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FINAL STATEMENT OF REASONS (FSOR) PROPOSED AMENDMENTS TO APPLIANCE EFFICIENCY REGULATIONS

CALIFORNIA CODE OF REGULATIONS, TITLE 20:

CHAPTER 2, SUBCHAPTER 4, ARTICLE 4,

SECTIONS 1601-1609: APPLIANCE EFFICIENCY REGULATIONS

CALIFORNIA ENERGY COMMISSION

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INTRODUCTION

This document is the Final Statement of Reasons (FSOR) and Updated Informative Digest required by Government Code sections 11346.5(a)(19), 11346.9, and 11347.3(b)(2).

The amendments cover three distinct areas: (1) energy efficiency standards for dimming ballasts; (2) labeling standards for replacement air filters in heating and ventilation systems; and (3) heat pump water chilling packages. In addition, updates to the federal provisions contained in the California Energy Commission's (Energy Commission) regulations are included.

Since 1975, California's building and appliance energy efficiency standards have saved Californians an estimated $75 billion in reduced electricity bills. The state's appliance efficiency regulations saved an estimated 22,923 gigawatt hours (GWh) of electricity and 1,626 million therms of natural gas in 2012 alone, resulting in about $5.24 billion in savings to California consumers. The proposed standards represent the next step in California's long history of resource efficiency and economic savings.

The scope of the original rulemaking included water efficiency standards for toilets, urinals, and faucets. On April 1, 2015, California Governor Jerry Brown issued Executive Order B-29-15 directing the Energy Commission to "adopt emergency regulations establishing standards that improve the efficiency of water appliances, including toilets, urinals, and faucets available for sale and installation in new and existing buildings." Therefore, the Energy Commission removed the language related to toilets, urinals, and faucets from the proposed 45-day language in Docket No. 15-AAER-1. The Energy Commission held a public hearing and adopted the emergency regulations establishing standards for these water appliances on April 8, 2015. These regulations were filed with the Secretary of State and are now in effect.

As a result of the Executive Order and adopted emergency water efficiency regulations, only language related to dimming ballasts, heat-pump water chilling packages, air filters, and necessary federal updates remains in the published 15-day language.

PROCEDURAL HISTORY OF THE RULEMAKING

On February 13, 2015, the Office of Administrative Law published a Notice of Proposed Action (NOPA) concerning the potential adoption of proposed amendments to the Appliance Efficiency Regulations (Express Terms or 45-Day Language). The NOPA and 45-Day Language were also posted on the Energy Commission's website on February 13, 2015.

On February 27, 2015, the Energy Commission published and posted on its website a Notice of Availability and Hearing for the Initial Study and Proposed Negative Declaration for the proposed amendments.

On February 27, 2015, the Energy Commission published and posted on its website a Notice of Postponement, notifying the public that the April 8, 2015, hearing date contained in the NOPA for consideration and adoption of the amendments and the Negative Declaration had been postponed to May 13, 2015. The Notice of Postponement noted that there would be an additional 15-day comment period added to the initial 45-day comment period. The additional 15-day comment period ended on April 15, 2015.

The first public hearing listed in the NOPA, with the Lead Commissioner for Efficiency, was held on March 17, 2015, where public comments were received.

On April 23, 2015, the Energy Commission published and posted on its website amendments to the express terms and provided a 15-day public comment period ending on May 8, 2015.

During both 60 day and 15 day comment periods, the Energy Commission received comments which have been responded to below.

On May 13, 2015, after the end of the 15-day comment period, the Energy Commission held a hearing to consider approving a resolution adopting the proposed 15 day language, as modified in the resolution, and adopting a negative declaration under the California Environmental Quality Act.

Public comments were taken at the hearing. After considering both the public testimony at the hearing and the comments submitted during the noticed comment periods, the Energy Commission unanimously approved the resolution adopting the 15-day language and negative declaration.

UPDATED INFORMATIVE DIGEST (Gov Code Section 11346.9(b))

In accordance with Government Code section 11346.9(d), the Informative Digest contained in the Notice of Proposed Action is incorporated by reference. There have been no changes in applicable laws or to the effect of the proposed regulations from the laws and effects described in the Notice of Proposed Action relating to dimming ballasts, air filter labeling, heat-pump water chilling packages and federal updates.

MATERIALS RELIED UPON THAT WERE NOT AVAILABLE FOR PUBLIC REVIEW PRIOR TO THE CLOSE OF THE PUBLIC COMMENT PERIOD (Gov Code Section 11346.9(a)(1))

No new materials were relied upon that were not already identified in the Initial Statement of Reasons and all materials relied upon were available for public review.

INCORPORATION BY REFERENCE OF MATERIAL FROM THE NOTICE OF PROPOSED ACTION (Gov Code Section 11346.9(d))

The 15-Day Language does not substantially deviate from the originally-proposed text covering dimming ballasts, air filter labeling, heat pump water chilling packages and federal updates; therefore, in accordance with Government Code section 11346.9(d), the Energy Commission determines that this Final Statement of Reasons can satisfy the following requirements by incorporating by reference various parts of the February 13, 2015, Notice of Proposed Action.

- Section 11346.9(a)(2). The commission has determined that regulations will not impose a mandate on state, local agencies or school districts.

- Section 11346.9 (a)(5). The Small Business Impacts and Economic Impact on Business determinations from the Notice of Proposed Action are incorporated by reference. The Energy Commission has determined that the regulations have no adverse economic

impact upon small businesses. Thus, alternatives to lessen any impact were not considered, and none were identified.

- Section 11346.9(c). The relationship to federal law discussion from the Notice of Proposed Action is incorporated by reference.

CONSIDERATION OF ALTERNATIVE PROPOSALS (Gov Code Section 11346.9(a)(4) and (5))

The Energy Commission determined that no alternative before it would be more effective in carrying out the purpose for which this action is proposed, would be as effective and less burdensome to affected persons than the adoption of the proposed regulations, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

Dimming Fluorescent Ballasts

The Energy Commission considered alternative language suggested by a stakeholder but found that any standard less than what was adopted would not be as effective and less burdensome to affect private persons and small businesses in carrying out the purpose of the Warren-Alquist Act namely to reduce wasteful, uneconomic, inefficient, or unnecessary energy use by prescribing standards for minimum levels of operating efficiency for appliances.

Air Filters

The Energy Commission considered other means which would allow purchasers of replacement air filters to correctly match the air filter with their HVAC equipment specifications. The Energy Commission concluded that a label on the product was the least costly and most effective way of transmitting filter specifications to ensure a correct match with the HVAC equipment installed. The Energy Commission did include changes to the testing process as suggested by stakeholders to allow for extrapolation as opposed to the testing of every sized filter.

Any standard less than what was adopted would not be as effective and less burdensome to affect private persons and small businesses in carrying out the purpose of the Warren-Alquist Act namely to reduce wasteful, uneconomic, inefficient, or unnecessary energy use by prescribing standards for minimum levels of operating efficiency for appliances.

Heat Pump Water Chilling Packages

The proposed language does not require specific energy efficiency metrics. Heat-pump water chilling packages are not regulated for energy efficiency, but represent an opportunity for efficiency that is hard to quantify due to a lack of available, credible, and verifiable data. These products are among key equipment that can contribute to reaching cost effective, zero-net-energy buildings.

The adopted regulations implement data gathering through a test and list requirement for heat-pump, water-chilling packages. The definition for this product and test method is based on ANSI/AHRI 550-590 (I-P) -2011. The data collected from testing the equipment are the minimum necessary for modeling in building efficiency software. Additional data requirements related to power draw and capacity are collected to distinguish whether units are likely to be used in residential buildings versus commercial buildings. The reporting requirements are harmonized with the certification requirements in existence through the Energy Commission's Building

Energy Efficiency Program. The collected data includes heating coefficient of performance (COP) and cooling energy efficiency ratio (EER).

