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Proposed Regulatory Language

California Code of Regulations
Title 20. Public Utilities and Energy
Division 2. State Energy Resources Conservation and Development Commission
Chapter 1. General Provisions
Article 1. Construction of Regulations
Section 1004
and
Chapter 4. Energy Conservation
Article 4. Appliance Efficiency Regulations
Sections 1601 - 1609
as related to General Service Lamps
August 16, 2019

Proposed new language appears as underline (example) and proposed deletions appear as strikethrough (~~example~~). Existing language appears as plain text. Three dots or “...” represents the substance of the regulations that exists between the proposed language and current language.

§ 1004. ~~Partial Invalidation~~ Severability.

Each part of this division shall be deemed severable, and in the event that any provision of this division is held to be invalid, the remainder of this division shall continue in full force and effect.

Note: Authority cited: Sections 25213 and 25218(e) Public Resources Code.

Reference: Section 25213 Public Resources Code.

§ 1601. Scope. [No changes]

§ 1602. Definitions.

(a) General.

In this Article the following definitions apply. If a term is not defined here, the applicable definition in NAECA, EPCAct, the EPCAct 2005, EISA, or the test methods listed in section 1604 of this Article shall apply where it is reasonable to do so.

...[skipping “AC” through “Consumer product”]

“Correlated color temperature (CCT)” means the color appearance, or actual color of the lamp in accordance with IES LM-16-1993.

...[skipping “CSA” through “Gas”]

“General lighting application” means lighting that provides an interior or exterior area with overall illumination.

...[skipping through the end of (a)]

...[skipping (b)-(j)]

(k) Lamps.

(1) General Service Lamps Sold Before January 1, 2020, and All Other Lamps.

...[skipping “Appliance Lamp” through “Voltage Range”]

(2) General Service Lamps Sold On or After January 1, 2020.

“Black light lamp” means a lamp that is designed and marketed as a black light lamp and is an ultraviolet lamp with the highest radiant power peaks in the UV-A band (315 to 400 nm) of the electromagnetic spectrum.

“Bug lamp” means a lamp that is designed and marketed as a bug lamp, has radiant power peaks above 550 nm on the electromagnetic spectrum, and has a visible yellow coating.

“Colored lamp” means a colored fluorescent lamp, a colored incandescent lamp, or a lamp designed and marketed as a colored lamp with either of the following characteristics (if multiple modes of operation are possible [such as variable CCT], either of the below characteristics must be maintained throughout all modes of operation): (1) A CRI less than 40, as determined according to the method set forth in CIE Publication 13.3; or (2) A CCT less than 2,500K or greater than 7,000K.

“Designed and marketed” means exclusively designed to fulfill the indicated application and, when distributed in commerce, designated and marketed solely for that application, with the designation prominently displayed on the packaging and all publicly available documents (e.g., product literature, catalogs, and packaging labels).

“General service incandescent lamp” means a standard incandescent or halogen type lamp that is intended for general service applications; has a medium screw base; has a lumen range of not less than 310 lumens and not more than 2,600 lumens or, in the case of a modified spectrum lamp, not less than 232 lumens and not more than 1,950 lumens; and is capable of being operated at a voltage range at least partially within 110 and 130 volts; however this definition does not apply to the following incandescent lamps—

(1) An appliance lamp;

(2) A black light lamp;

(3) A bug lamp;

(4) A colored lamp;

(5) A G shape lamp with a diameter of 5 inches or more as defined in ANSI C79.1-2002;

- (6) An infrared lamp;
- (7) A left-hand thread lamp;
- (8) A marine lamp;
- (9) A marine signal service lamp;
- (10) A mine service lamp;
- (11) A plant light lamp;
- (12) An R20 short lamp;
- (13) A sign service lamp;
- (14) A silver bowl lamp;
- (15) A showcase lamp; and
- (16) A traffic signal lamp.

“General service lamp” means a lamp that has an ANSI base; is able to operate at a voltage of 12 volts or 24 volts, at or between 100 to 130 volts, at or between 220 to 240 volts, or of 277 volts for integrated lamps, or is able to operate at any voltage for non-integrated lamps; has an initial lumen output of greater than or equal to 310 lumens (or 232 lumens for modified spectrum general service incandescent lamps) and less than or equal to 3,300 lumens; is not a light fixture; is not an LED downlight retrofit kit; and is used in general lighting applications. General service lamps include, but are not limited to, general service incandescent lamps, compact fluorescent lamps, general service light-emitting diode lamps, and general service organic light-emitting diode lamps. General service lamps do not include:

- (1) Appliance lamps;
- (2) Black light lamps;
- (3) Bug lamps;
- (4) Colored lamps;
- (5) G shape lamps with a diameter of 5 inches or more as defined in ANSI C79.1-2002;
- (6) General service fluorescent lamps;
- (7) High intensity discharge lamps;
- (8) Infrared lamps;
- (9) I, JC, JCD, JCS, JCV, ICX, ID, JS, and JT shape lamps that do not have Edison screw bases;
- (10) Lamps that have a wedge base or pefocus base;

(11) Left-hand thread lamps;

