lamp efficacy in accordance with paragraph (dd) of this section.

(iii) For a ceiling fan light kit with pin-based sockets that is packaged with fluorescent lamps, measure system efficacy in accordance with section 4 of appendix V of this subpart. Express system efficacy in lumens per watt and round to the nearest tenth of a lumen per watt.

(iv) For a ceiling fan light kit with medium screw base sockets that is packaged with incandescent lamps, measure lamp efficacy in accordance with paragraph (r) of this section.

(2) For each ceiling fan light kit that is required to comply with amended energy conservation standards, if established:

(i) For a ceiling fan light kit packaged with compact fluorescent lamps, measure lamp efficacy, lumen maintenance at 1,000 hours, lumen maintenance at 40 percent of lifetime, rapid cycle stress test, and time to failure in accordance with paragraph (y) of this section.

(ii) For a ceiling fan light kit packaged with general service fluorescent lamps, measure lamp efficacy in accordance with paragraph (r) of this section.

(iii) For a ceiling fan light kit packaged with incandescent lamps, measure lamp efficacy in accordance with paragraph (r) of this section.

(iv) For a ceiling fan light kit packaged with integrated LED lamps, measure lamp efficacy in accordance with paragraph (dd) of this section.

(v) For a ceiling fan light kit packaged with other fluorescent lamps (not compact fluorescent lamps or general service fluorescent lamps), packaged with other SSL lamps (not integrated LED lamps) or with integrated SSL circuitry, measure efficacy in accordance with section 3 of appendix V1 of this subpart. Express each result in lumens per watt and round to the nearest tenth of a lumen per watt.

* * * * *

6. Appendix V to Subpart B of Part 430 is revised to read as follows:

Appendix V to Subpart B of Part 430—Uniform Test Method for Measuring the Energy Consumption of Ceiling Fan Light Kits with Pin-Based Sockets for Fluorescent Lamps

After [DATE 30 DAYS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER] and prior to [DATE 180 DAYS AFTER PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER], manufacturers must make any representations with respect to the energy use or efficiency of ceiling fan light kits with pin-based sockets for fluorescent lamps in accordance with the results of testing pursuant to this Appendix V or the procedures in Appendix V as it appeared at 10 CFR part 430, subpart B, Appendix V, in the 10 CFR parts 200 to 499 edition revised as of January 1, 2014. After [DATE 180 DAYS AFTER DATE OF PUBLICATION OF THE FINAL RULE], manufacturers must make any representations with respect to energy use or efficiency of ceiling fan light kits with pin-based sockets for fluorescent

lamps in accordance with the results of testing pursuant to this appendix to demonstrate compliance with the energy conservation standards at 10 CFR 430.32(s)(3).

Alternatively, manufacturers may make representations based on testing in accordance with appendix V1, provided that such representations demonstrate compliance with the amended energy conservation standards. Manufacturers must make any representations with respect to energy use or efficiency in accordance with whichever version is selected for testing.

1. Scope: This appendix contains test requirements to measure the energy performance of ceiling fan light kits (CFLKs) with pin-based sockets that are packaged with fluorescent lamps.

2. Definitions

2.1. Input power means the actual total power used by all lamp(s) and ballast(s) of the CFLK during operation, expressed in watts (W) and measured using the lamp and ballast packaged with the CFLK.

2.2. Lamp ballast platform means a pairing of one ballast with one or more lamps that can operate simultaneously on that ballast. Each unique combination of manufacturer, basic model numbers of the ballast and lamp(s), and the quantity of lamps that operate on the ballast, corresponds to a unique platform.

2.3. Lamp lumens means a measurement of luminous flux measured using the lamps and ballasts shipped with the CFLK, expressed in lumens.

2.4. System efficacy means the ratio of measured lamp lumens to measured input power, expressed in lumens per watt, and is determined for each unique lamp ballast platform packaged with the CFLK.

3. Test Apparatus and General Instructions:

(a) The test apparatus and instruction for testing pin-based fluorescent lamps packaged with ceiling fan light kits that have pin-based sockets must conform to the following requirements:

Any lamp satisfying this description:	must conform to the requirements of:	and be tested on the lamp ballast platform packaged with the CFLK, as allowed in:
Compact fluorescent lamp	sections 4.0-11.0 of IES LM-66-11 (Incorporated by reference, see § 430.3)	section 7.0 of IES LM-66-11 (incorporated by reference, see § 430.3)
Any other fluorescent lamp	sections 3.0 – 6.0 of IES LM-9-09 (Incorporated by reference, see § 430.3)	section 5.4 of IES LM-9-09 (incorporated by reference, see § 430.3)

4. Test Measurement and Calculations:

Measure system efficacy as follows and express the result in lumens per watt:

Lamp Type	Method

Compact fluorescent lamp	Measure system efficacy according to IES LM-66-11 (incorporated by reference; see §430.3). Use of a goniophotometer is not permitted.
Any other fluorescent lamp	Measure system efficacy according to IES LM-9-09 (incorporated by reference; see §430.3). Use of a goniophotometer is not permitted.

5. Rounding

Round system efficacy for the individual test unit to the nearest tenth of a lumen per watt.

7. Appendix V1 is added to Subpart B of Part 430 to read as follows:

Appendix V1 to Subpart B of Part 430—Uniform Test Method for Measuring the Energy Consumption of Ceiling Fan Light Kits packaged with Other Fluorescent Lamps (not Compact Fluorescent Lamps or General Service Fluorescent Lamps), packaged with Other SSL Lamps (not Integrated LED Lamps), or with Integrated SSL Circuitry

Note: Any representations about the energy use or efficiency of any ceiling fan light kit packaged with other fluorescent lamps (not compact fluorescent lamps or general service fluorescent lamps), packaged with other SSL lamps (not integrated LED lamps), or with integrated SSL circuitry made on or after the compliance date of any amended energy conservation standards must be made in accordance with the results of testing pursuant to this appendix.