The Energy Commission has found no alternatives to the proposed action that would be more effective, or as effective and less burdensome in providing Energy Commission staff with adequate data to understand the energy efficiency benefits of heat pump water chilling packages.

FEDERAL UPDATES

The proposed language includes changes that reflect currently effective federal requirements. Because these federal regulations are already effective by operation of preemption in California, and because regulated parties must comply with them regardless of California's regulations, alternatives that achieve the same statutory policy would be duplicative and unnecessary.

INCORPORATION BY REFERENCE (1 CCR 20(C))

The following documents were incorporated by reference within the 15-day language.

CANADIAN STANDARDS ASSOCIATION (CSA)

CSA C390–10	Test methods, marking requirements, and energy efficiency levels for three-phase induction motors
Copies available from:	Canadian Standards Association 178 Rexdale Blvd. Toronto, Ontario, Canada, M9W 1R3 http://shop.csa.ca/ Phone: (416) 747 4044

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

Test Method B of IEEE Std 112–2004	IEEE Standard Test Procedure for Polyphase Induction Motors and Generators
Copies available from:	IEEE (TechStreet) Publications Office 10662 Los Vaqueros Circle PO Box 3014 Los Alamitos, CA 90720-1264 http://www.techstreet.com/ieee/

International Efficiency Marking Protocol for External Power Supplies, Version 3.0, September 2013

Copies available from:	U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy Forrestal Building 1000 Independence Avenue, SW., Mail Station EE–2J Washington, DC 20585–0121 http://www.regulations.gov/contentStreamer?documentId=EERE-2008-BT-STD-0005-0218&disposition=attachment&contentType=pdf

Documents identified as being incorporated by reference are national industry standards which are reasonably available from commonly known private organizations. In addition, the express terms specify how copies may be obtained. It would not be possible to publish the full text of these documents into the regulations given the volume of technical data and copyright issues.

SUMMARY OF COMMENTS RECEIVED AND THE ENERGY COMMISSION'S RESPONSES (Gov Code Section 11346.9(a)(3))

See Attachment A for responses to all comments on the 45-Day and 15-Day language received during the comment period that are directed at the regulations or the process by which they were updated. These responses explain how the language was amended to accommodate the comment or the reasoning for rejecting the comment.

UPDATE TO THE INITIAL STATEMENT OF REASONS (Gov Code Section 11346.9(a)(1))

Government Code Section 11346.9(a)(1) requires the FSOR to contain an update of the information contained in the initial statement of reasons. Other than those changes noted below, no other changes to the Initial Statement of Reasons are necessary, and those items not addressed are hereby incorporated by reference. The changes from the Initial Statement of Reasons are indicated in double-underline or double-strikeout, and were noticed in 15-Day language.

Section 1601. Scope.

(c) Central air conditioners, which are electrically-powered unitary air conditioners and electrically-powered unitary heat pumps, except those designed to operate without a fan; and gas-fired air conditioners and gas-fired heat pumps, air filters for residential buildings for use in forced-air heating or forced air cooling equipment, and heat pump water-chilling packages.

…

(j) Fluorescent Lamp Ballasts and deep-dimming fluorescent lamp ballasts that are designed to:

…

Note: Authority cited: Sections 25213, 25218(e), 25402(a)-(c) and 25960, Public Resources Code. Reference: Sections 25216.5(d), 25402(a)-(c), 25402.5.4 and 25960, Public Resources Code.

Based on suggestions from stakeholders the scope of the regulations is being clarified to indicate air filter labeling applies to residential applications and not commercial and industrial applications. The proposed air filter labeling measure is to empower consumers and HVAC designers with the information they need to make energy-efficient decisions. The term "lamp" was added to ensure appropriate consistency with terms used by industry and the Department of Energy.

Section 1602. Definitions.

(b) Refrigerators, Refrigerators-Freezers, and Freezers

"Adjusted total volume" means the sum of (i) the fresh food compartment volume as defined in 10 C.F.R. part 430, Appendix A to Subpart B ~~or 10 C.F.R. part 430, Appendix A1 to Subpart B~~in cubic feet, and (ii) the product of an adjustment factor and the net freezer compartment volume as defined in 10 C.F.R., part 430, Appendix A to Subpart B or 10 C.F.R. part 430, ~~Appendix A1 to Subpart B~~in cubic feet.

…

"Anti-sweat heater" means a device incorporated into the design of a refrigerator or refrigerator-freezer to prevent the accumulation of moisture on exterior surfaces of the cabinet as defined in 10 C.F.R. part 430~~under conditions of high ambient humidity~~.

…

"Compact refrigerator-freezer" means a refrigerator-freezer that has total volume less than 7.75 ft^3:
~~(1) rated volume, as determined using 10 C.F.R. part 430, Appendix A1 of Subpart B and that is manufactured before September 15, 2014;~~
~~(2)~~ as determined using 10 C.F.R. part 430, Appendix A of Subpart B ~~and that is manufactured on or after September 15, 2014~~.

…

"Freezer volume" means net freezer compartment volume as defined in "adjusted total volume" definition found in 10 C.F.R, part 430, Appendix B to Subpart B ~~or 10 C.F.R. part 430, Appendix B1 to Subpart B~~

These changes were suggested by stakeholders and reflect the current federal definitions as found in 10 C.F.R. part 430. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

…

(c) Air Conditioners, Air Filters and Heat Pump Water-Chilling Packages.

"Air filter depth" means air filter thickness dimension measured perpendicular to the Face Area plane, expressed in inches.

This definition is being added to the regulations to clarify the test requirements and is understood and consistent with the industry terms to support the new air filter labeling requirements.

"Dust holding capacity" means the total weight of the synthetic loading dust captured by the filter device over all of the incremental dust loading steps of the test ~~amount of dust captured on the air filter. Dust holding capacity shall be established at the maximum rated airflow rate, as published by the manufacturer~~

This definition is being added to the regulations to clarify the test requirements and is understood and consistent with the industry terms to support the new air filter labeling requirements.

"Face area" means the gross area of the air filter exposed to airflow, as measured in a plane perpendicular to the direction of the airflow approaching the air filter (air filter length multiplied by air filter width), expressed in square-feet.

This definition is being added to the regulations to clarify the test requirements and is understood and consistent with the industry terms to support the new air filter labeling requirements.

"Face velocity" means the rate of air movement at the face of the air filter (airflow rate divided by face area) expressed in feet-per-minute.

This definition is being added to the regulations to clarify the test requirements and is understood and consistent with the industry terms to support the new air filter labeling requirements.

"Particle size efficiency" also known as "particle size removal efficiency" means the fraction (percentage) of particles that are captured on the air filter. Particle size efficiency is measured in three particle size ranges: 0.3-1.0, 1.0-3.0, 3.0-10 micrometers (μm). Particle size efficiency ~~ratings are~~ abbreviated as "PSE~~R~~" in the required labels for air filters.

The change is a clarification that ensures the meaning of particle size efficiency is understood and consistent with industry terms to support the new air filter labeling requirements.

(f) Water Heaters.

~~"Energy factor" of a water heater means a measure of overall water heater efficiency, as determined using the applicable test method in Section 1604(f).~~

Uniform Energy Factor means the measure of water heater overall efficiency.

This definition was suggested by stakeholders and is being added to the regulations to support the new heat pump water chilling package regulations.

(j) Fluorescent Lamp Ballasts and Deep-Dimming Fluorescent Lamp Ballasts.

"Deep-dimming fluorescent lamp ballast" means a fluorescent ballast that is capable of operating lamps in dimmed operating modes at any number of levels at or below 50 percent of full output. The term shall only apply to lamp ballasts designed to operate one, two, three, or four T5 or T8 four-foot linear or U~~u~~-shape fluorescent lamps.

The scope of the regulations is being expanded to cover certain types of dimming ballasts. In order to implement this coverage, new definitions are being added to ensure clarity as to the types of products covered and how efficiency is to be determined. The term "lamp" is being

added for consistency with industry terms and language used by the Department of Energy. A correction has been added for consistency with industry and Department of Energy nomenclature.