(12) Marine lamps;

(13) Marine signal service lamps;

(14) Mine service lamps;

(15) MR shape lamps that have a first number symbol equal to 16 (diameter equal to 2 inches) as defined in ANSI C79.1-2002, operate at 12 volts, and have a lumen output greater than or equal to 800;

(16) Other fluorescent lamps;

(17) Plant light lamps;

(18) R20 short lamps;

(19) Reflector lamps that have a first number symbol less than 16 (diameter less than 2 inches) as defined in ANSI C79.1-2002 and that do not have E26/E24, E26d, E26/50x39, E26/53x39, E29/28, E29/53x39, E39, E39d, EP39, or EX39 bases;

(20) S shape or G shape lamps that have a first number symbol less than or equal to 12.5 (diameter less than or equal to 1.5625 inches) as defined in ANSI C79.1-2002;

(21) Sign service lamps;

(22) Silver bowl lamps;

(23) Showcase lamps;

(24) Specialty MR lamps;

(25) T shape lamps that have a first number symbol less than or equal to 8 (diameter less than or equal to 1 inch) as defined in ANSI C79.1-2002, nominal overall length less than 12 inches, and that are not compact fluorescent lamps;

(26) Traffic signal lamps.

“General service light-emitting diode (LED) lamp” means an integrated or non-integrated LED lamp designed for use in general lighting applications and that uses light-emitting diodes as the primary source of light.

“General service organic light-emitting diode (OLED) lamp” means an integrated or non-integrated OLED lamp designed for use in general lighting applications and that uses organic light-emitting diodes as the primary source of light.

“Infrared lamp” means a lamp that is designed and marketed as an infrared lamp; has its highest radiant power peaks in the infrared region of the electromagnetic spectrum (770 nm to 1 mm); has a rated wattage of 125 watts or greater; and which has a primary purpose of providing heat.

“Integrated lamp” means a lamp that contains all components necessary for the starting and stable operation of the lamp, does not include any replaceable or interchangeable parts, and is connected directly to a branch circuit through an ANSI base and corresponding ANSI standard lamp-holder (socket).

“LED downlight retrofit kit” means a product designed and marketed to install into an existing downlight, replacing the existing light source and related electrical components, typically employing an ANSI standard lamp base, either integrated or connected to the downlight retrofit by wire leads, and is a retrofit kit. LED downlight retrofit kit does not include integrated lamps or non-integrated lamps.

“Left-hand thread lamp” means a lamp with direction of threads on the lamp base oriented in the left-hand direction.

“Light fixture” means a complete lighting unit consisting of light source(s) and ballast(s) or driver(s) (when applicable) together with the parts designed to distribute the light, to position and protect the light source, and to connect the light source(s) to the power supply.

“Marine lamp” means a lamp that is designed and marketed for use on boats and can operate at or between 12 volts and 13.5 volts.

“Marine signal service lamp” means a lamp that is designed and marketed for marine signal service applications.

“Mine service lamp” means a lamp that is designed and marketed for mine service applications.

“Non-integrated lamp” means a lamp that is not an integrated lamp.

“Other fluorescent lamp” means low pressure mercury electric-discharge sources in which a fluorescing coating transforms some of the ultraviolet energy generated by the mercury discharge into light and include circline lamps and include double-ended lamps with the following characteristics: Lengths from one to eight feet; designed for cold temperature applications; designed for use in reprographic equipment; designed to produce radiation in the ultra-violet region of the spectrum; impact-resistant; reflectorized or aperture; or a CRI of 87 or greater.

“Pin base lamp” means a lamp that uses a base type designated as a single pin base or multiple pin base system.

“Plant light lamp” means a lamp that is designed to promote plant growth by emitting its highest radiant power peaks in the regions of the electromagnetic spectrum that promote photosynthesis: Blue (440 nm to 490 nm) and/or red (620 to 740 nm), and is designed and marketed for plant growing applications.

“Reflector lamp” means a lamp that has an R, PAR, BPAR, BR, ER, MR, or similar bulb shape as defined in ANSI C78.20-2003 and ANSI C79.1-2002 and is used to provide directional light.

“Showcase lamp” means a lamp that has a T shape as specified in ANSI C78.20-2003 and ANSI C79.1-2002, is designed and marketed as a showcase lamp, and has a maximum rated wattage of 75 watts.

“Sign service lamp” means a vacuum type or gas-filled lamp that has sufficiently low bulb temperature to permit exposed outdoor use on high-speed flashing circuits, is designed and marketed as a sign service lamp, and has a maximum rated wattage of 15 watts.

“Silver bowl lamp” means a lamp that has an opaque reflective coating applied directly to part of the bulb surface that reflects light toward the lamp base and that is designed and marketed as a silver bowl lamp.

“Specialty multifaceted reflector (MR) lamp” means a lamp that has an MR shape as defined in ANSI C79.1-2002, a diameter of less than or equal to 2.25 inches, a lifetime of less than or equal to 300 hours, and that is designed and marketed for a specialty application.

“Traffic signal lamp” means a lamp that is designed and marketed for traffic signal applications and has a lifetime of 8,000 hours or greater.