1. Scope: This appendix establishes the test requirements to measure the energy efficiency of all ceiling fan light kits (CFLKs) packaged with other fluorescent lamps (not compact fluorescent lamps or general service fluorescent lamps), packaged with other SSL lamps (not integrated LED lamps), or with integrated SSL circuitry. Measure all lighting associated with these CFLKs according to the test procedures in this appendix.

2. Definitions

2.1. Other (non-CFL and non-GSFL) fluorescent lamp means a low-pressure mercury electric-discharge lamp in which a fluorescing coating transforms some of the ultraviolet energy generated by the mercury discharge into light, including but not limited to circline fluorescent lamps, and excluding any compact fluorescent lamp and any general service fluorescent lamp.

2.2. Other SSL products means solid-state lighting lamps that are not integrated LED lamps or CFLKs with integrated SSL circuitry, as defined in this section. "Other SSL products" includes integrated LED lamps with non-ANSI-standard bases (e.g., Zhaga interfaces).

2.3. CFLK with integrated SSL circuitry means a CFLK that has light sources, drivers, or intermediate circuitry, such as wiring between a replaceable driver and a replaceable light source, that are not consumer replaceable.

2.4. Consumer replaceable means items such as lamps or ballasts which a typical consumer could replace with relative ease, without the cutting of wires, use of a soldering iron, or damage to or destruction of the CFLK.

2.5. Solid-State Lighting (SSL) means technology where light is emitted from a solid object – a block of semiconductor – rather than from a filament or plasma, as in the case of incandescent and fluorescent lighting. This includes inorganic light-emitting diodes (LEDs) and organic light-emitting diodes (OLEDs).

3. Test Conditions and Measurements

For any CFLK that utilizes consumer replaceable lamps, measure the lamp efficacy of each basic model of lamp packaged with the CFLK. For any CFLK only with integrated SSL circuitry, measure the luminaire efficacy of the CFLK. For any CFLK that includes both consumer replaceable lamps and integrated SSL circuitry, measure both the lamp efficacy of each basic model of lamp packaged with the CFLK and the luminaire efficacy of the CFLK with all consumer replaceable lamps removed. Measurements should be taken at full light output. Use of a goniophotometer is prohibited. For each test, use the test procedures in the table below.

Lighting Technology	**Lamp or Luminaire Efficacy Measured**	**Referenced Test Procedure**
Other (non-CFL and non-GSFL) fluorescent lamps	Lamp Efficacy	IES LM-9-09
Other SSL products	Lamp Efficacy	IES LM-79-08
CFLKs with integrated SSL circuitry	Luminaire Efficacy	IES LM-79-08

4. Rounding

Round lamp efficacy and/or luminaire efficacy for the individual test unit to the nearest tenth of a lumen per watt.

8. Section 430.32 is amended by revising paragraphs (s)(2) and (s)(3) to read as follows:

§ 430.32 Energy and water conservation standards and their compliance dates.

* * * * *

(s) * * *

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(2)(i) Ceiling fan light kits with medium screw base sockets manufactured on or after January 1, 2007, must be packaged with screw-based lamps to fill all screw base sockets.

(ii) The screw-based lamps required under paragraph (2)(i) of this section must –

(A) Be compact fluorescent lamps that meet or exceed the following requirements or be as described in paragraph (2)(ii)(B) of this section:

Factor	Requirements
Rated Wattage (Watts) & Configuration[1]	Minimum Initial Lamp Efficacy (lumens per watt)[2]
Bare Lamp:	
Lamp Power <15	45.0
Lamp Power ≥15	60.0
Covered Lamp (no reflector):	
Lamp Power <15	40.0
15≤Lamp Power <19	48.0
19≤Lamp Power <25	50.0
Lamp Power ≥25	55.0
With Reflector:	
Lamp Power <20	33.0
Lamp Power ≥20	40.0
Lumen Maintenance at 1,000 hours	≥ 90.0%

Lumen Maintenance at 40 Percent of Lifetime	≥ 80.0%
Rapid Cycle Stress Test	At least 5 lamps must meet or exceed the minimum number of cycles.
Lifetime	≥ 6,000 hours for the sample of lamps.

[1]Use rated wattage to determine the appropriate minimum efficacy requirements in this table.
[2] Calculate efficacy using measured wattage, rather than rated wattage, and measured lumens to determine product compliance.. Wattage and lumen values indicated on products or packaging may not be used in calculation.

(B) Light sources other than compact fluorescent lamps that have lumens per watt performance at least equivalent to comparably configured compact fluorescent lamps meeting the energy conservation standards in paragraph (2)(ii)(A) of this section.

(3) Ceiling fan light kits manufactured on or after January 1, 2007, with pin-based sockets for fluorescent lamps must use an electronic ballast and be packaged with lamps to fill all sockets. These lamp ballast platforms must meet the following requirements:

Factor	**Requirement**
System Efficacy Per Lamp Ballast Platform in Lumens Per Watt (lm/w)	≥ 50 lm/w for all lamp types below 30 total listed lamp watts. ≥ 60 lm/w for all lamp types that are ≤ 24 inches and ≥ 30 total listed lamp watts. ≥ 70 lm/w for all lamp types that are > 24 inches and ≥ 30 total listed lamp watts.

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