(o) Dishwashers.

"Compact dishwasher" means a dishwasher that has a capacity of less than eight place settings plus six serving pieces as defined in ~~specified in ANSI/AHAM DW-1 using~~ 10 C.F.R., part 430, Appendix C1 of Subpart B.

"Standard Dishwasher" means a dishwasher that has a capacity equal to or greater than eight place settings plus six serving pieces as defined in ~~specified in ANSI/AHAM DW-1 using~~ 10 C.F.R., part 430, Appendix C1 of Subpart B.

These changes were suggested by stakeholders and reflect the current federal definitions as found in 10 C.F.R. § 430. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

(u) Power Supplies.

"Basic-voltage external power supply" means an external power supply that is not a low-voltage external power supply.

…

"Direct operation external power supply" means an external power supply that can operate a consumer product that is not a battery charger without the assistance of a battery.

…

"Indirect operation external power supply" means an external power supply that cannot operate a consumer product that is not a battery charger without the assistance of a battery as determined by the steps in paragraphs (1)(A) through (E) of this definition:

(1) If the external power supply (EPS) can be connected to an end-use consumer product and that consumer product can be operated using battery power, the method for determining whether that EPS is incapable of operating that consumer product directly is as follows:

(A) If the end-use product has a removable battery, remove it for the remainder of the test and proceed to the step in paragraph (1)(v) of this definition. If not, proceed to the step in paragraph (1)(ii).

(B) Charge the battery in the application via the EPS such that the application can operate as intended before taking any additional steps.

(C) Disconnect the EPS from the application. From an off mode state, turn on the application and record the time necessary for it to become operational to the nearest five second increment (5 sec, 10 sec, etc.).

(D) Operate the application using power only from the battery until the application stops functioning due to the battery discharging.

(E) Connect the EPS first to mains and then to the application. Immediately battery was removed for testing and the end-use product operates as intended, the EPS is not an indirect operation EPS and paragraph 2 of this definition does not apply. If the battery could not be removed for testing, record the time for the application to become operational to the nearest five second increment (5 seconds, 10 seconds, etc.).

(2) If the time recorded in paragraph (1)(v) of this definition is greater than the summation of the time recorded in paragraph (1)(iii) of this definition and five seconds, the EPS cannot operate the application directly and is an indirect operation EPS.

These changes were suggested by stakeholders and reflect the current federal definitions as found in 10 C.F.R. § 430.2. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

The following documents are incorporated by reference in Section 1602.

CANADIAN STANDARDS ASSOCIATION (CSA)	
CSA C390–10	Test methods, marking requirements, and energy efficiency levels for three-phase induction motors.
Copies available from:	Canadian Standards Association 178 Rexdale Blvd. Toronto, Ontario, Canada, M9W 1R3 http://shop.csa.ca/ Phone: (416) 747 4044
INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)	
Test Method B of IEEE Std 112–2004	IEEE Standard Test Procedure for Polyphase Induction Motors and Generators
Copies available from:	IEEE (TechStreet) Publications Office 10662 Los Vaqueros Circle PO Box 3014 Los Alamitos, CA 90720-1264 http://www.techstreet.com/ieee/

These changes reflect the current federal documents incorporated by reference as found in 10 C.F.R. § 430.2. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

Section 1604. Test Methods for Specific Appliances.

(a) Refrigerators, Refrigerator-Freezer, and Freezers.

Appliance	Test Method
Non-commercial refrigerators, designed for the refrigerated storage of food at temperatures above 32˚F and below 39˚F, configured for general refrigerated food storage; refrigerator-freezers; and freezers.	~~10 C.F.R. sections 430.23(a) (Appendix A1 to Subpart B of part 430) and 430.23(b) (Appendix B1 to Subpart B of part 430), as applicable for models manufactured before September 15, 2014~~ 10 C.F.R. sections 430.23(a) (Appendix A to Subpart B of part 430) and 430.23(b) (Appendix B to Subpart B of part 430)~~, as applicable for models manufactured on or after September 15, 2014~~
Wine chillers that are consumer products	10 C.F.R. section 430.23(a) (Appendix A1 to Subpart B of part 430), with the following modifications: Standardized temperature as referred to in Section 3.2 of Appendix A1 shall be 55˚F (12.8˚C). The calculation of test cycle energy expended (ET) in section 5.2.1.1 of Appendix A~~1~~ shall be made using the modified formula: ET=(EP x 1440 x k)/T Where k = 0.85

These changes were suggested by a stakeholder and reflect the current federal test methods as found in 10 C.F.R. § 430 and 10 C.F.R. § 430.23. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

(c) Central Air Conditioners, Air Filters, and Heat Pump Water-Chilling Packages.

(4) The test methods for air filters are shown in Table C-2

Table C-2: Air Filter Test Methods

~~Appliance~~	Appliance ~~Performance Criteria~~	Test Method
~~Air Filters~~	Air Filter Pressure Drop	AHRI 680-2009 or ASHRAE 52.2-2012
	~~Air Filter Particle Size Efficiency and~~ Minimum Efficiency Reporting Value (MERV)	~~AHRI 680-2009 or~~ ASHRAE 52.2-2012
	Air Filter Particle Size Efficiency	AHRI 680-2009 or ASHRAE 52.2-2012
	Dust Holding Capacity	AHRI 680-2009 or ASHRAE 52.2-2012

Manufacturers shall test small, medium, and large size filters for each grade.

In order for a product to demonstrate compliance with efficiency standards a standardized test method must be identified. The proposed language sets forth the test method to be used in testing performance of a product. In response to comments relating to the need to test every filter size, a more limited testing of representative sizes was included.

(d) Spot Air Conditioners, Evaporative Coolers, Ceiling Fans, Ceiling Fan Light Kits, Whole House Fans, Residential Exhaust Fans, and Dehumidifiers.

Table D-1
Spot Air Conditioner, Ceiling Fan, Ceiling Fan Light Kit, Evaporative Cooler, Whole House Fan, Residential Exhaust Fan, and Dehumidifier Test Methods

	Test Method
Spot Air Conditioners	ANSI/ASHRAE 128-2001
Ceiling Fans, Except Low-Profile Ceiling Fans	10 C.F.R. section 430.23(w) (Appendix U to Subpart B of part 430)
Ceiling Fan Light Kits	10 C.F.R. section 430.23(x) (Appendix V to Subpart B of part 430)
Evaporative Coolers	ANSI/ASHRAE 133-2008 for packaged direct evaporative coolers and packaged indirect/direct evaporative coolers; ANSI/ASHRAE 143-2007 for packaged indirect evaporative coolers
Whole House Fans	HVI-916, tested with manufacturer-provided louvers in place (2009)
Dehumidifiers	10 C.F.R. section 430.23(z) (Appendix X to Subpart B of part 430, active mode portion only). ~~OR 10 C.F.R. section 430.23(z) (Appendix X1 to Subpart B of part 430) (at manufacturer's discretion) for models manufactured before April 29, 2013~~ ~~10 C.F.R. section 430.23(z) (Appendix X1 to Subpart B of part 430) for models manufactured on or after April 29, 2013~~
Residential Exhaust Fans	HVI-916 (2009)
Residential Furnace Fans	10 C.F.R. section 430.23(cc) (Appendix AA to Subpart B of part 430)

These changes were suggested by stakeholders and reflect the current federal test methods as found in 10 C.F.R. § 430.23. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

(f) Water Heaters

(1) **Small Water Heaters.** The test method for small water heaters are shown in Table F-1

Table F-1
Small Water Heater Test Methods

Appliance	*Test Method*
Small water heaters that are federally-regulated consumer products	~~10 C.F.R. section 430.23(e) (Appendix E to Subpart B of part 430)~~ 10 C.F.R. part 430, subpart B, appendix E, section 5: "Test Procedures" and part 430.23(e)(4): "The alternative uniform test method for measuring the energy consumption of untested water heaters shall be that set forth in section 7.0 of appendix E of this subpart."
Small water heaters that are not federally-regulated consumer products	
Gas and oil storage-type < 20 gallons rated capacity	ANSI/ASHRAE 118.2-1993
Booster water heaters	ANSI/ASTM F2022-00 (for all matters other than volume) ANSI Z21.10.3-1998 (for volume)
Hot water dispensers	Test Method in 1604(f)(4)
Mini-tank electric water heaters	Test Method in 1604(f)(5)
All others	10 C.F.R. section 430.23(e) (Appendix E to Subpart B of part 430)

These changes were suggested by stakeholders and reflect the current federal test methods as found in 10 C.F.R. § 430.23. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

(j) Fluorescent Lamp Ballasts and Deep-Dimming Fluorescent Lamp Ballasts.

(3) Deep-dimming fluorescent lamp ballasts shall be tested using 10 C.F.R. Section 430.23(q) (Appendix Q1 to Subpart B of part 430) (referred to as the "federal test method" in the following subsections), modified as follows:

(A) The control signal to the ballast shall indicate full output. The arc power of all connected lamps shall be measured and then added together. This result will be referred to as "maximum arc power." An appropriate lighting control shall be selected to achieve the control signal used to determine the maximum arc power and to tune the ballast to the appropriate dimming levels. The controls shall be selected by using the following methodology:

(i) If the ballast manufacturer also manufactures a lighting control designed to be operated with the ballast, the test shall be conducted using the ballast manufacturer's lighting control. Or;

(ii) If the manufacturer does not manufacture a compatible lighting control, but recommends the use of specific manufacturer and/or model of lighting control, such as in its product documentation, the test shall be conducted using a lighting control from the list of manufacturer recommended lighting controls. Or;

(iii) If the manufacturer does not manufacture a compatible lighting control, and does not recommend any specific lighting controls, the lab technician shall select a lighting control that sufficiently controls the ballast to complete the test.

(iv) If multiple control options are available, use the lighting control that is capable of using all of the features of a ballast and with the minimum amount of other features. The lighting control manufacturer and model number shall appear on the test report.

(B) Three sets of input power and arc power shall be measured using the federal test procedure with the total arc power tuned to 100, 80, and 50 percent of the measured maximum arc power. If a step dimming ballast or a ballast that can only turn connected lamps on or off has dimming steps other than 80 and 50 percent, then the closest step that is between 90 and including 65 percent shall be used for 80 percent testing, and the closest step that is between 65 and including 35 percent shall be used for 50 percent testing. If no step exists in the above prescribed ranges, then no result shall be recorded for that percentage dimming test. The resulting input powers shall be recorded and referred to as P_{100}, P_{80}, and P_{50}. The resulting arc powers shall be recorded and referred to as AP_{100}, AP_{80}, and AP_{50}. BLE_{100} shall be calculated as AP_{100}/P_{100}, BLE_{80} as AP_{80}/P_{80}, and BLE_{50} as AP_{50}/P_{50}. The measurement of power factor shall be taken during the measurement of maximum arc power and reported.

(C) Standby mode test: the ballast shall also be tested with a control input set to the lowest dimming state possible up to and including no light output. The input power to the ballast shall be measured and recorded as P_0. The measurement must be taken 90 minutes after entering this state. P_0 shall be recorded as the mean value of measurements taken at 5 second intervals over a 5-minute period.

(D) The weighted ballast luminous efficacy shall be calculated using the following formula and table:

$$\text{Weighted ballast luminous efficacy} = \overline{P}BLE_{100} \times \overline{w_{100}} + \overline{P}BLE_{80} \times \overline{w_{80}} + \overline{P}BLE_{50} \times \overline{w_{50}}$$

Where ~~power is in watts and~~ the time values (w_{100}, w_{80}, w_{50}, ~~w_0~~) are taken from the appropriate tables below:

These changes were made in response to stakeholder comments that the weighted ballast luminious efficacy should be based on weighted ballast luminious efficacy rather than weighted power. While staff described in a hearing that P was meant to stand for ballast luminious efficacy, not power, it was determined that changing the language would enhance clarity of the requirements. In addition, because w_0 was not used in the equation it was removed from the language to enhance clarity.

(o) Dishwashers.

The test method for dishwashers is 10 C.F.R. section 430.23(c) (Appendix C1 to Subpart B of part 430).

These changes were suggested by stakeholders and reflect the current federal test methods as found in 10 C.F.R. § 430.23(c). These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

(p) Clothes Washers

The test methods for clothes washers that are consumer products and commercial clothes washers is 10 C.F.R. section 430.23(j) (Appendix J~~1~~2 to Subpart B of part 430).

This change was suggested by stakeholders and reflects the current federal test methods as found in 10 C.F.R. § 430.23(j). This change will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations

(a)Refrigerators, Refrigerator-Freezers, and Freezers.

…

Table A-3 [change is to footnote]

[1]AV = adjusted total volume, expressed in ft^3, as determined in 10 C.F.R., part 430, Appendices A~~1~~ and B~~1~~ of Subpart B~~, which is:~~

These changes reflect the current federal test methods as found in 10 C.F.R. § 430. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

(3) Automatic Commercial Ice Makers.

(A) Each cube type automatic commercial ice maker ~~that produces cube type ice~~ with capacities between 50 and 2500 pounds per 24-hour period ~~when tested according to the test standard established in accordance with section 343 of EPCA (42 U.S.C. 6314)~~ and is manufactured on or after January 1, 2010 and before January 28, 2018, shall meet the standard levels set forth in Table A-7.

Table A-7
Standards for Cube Type Automatic Commercial Ice Makers
Manufactured on or After January 1, 2010 and Before January 28, 2018

(B) Each batch type automatic commercial ice maker with capacities between 50 and 4000 pounds per 24-hour period and is manufactured on or after January 28, 2018, shall meet the standard levels set forth in Table A-8.

Table A-8
Standards for Batch Type Automatic Commercial Ice Makers
Manufactured on or After January 28, 2018

Equipment type	*Type of cooling*	*Harvest rate (lbs ice/24 hours)*	*Maximum energy use (kWh/100 lbs ice)*	*Maximum condenser water use* (gal/100 lbs ice)*
Ice Making Head	Water	≥ 50 and < 300	6.88-0.0055H	200–0.022H.
Ice Making Head	Water	≥ 300 and < 850	5.80-0.00191H	200–0.022H.
Ice Making Head	Water	≥ 850 and < 1500	4.42-0.00028H	200–0.022H.
Ice Making Head	Water	≥ 1500 and < 2500	4.0	200–0.022H
Ice Making Head	Water	≥ 2500 and < 4000	4.0	145
Ice Making Head	Air	≥ 50 and < 300	10-0.01233H	Not applicable.
Ice Making Head	Air	≥ 300 and < 800	7.05-0.0025H	Not applicable.
Ice Making Head	Air	≥ 800 and < 1500	5.55-0.00063H	Not applicable.
Ice Making Head	Air	≥ 1500 and < 4000	4.61	Not applicable.
Remote Condensing (but not remote compressor)	Air	≥ 50 and < 988	7.97-0.00342H	Not applicable.
Remote Condensing (but not remote compressor)	Air	≥ 988 and < 4000	4.59	Not applicable.
Remote Condensing and Remote Compressor	Air	≥ 50 and < 930	7.97-0.00342H	Not applicable.

Remote Condensing and Remote Compressor	Air	≥ 930 and < 4000	4.79	Not applicable.
Self Contained	Water	≥ 50 and < 200	9.5-0.019H	191-0.0315H.
Self Contained	Water	≥ 200 and < 2500	5.7	191-0.0315H
Self Contained	Water	≥ 2500 and < 4000	5.7	112
Self Contained	Air	≥ 50 and < 110	14.79-0.0469H	Not applicable.
Self Contained	Air	≥ 110 and < 200	12.42-0.02533H	Not applicable.
Self Contained	Air	≥ 200 and < 4000	7.35	Not applicable.
H: Harvest rate in pounds per 24 hours. *Water use is for the condenser only and does not include potable water used to make ice.				

(C) Each continuous type automatic commercial ice maker with capacities between 50 and 4,000 pounds per 24-hour period manufactured on or after January 28, 2018, shall meet the standard levels set forth in Table A-9.

Table A-9
Standards for Continuous Type Automatic Commercial Ice Makers
Manufactured on or After January 28, 2018

Equipment type	***Type of cooling***	***Harvest rate (lbs ice/24 hours)***	***Maximum energy use (kWh/100 lbs ice)***	***Maximum condenser water use* (gal/100 lbs ice)***
Ice Making Head	Water	≥ 50 and < 801	6.48-0.00267H	180-0.0198H
Ice Making Head	Water	≥ 801 and < 2500	4.34	180-0.0198H.
Ice Making Head	Water	≥ 2500 and < 4000	4.34	130.5
Ice Making Head	Air	≥ 50 and < 310	9.19-0.00629H	Not applicable.
Ice Making Head	Air	≥ 310 and < 820	8.23-0.0032H	Not applicable.
Ice Making Head	Air	≥ 820 and < 4000	5.61	Not applicable.
Remote Condensing (but not remote compressor)	Air	≥ 50 and < 800	9.7-0.0058H	Not applicable.
Remote Condensing (but not remote compressor)	Air	≥ 800 and < 4000	5.06	Not applicable.
Remote Condensing and Remote Compressor	Air	≥ 50 and < 800	9.9-0.0058H	Not applicable.
Remote Condensing and Remote Compressor	Air	≥ 800 and < 4000	5.26	Not applicable.
Self Contained	Water	≥ 50 and < 900	7.6-0.00302H	153-0.0252H.
Self Contained	Water	≥ 900 and < 2500	4.88	153-0.0252H
Self Contained	Water	≥ 2500 and < 4000	4.88	90
Self Contained	Air	≥ 50 and < 200	14.22-0.03H	Not applicable.
Self Contained	Air	≥ 200 and < 700	9.47-0.00624H	Not applicable.
Self Contained	Air	≥ 700 and < 4000	5.1	Not applicable.

H Harvest rate in pounds per 24 hours. *Water use is for the condenser only and does not include potable water used to make ice.

These changes were suggested by stakeholders and reflect the current federal test methods as found in 10 C.F.R. § 431, subpart H, Automatic Commercial Ice Makers. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

(6) Refrigerated Canned and Bottled Beverage Vending Machines. The daily energy consumption (in kilowatt hours per day) when measured at the 75˚F ± 2˚F and 45 ± 5% RH condition of each refrigerated bottled or canned beverage vending machine manufactured on or after August 31, 2012 shall be not greater than the values shown in Table A-~~8~~10.

Table A-~~8~~10
Standards for Refrigerated Canned and Bottled Beverage Vending Machines Manufactured On or After August 31, 2012

Additions of tables require renumbering of existing Table A-8. This is a change without regulatory effect.

(c) Central Air Conditioners.

(1) **Central Air Conditioners.** The EER, SEER, COP, HSPF, and SCOP, as applicable, of all central air conditioners, including computer room air conditioners, shall be not less than the applicable values shown in Tables ~~C-2,~~ C-3, C-4, C-5, ~~and~~ C-6, ~~and~~ C-7, and C-8.

~~Table C-2~~ Table C-3

~~Table C-3~~ Table C-4

~~Table C-4~~ Table C-5

~~Table C-5~~ Table C-6

~~Table C-6~~ Table C7

Table C-~~7~~8
Standards for Variable Refrigerant Flow Multi-Split Air Conditioners and Heat Pumps

Additions of tables require renumbering of existing Tables C-2 through C-6. This is a change without regulatory effect.

(f) Water Heaters.

(2) **Small Water heaters**. The energy factor of all small water heaters that are federally-regulated consumer products, (other than booster water heaters, hot water dispensers, and mini-tank electric water heaters) shall be not less than the applicable values shown in Table F-3.

Table F-3
Standards for Small Federally-Regulated Water Heaters

Appliance	*Rated Storage Volume (gallons)*	*Minimum Energy Factor*	
		~~*Effective January 20, 2004*~~	*Effective April 16, 2015*
Gas-fired storage-type water heaters	≤ 55	~~0.67 – (.0019 x V)~~	0.675−(0.0015 × V)
	> 55		0.8012−(0.00078 × V)
Oil-fired water heaters (storage ~~and instantaneous~~)	Any	~~0.59 – (.0019 x V)~~	0.68 – (.0019 x V)
Electric storage water heaters (excluding tabletop water heaters)	≤ 55	~~0.97 – (.00132 x V)~~	0.960−(0.0003 × V)
	> 55		2.057−(0.00113 × V)
~~Electric~~ T~~t~~abletop water heaters	Any	~~0.93 – (.00132 x V)~~	0.93 – (.00132 x V)
Gas-fired instantaneous water heaters	Any	~~0.62 – (.0019 x V)~~	0.82 – (.0019 x V)
Electric instantaneous water heaters (excluding tabletop water heaters)	Any	~~0.93 – (.00132 x V)~~	0.93 – (.00132 x V)
Heat pump water heaters	Any	~~0.97 – (.00132 x V)~~	0.97 – (.00132 x V)
V = Rated storage volume in gallons.			

These changes were suggested by stakeholders and reflect the current federal standards as found in 10 C.F.R. § 430.32. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

(p) Clothes Washer.

(3) **Commercial Clothes Washers.** Commercial clothes washers manufactured on or after the effective dates shown shall have a modified energy factor not less than, and a water factor not greater than, the applicable values shown in Table P-3.

Table P-3
Standards for Commercial Clothes Washers

Appliance	*Minimum Modified Energy Factor*		*Maximum Water Factor*	
	~~*Effective January 1, 2007*~~	*Effective January 8, 2013*	~~*Effective January 1, 2007*~~	*Effective January 8, 2013*
Top-loading clothes washers	~~1.26~~	1.60	~~9.5~~	8.5
Front-loading clothes washers	~~1.26~~	2.00	~~9.5~~	5.5
	Modified Energy Factor (MEF) Cu. ft./kWh/cycle		***Integrated Water factor (IWF) gal./cu./cycle***	
	Effective January 1, 2018		***Effective January 1, 2018***	
Top-loading clothes washers	1.35		8.8	
Front-loading clothes washers	2.00		4.1	

These changes were suggested by stakeholders and reflect the current federal standards as found in 10 C.F.R. § 430.32. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

(u) Power Supplies.

(d) Direct operation external power supplies manufactured on or after February 10, 2016 shall meet the standards in table U-2 with the exception of those described in subpart (i) and (ii) of this section.

Table U-2 Federal Standards for Direct Operation External Power Supplies

Single-Voltage External AC-DC Power Supply, Basic-Voltage		
Nameplate Output Power (P_{out})	**Minimum Average Efficiency in Active Mode** (*expressed as a decimal*)	**Maximum Power in No-Load Mode [W]**
$P_{out} \leq 1$ W	$\geq 0.5 \times P_{out} + 0.16$	≤ 0.100
1 W < $P_{out} \leq 49$ W	$\geq 0.071 \times \ln(P_{out}) - 0.0014 \times P_{out} + 0.67$	≤ 0.100
49 W < $P_{out} \leq 250$ W	≥ 0.880	≤ 0.210
$P_{out} > 250$ W	≥ 0.875	≤ 0.500
Single-Voltage External AC-DC Power Supply, Low-Voltage		
Nameplate Output Power (P_{out})	**Minimum Average Efficiency in Active Mode** (*expressed as a decimal*)	**Maximum Power in No-Load Mode [W]**
$P_{out} \leq 1$ W	$\geq 0.517 \times P_{out} + 0.087$	≤ 0.100
1 W < $P_{out} \leq 49$ W	$\geq 0.0834 \times \ln(P_{out}) - 0.0014 \times P_{out} + 0.609$	≤ 0.100
49 W < $P_{out} \leq 250$ W	≥ 0.870	≤ 0.210
$P_{out} > 250$ W	≥ 0.875	≤ 0.500
Single-Voltage External AC-AC Power Supply, Basic-Voltage		
Nameplate Output Power (P_{out})	**Minimum Average Efficiency in Active Mode** (*expressed as a decimal*)	**Maximum Power in No-Load Mode [W]**
$P_{out} \leq 1$ W	$\geq 0.5 \times P_{out} + 0.16$	≤ 0.210
1 W < $P_{out} \leq 49$ W	$\geq 0.071 \times \ln(P_{out}) - 0.0014 \times P_{out} + 0.67$	≤ 0.210
49 W < $P_{out} \leq 250$ W	≥ 0.880	≤ 0.210
$P_{out} > 250$ W	≥ 0.875	≤ 0.500
Single-Voltage External AC-AC Power Supply, Low-Voltage		
Nameplate Output Power (P_{out})	**Minimum Average Efficiency in Active Mode** (*expressed as a decimal*)	**Maximum Power in No-Load Mode [W]**
49 W < $P_{out} \leq 250$ W	≥ 0.870	≤ 0.210
$P_{out} > 250$ W	≥ 0.875	≤ 0.500
Multiple-Voltage External Power Supply		
Nameplate Output Power (P_{out})	**Minimum Average Efficiency in Active Mode** (*expressed as a decimal*)	**Maximum Power in No-Load Mode [W]**
$P_{out} \leq 1$ W	$\geq 0.497 \times P_{out} + 0.067$	≤ 0.300
1 W < $P_{out} \leq 49$ W	$\geq 0.075 \times \ln(P_{out}) + 0.561$	≤ 0.300
$P_{out} > 49$ W	≥ 0.860	≤ 0.300

(i) An external power supply shall not be subject to the standards in table U-2 if it is a device that requires Federal Food and Drug Administration (FDA) listing and approval as a medical

device in accordance with section 513 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 360(c)).

(ii) A direct operation, AC–DC external power supply with nameplate output voltage less than 3 volts and nameplate output current greater than or equal to 1,000 milliamps that charges the battery of a product that is fully or primarily motor operated shall not be subject to the standards in table U-2.

These changes were suggested by stakeholders and reflect the current federal standards as found in 10 C.F.R. § 430. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

Section 1605.2. State Standards for Non-Federally-Regulated Appliances.

…

(j) Fluorescent Lamp Ballasts and Deep-Dimming Fluorescent Lamp Ballasts.

(1) See Section 1605.1(j) for energy efficiency standards for fluorescent lamp ballasts that are federally regulated consumer products.

(2) See Section 1605.3(j) for energy efficiency standards for deep dimming fluorescent lamp ballasts that are state regulated.

This change is necessary to correctly cross reference a related section covering state regulated dimming florescent lamp ballast regulations.

Section 1605.3. State Standards for Non-Federally-Regulated Appliances.

…

Refrigerators, Refrigerators-Freezers, and Freezers.

(1) Energy Efficiency Standard for Wine Chillers. The energy consumption of wine chillers designed and sold for use by an individual shall be no greater than the applicable values shown in Table A-~~9~~11.

Table A-~~9~~11
Standards for Wine Chillers

…

(2) Energy Efficiency Standard for Freezers. The energy consumption of freezers that exceed 30 ft^3, do not exceed 39 ft^3, are designed and sold for use by an individual consumer, and are manufactured on or after March 1, 2003, shall be no greater than the applicable values shown in Table A-~~10~~12.

Table A-~~10~~12
Standards for Freezers that are Consumer Products

…

(5) **Energy Efficiency Standards for Wine Chillers That Are Not Consumer Products and That Are Manufactured Before January 1, 2012.** The daily energy consumption of wine chillers that are not consumer products manufactured on or after the effective dates shown and before January 1, 2012, shall be no greater than the applicable values shown in Table A-~~11~~13.

Table A-~~11~~13
Standards for Wine Chillers that are Not
Consumer Products and That Are Manufactured Before January 1, 2012

To reflect insertions of additional tables the numbers need to be changed. This is a change without regulatory effect.

…

~~(6) **Energy Efficiency Standard for Refrigerated Canned and Bottled Beverage Vending Machines.**~~

~~(A) The daily energy consumption of refrigerated canned and bottled beverage vending machines, manufactured on or after January 1, 2006 and before August 31, 2012 shall be no greater than the applicable values shown in Table A-12.~~

~~(B) See Section 1605.1(a)(6) for energy consumption standards for refrigerated canned and bottled beverage vending machines manufactured on or after August 31, 2012.~~

~~(7) **Energy Design Standard for Refrigerated Canned and Bottled Beverage Vending Machines.** Refrigerated canned and bottled beverage vending machines manufactured on or after January 1, 2006 and before August 31, 2012 shall be equipped with hard wired controls or software capable of automatically placing the machine into each of the following low power mode states and of automatically returning the machine to its normal operating conditions at the conclusion of the low power mode:~~

~~(A) Lighting low power state – lights off for an extended period.~~

~~(B) Refrigeration low power state - the average beverage temperature is allowed to rise above 40°F for an extended period of time.~~

~~(C) Whole machine low power state – the lights are off and the refrigeration operates in its low power state.~~

~~The low power mode related controls/software shall be capable of on site adjustments by the vending operator or machine owner.~~

~~Table A-12~~
~~Standards for Refrigerated Canned and Bottled Beverage Vending Machines~~
~~Manufactured On or After January 1, 2006 and Before August 31, 2012~~

~~Appliance~~	~~Doors~~	~~Maximum Daily Energy Consumption (kWh)~~	
		~~January 1, 2006~~	~~January 1, 2007~~
~~Refrigerated canned and bottled beverage vending machines when tested at 90°F ambient temperature except multi-package units~~	~~Not applicable~~	~~0.55(8.66 + (0.009 × C))~~	~~0.55(8.66 + (0.009 × C))~~
~~Refrigerated multi-package canned and bottled beverage vending machines when tested at 75°F ambient temperature~~	~~Not applicable~~	~~0.55(8.66 + (0.009 × C))~~	~~0.55(8.66 + (0.009 × C))~~
~~V = total volume (ft³)~~ ~~AV = Adjusted Volume = [1.63 x freezer volume (ft³)] + refrigerator volume (ft³)~~ ~~C=Rated capacity (number of 12 ounce cans)~~			

These changes reflect the deletion of obsolete language from state standards for non-federally regulated appliances section because federal standards for these appliances are already in effect and stated in section 1605.1.

(~~8~~6) **Energy Efficiency Standard for Water Dispensers.** The standby energy consumption of bottle-type water dispensers, and point of use water dispensers,

dispensing both hot and cold water, manufactured on or after January 1, 2006, shall not exceed 1.2 kWh/day.

(~~9~~7) **Other Refrigeration Equipment.** See Section 1605.1(a) for energy efficiency standards for refrigerators, refrigerator-freezers, and freezers.

These changes reflect alignment with the existing numbers. Existing numbers were removed and replaced with new numbers. This is a change without regulatory effect.

Table C-~~8~~9
Standards for Evaporatively Cooled Computer Room Air Conditioners

(5) **Heat Pump Water Chilling Packages.** There is no energy efficiency standard or energy design standard for heat pump water-chilling packages. The performance of each model shall be reported per the requirements of section 1606 for equipment manufactured on or after ~~May~~July 1, 2016.

This change reflects a later final approval date of the regulations resulting in a later effective date.

…

(j) Fluorescent Lamp Ballasts and Deep-Dimming Fluorescent Lamp Ballasts.

(1) Deep-Dimming Fluorescent Lamp Ballasts. Deep-dimming fluorescent lamp ballasts manufactured on or after ~~*May*~~ July 1, 2016 shall meet the following energy conservation standards:

(i) Shall not consume more than 1 watt in standby mode;
(ii) Shall have a power factor of 0.9 or greater; and
(iii) Shall have a weighted ballast luminous efficacy greater than or equal to the threshold described in the following equation:

$$Weighted\ Ballast\ Luminous\ Efficacy \geq \frac{\underline{\underline{AP}}_{100} *}{\underline{\underline{AP}}_{100} \times 1.091 + 7.55}$$

*$\underline{\underline{AP}}_{100}$ is shorthand for maximum arc power as defined in section 1602 and discussed in section 1604.

(2) See section 1605.1(j) for energy efficiency standards for fluorescent lamp ballasts that are federally regulated consumer products.

This change reflects a later final approval date of the regulations resulting in a later effective date.

(u) Power Supplies.

The efficiency in the active mode of state-regulated external power supplies, manufactured on or after the effective dates shown when tested at 115 volts at 60 Hz, shall be not less than the applicable values shown (expressed as the decimal equivalent of a percentage); and the energy consumption in the no-load mode of power supplies manufactured on or after the effective dates when tested at 115 volts at 60 Hz, shown shall be not greater than the applicable values shown in Table U-~~2~~3 and Table U-~~3~~4.

EXCEPTION to Section 1605.3(u): A power supply that is made available by a manufacturer directly to a consumer or to a service or repair facility after and separate from the original sale

of the product requiring the power supply as a service part, or spare part shall not be required to meet the Standards for Power Supplies in Table U-~~2~~3 and Table U-~~3~~4 until five years after the effective dates indicated in Table U-~~2~~3 and Table U-~~3~~4.

Table U-~~2~~3
Standards for State-Regulated External Power Supplies
Effective January 1, 2007 for external power supplies used with laptop computers, mobile phones, printers, print servers, scanners, personal digital assistants (PDAs), and digital cameras.
Effective July 1, 2007 for external power supplies used with wireline telephones and all other applications.

Table U-~~3~~4
Standards for State-Regulated External Power Supplies
Effective July 1, 2008

Changes reflect new table numbering due to insertion of additional tables. These are changes without regulatory effect.

Table X Continued - Data Submittal Requirements

Automatic Commercial Ice-Makers	Ice Maker Process Type	Batch, continuous, cube, other (specify)

These changes were suggested by stakeholders and reflect the current federal standards as found in 10 C.F.R. § 430.32. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in California's Regulations.

Table X: Data Submittal Requirements

	Appliance	Required Information	Permissible Answers
C	Air Filters	Air filter sizes tested	Small, medium, and large
		Minimum Efficiency Reporting Value (MERV)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 N/A
		Particle Size Efficiency for 0.3 to 1.0 μm particle size	
		Particle Size Efficiency for 1.0 to 3.0 μm particle size	
		Particle Size Efficiency for 3.0 to 10.0 μm particle size	
		Test Procedure used to determine air filter efficiency performance	AHRI 680-2009, or ASHRAE 52.2-2012
		Air Filter Length	
		Air Filter Width	
		Air Filter Depth	
		Air Filter Face Area	
		Face Velocity Utilized for the test procedure	~~N/A for AHRI 680 or~~ V~~v~~alue in feet per minute ~~for ASHRAE 52.2~~ or N/A
		Airflow Rate value 1	
		Airflow Rate value 2	
		Airflow Rate value 3	
		Airflow Rate value 4	
		Airflow Rate value 5-Maximum Rated Airflow Rate	
		Initial Resistance at ~~400 cubic feet per minute (cfm)~~ air flow rate value 1	Test results to one-hundredths of an Inch of Water Column
		Initial Resistance at ~~800 cubic feet per minute (cfm)~~ airflow rate value 2	Test results to one-hundredths of an Inch of Water Column
		Initial Resistance at ~~1,200 cubic feet per minute (cfm) unless maximum rated airflow rate (as published by the manufacturer) is less than 1,200 cfm~~ airflow rate value 3	Test results to one-hundredths of an Inch of Water Column
		Initial Resistance at ~~1,600 cubic feet per minute (cfm) unless maximum rated airflow rate (as published by~~	Test results to one-hundredths of an Inch of Water Column

		~~the manufacturer) is less than 1,600 cfm~~ airflow rate value 4	
		Initial Resistance at ~~2,000 cubic feet per minute (cfm) or the maximum rated airflow rate as published by the manufacturer~~ airflow rate value 5	Test results to one-hundredths of an Inch of Water Column
		Final Resistance at ~~2,000 cubic feet per minute (cfm) or the maximum rated airflow rate as published by the manufacturer~~ the point where test is terminated and results determined	Test results to one-hundredths of an Inch of Water Column
		Dust Holding Capacity at the maximum rated airflow rate as published by the manufacturer	Test results in multiples of one gram.
		Airflow Rate value determined at an Initial Resistance of 0.1 Inch of Water Column ~~Test Procedure used to determine air filter dust holding capacity~~	~~AHRI 680-2009, or ASHRAE 52.2-2012~~

These changes are being made to ensure all necessary air filter data generated by the test procedures is collected. Data values are necessary for the HVAC system designers, and purchasers of replacement air filters to correctly match the air filters with their HVAC equipment specification.

Table X Continued − Data Submittal Requirements

	Appliance	***Required Information***	***Permissible Answers***
J	Fluorescent Lamp Ballasts	*Ballast Input Voltage	120, 277, between 120 and 277, other (specify)
		*Number of Lamps	
		*Type of Fluorescent Lamp	F34T12, ~~F40T12, F96T12,~~ F96T12/ES, ~~F96T12HO,~~ F96T12HO/ES, ~~other T12 (specify), T5, T8, other (specify)~~ 2-foot U-shaped, 4-foot medium bipin, 4-foot miniature bipin high output, 4-foot miniature bipin standard output, 8-foot high output, 8-foot slim line
		~~Designed for Dimming~~Product Class (from U.S. DOE CCMS product template)	~~Continuous, stepped, no~~
		*Building Application	~~Designed but not labeled for use only in residential buildings, designed and labeled for use only in residential buildings,~~ commercial, designed (not classified as sign ballasts) to operate 8-foot high output lamps, designed and labeled as sign ballasts to operate 8-foot high output lamps, residential; not classified as residential, other
		*Start	Instant, programmed, rapid
		Ballast Frequency	High frequency, low frequency, other
		Designed for Dimming to 50% or Less of Maximum Output	Yes, no
		Circuit Design	Cathode cut-out, electronic, magnetic
		Power Factor	
		~~Designed for Use in Ambient Temperatures of ≤ 0°F~~Sign Ballast	Yes, no
		~~Designed for Use (a) at Ambient Temperatures ≤ -20°F and (b) in an Outdoor Sign (for models with two F96T12HO lamps only)~~	~~Yes, no~~
		~~Replacement Ballast as Defined in Section 1602(j)~~	~~Yes, no~~

		~~Maximum~~ Input Power Watts	
		~~Minimum Input Watts~~	
		Average Total Lamp Arc Power	
		Ballast ~~Efficacy Factor~~ Luminous Efficiency	
		~~Relative Light Output~~	
J	Deep-Dimming Fluorescent Lamp Ballasts	*Ballast Input Voltage	120, 277, other (specify)
		*Number of Lamps	
		*Lamp type	T5, T8, other (specify)
		*Dimming Type	Continuous, stepped, individual lamp control, other (specify)
		*Control Type	3-wire, 0-10 volts, digital communication, phase, other (specify)
		*Start Type	Instant start, rapid start, program start, other (specify)
		P_{100}	
		Arc Power 100	
		P_{80}	(answer NA if not applicable)
		Arc Power 80	(answer NA if not applicable)
		P_{50}	(answer NA if not applicable)
		Arc Power 50	(answer NA if not applicable)
		BLE 100	
		BLE 80	(answer NA if not applicable)
		BLE 50	(answer NA if not applicable)
		P_0 (standby mode power)	
		~~Integrated~~Weighted Ballast Luminous Efficacy	
		Power Factor	

* "Identifier" information as described in Section 1602(a).
1 = Voluntary for federally regulated appliances
2 = Voluntary for state-regulated appliances

These changes were made to enhance clarity of the regulations. The table previously asked manufacturers to report the "integrated ballast luminious efficacy" whereas section 1604 calls for "weighted ballast luminious efficacy" to be calculated. The change to the language creates consistency between the two sections. In addition, because BLE 80 and BLE 50 are necessary to calculate the weighted ballast luminious efficacy, it was determined that reporting these values is necessary for compliance verification.

Section 1607. Marking of Appliances.

…

(c) Energy Performance Information.

…

(8) External Power Supplies.
(A) Any federally regulated external power supply external power supply ~~manufactured on or after July 1, 2008~~ shall be clearly and permanently marked in accordance with the ~~External Power Supply International Efficiency Marking Protocol, as referenced in the 'Energy Star Program Requirements for Single Voltage External AC-DC and AC-AC Power Supplies, version 1.1' published by the Environmental Protection Agency~~ International Efficiency Marking Protocol for External Power Supplies, Version 3.0, September 2013.
(B) Any state-regulated external power supply complying with the requirements of Section 1605.3(u) shall be clearly and permanently marked in accordance with the ~~External Power Supply International Efficiency Marking Protocol, as referenced in the 'Energy Star Program Requirements for Single Voltage External AC-DC and AC-AC Power~~

~~Supplies, version 1.1' published by the Environmental Protection Agency~~ International Efficiency Marking Protocol for External Power Supplies, Version 3.0, September 2013.

...

These changes were suggested by the stakeholders and reflect the federal marking requirements as found in 10 C.F.R. 430.32. These changes will provide regulatory certainty with respect to the accurate inclusion of federal regulatory language in the California Regulations.

(12) Air Filters.

Each unit of air filters manufactured on or after ~~June~~July 1, 2016 shall be marked, permanently and legibly, on an accessible and conspicuous place on the edge of the filter itself or on the pleats, in characters of font size 12, with the ~~following~~ information specified in either section (A) or (B) below as applicable to the air filter model:

(A) Air filters for which the reported information is determined in accordance with the AHRI standard 680-2009 shall be marked with the following information:

1. ~~the MERV p~~Particle size efficiency (PSE)~~-ratings~~ of the unit ~~and~~in three particle size ranges: 0.3-1.0, 1.0-3.0, 3.0-10 micrometers (μm).
2. ~~i~~Initial resistance ~~at 400 cfm, 800 cfm, 1200 cfm, 1600 cfm, and either 2000cfm or maximum rated airflow rate,~~ for the range of airflow rates as published by the manufacturer, including the maximum rated airflow rate. The selected airflow rates shall be in multiples of 400 cfm. If the maximum rated airflow rate is not a multiple of 400 cfm, then report initial resistance at multiples of 400 cfm, and any fraction thereof, to include the maximum rated airflow rate as described in subsections a, b, c, d, e below.
    a. Airflow Rate Value 1 (val 1) = 400 cubic-feet-per-minute (cfm).If 400 cfm is not within the manufacturer's published range of airflow rates for the filter, value = N/A.
    b. Airflow Rate Value 2 (val 2) = 800 cubic-feet-per-minute (cfm). If 800 cfm is not within the manufacturer's published range of airflow rates for the filter, value = N/A.
    c. Airflow Rate Value 3 (val 3) = 1200 cubic-feet-per-minute (cfm).If 1200 cfm is not within the manufacturer's published range of airflow rates for the filter, value = N/A.
    d. Airflow Rate Value 4 (val 4) = 1600 cubic-feet-per-minute (cfm). If 1600 cfm is not within the manufacturer's published range of airflow rates for the filter, value = N/A
    e. Airflow Rate Value 5 (val 5) = Maximum Rated Airflow Rate (cfm)
3. ~~The particle size efficiency rating used for this label shall be the particle size efficiency of 3.0 to 10.0 micron particles. Manufacturers may include both the MERV and particle size efficiency rating. If either MERV or particle size efficiency ratings have not been reported, m~~Mark the non-reported ~~ratings~~MERV information field as "N/A."

(B) Air filters for which reported information is determined in accordance with ASHRAE Standard 52.2-2012 shall be marked with the following information:

1. Particle size efficiency (PSE) of the unit in three particle size ranges: 0.3-1.0, 1.0-3.0, 3.0-10 micrometers (μm).

2. Initial resistance for the range of airflow rates as published by the manufacturer, including the maximum rated airflow rate. The airflow rate values shall be the maximum rated airflow rate, and the values for 50%, 75%, 100% and 125% of the test airflow rate value determined in accordance with ASHRAE 52.2-2012. as described in subsections a, b, c, d, e below.

    a. Airflow Rate Value 1 (val 1) = 50% of the test airflow rate in cubic-feet-per-minute (50% of airflow rate value 3).

    b. Airflow Rate Value 2 (val 2) = 75% of the test airflow rate in cubic-feet-per-minute (75% of airflow rate value 3).

    c. Airflow Rate Value 3 (val 3) = 100% test airflow rate in cubic-feet-per-minute; determined as equal to selected test face velocity (feet per minute) multiplied by the air filter face area (square feet).

    d. Airflow Rate Value 4 (val 4)= 125% of the test airflow rate in cubic-feet-per-minute (125% of airflow rate value 3

    e. Airflow Rate Value 5 (val 5) = Maximum Rated Airflow Rate (cfm)

3. Minimum Efficiency Reporting Value (MERV).

The information shall be disclosed in the format in Table Z.

Table Z
Sample Air Filter Marking

~~MERV~~	~~PSER (um)~~	~~Airflow Rate (CFM)~~	~~400~~	~~800~~	~~1200~~	~~1600~~	~~2000*~~	~~*Max Rated Airflow~~
~~[value]~~	~~[value]~~	~~Initial Resistance (IWC)~~	~~[value]~~	~~[value]~~	~~[value]~~	~~[value]~~	~~[value]~~	

MERV	(μm) PSE (%)	0.30-1.0	1.0-3.0	3.0-10	Airflow Rate (CFM)	[val 1]	[val 2]	[val 3]	[val 4]	[val 5]	*Max Rated Airflow
[value]		[value]	[value]	[value]	Initial Resistance (IWC)	[value]	[value]	[value]	[value]	[value]	

If the marking on the air filter is not legible through its retail packaging, then the packaging shall also be labeled with the same information and in the same format as Table Z. The requirements of this section shall not preclude manufacturers from providing additional information.

These changes are being made to ensure all necessary air filter data generated at the specified values stated in the test procedures AHRI 680 or ASHRAE 52.2 and measured values are displayed on the label. MERV or PSE values are necessary for the HVAC system designers, and purchasers of replacement air filters to correctly match the air filters with their HVAC equipment specification.

The following documents are incorporated by reference in Section 1607.

Number	*Title*
FEDERAL MARKING REQUIREMENTS	
C.F.R., Title 16, part 305	
Copies available from:	Superintendent of Documents U.S. Government Printing Office Washington, D.C. 20402 http://ecfr.gpoaccess.gov/
for	International Efficiency Marking Protocol
September	External Power Supplies, Version 3.0, 2013
~~Single-~~	~~Energy Star Program Requirements for Voltage External AC-DC and AC-AC Power Supplies, version 1.1~~
Copies available from:	~~US EPA~~ ~~Climate Protection Partnership~~ ~~ENERGY STAR Programs Hotline &~~
~~Distribution~~	~~(MS-6202J)~~ ~~1200 Pennsylvania Ave NW~~ ~~Washington, DC 20460~~ ~~www.energystar.gov~~
	U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Forrestal Building, Mail Station EE–2J, 1000 Independence Avenue, SW., Washington, DC 20585–0121
	http://www.regulations.gov/contentStreamer?documentId=EERE-2008-BT-STD-0005-0218&disposition=attachment&contentType=pdf

Changes reflect the most recent publications and information.