...[skipping (l)-(m)]

(n) Luminaires and Torchieres.

...[skipping “Art work luminaire” through “Automatic daylight control”]

~~“Correlated Color temperature (CCT)” means the color appearance, or actual color of the lamp in accordance with IES LM-16-1993.~~

...[skipping through the end of the section]

Note: Authority cited: Sections 25213, 25218(e), 25401.9(b), 25402(a)-25402(c), and 25960, Public Resources Code; and sections 16, 26, and 30, Governor's Exec. Order No. B-29-15 (April 1, 2015).

Reference: Sections 25216.5(d), 25401.9(b), 25402(a)-25402(c), 25402.5.4, and 25960, Public Resources Code; and section 16, Governor's Exec. Order No. B-29-15 (April 1, 2015).

§ 1602.1. Rules of Construction. [No changes]

§ 1603. Testing: All Appliances. [No changes]

§ 1604. Test Methods for Specific Appliances

...[skipping (a)-(j)]

(k) Lamps.

- (1) The test method for ~~federally regulated general service fluorescent lamps, federally regulated general service incandescent lamps, and federally regulated incandescent reflector lamps,~~ and federally regulated general service fluorescent lamps is 10 C.F.R. section 430.23(r) (Appendix R to subpart B of part 430).
- (2) ~~The test method for state regulated small diameter directional lamps that use incandescent filament technology is 10 C.F.R. section 430.23(r) (Appendix R to subpart B of part 430).~~
- (3) The test method for ~~medium base compact fluorescent lamps~~ is 10 C.F.R. section 430.23(y) (Appendix W to subpart B of part 430).
- (4) The test methods for integrated LED state-regulated small diameter directional lamps and state-regulated LED lamps are is 10 C.F.R. section 430.23(ee) (Appendix BB to subpart B of part 430) shown in Table K-1. For certification, compliance, and enforcement purposes, the sampling provisions in 10 C.F.R. section 429.56 shall be used.
- (4) The optional test methods for state-regulated small diameter directional lamps and state-regulated LED lamps are shown in Table K-1. Optional test procedures are conditionally required depending on manufacturer claims of performance as described in sections 1607(d)(13) of this Article and 1606 Table X of this Article. For certification, compliance, and enforcement purposes, the sampling provisions in 10 C.F.R. section 429.56 shall be used.

Table K-1
Optional Test Methods for State-Regulated LED Lamps and LED State-Regulated Small Diameter Directional Lamps

<i>Measurement</i>	<i>Test Procedure</i>	<i>Required or Optional</i>
Input power, Lumen output, LPW, Correlated Color Temperature, Duv, Color Rendering Index, Power Factor	IES LM-79 (2008) with additional requirements provided in 10 C.F.R. section 430.23(ee) (Appendix BB to subpart B of part 430).	Required
Lumen Maintenance and Time to Failure	IES LM-84 (2014) and TM-28 (2014) with additional requirements provided in 10 C.F.R. section 430.23(ee) (Appendix BB to subpart B of part 430).	Required
Standby Power	10 C.F.R. section 430.23(ee) (Appendix BB to subpart B of part 430).	Required
Flicker	Title 24, part 6, Joint Appendix 10 (2015), tested at both 100% percent and 20% percent output. Lamps with a percent amplitude modulation (percent flicker) less than 30 percent at frequencies less than 200 Hz shall report "yes"	Optional

	for “reduced flicker operation” described in section 1606 of this Article, otherwise report “no”.	
Lumen Maintenance, Rated Life, and Survival Rate for Compliance with Title 24 Joint Appendix 8 and minimum dimming level	Title 24, part 6, Joint Appendix 8 (2015).	Optional
Audible Noise	ENERGY STAR Recommended Practice – Noise (2013) with the following modification: measurements shall be taken at 100 percent output as well as at 20 percent output if dimmable.	Optional

* Required test procedures must be conducted per section 1603(a) of this Article for each basic model of lamp. Optional test procedures are conditionally required depending on manufacturer claims of performance as described in sections 1607(d)(1312) of this Article and 1606 Table X of this Article:

- (5) ~~There are no federally prescribed test methods for federally regulated organic light-emitting diode (OLED) lamps; federally regulated candelabra base incandescent lamps; or federally regulated intermediate base incandescent lamps. The test method for general service lamps that are other than lamp types described in sections 1604(k)(1) through 1604(k)(3) of this Article is 10 C.F.R. section 430.23(gg) (Appendix DD to Subpart B of part 430).~~

...[skipping (l)-(y)]

The following documents are incorporated by reference in section 1604.

...[skipping CALIFORNIA ENERGY COMMISSION TEST METHODS]

FEDERAL TEST METHODS

C.F.R., Title 10, section 429.56

C.F.R., Title 10, section 430.23, and 10 C.F.R. Appendixes A, B, C1, D1, D2, E, F, H, I, J1, J2, M, N, O, P, Q, R, S, T, U, V, W, X, S1, Y, Z, AA, BB, ~~and CC,~~ and DD of subpart B of part 430

...[skipping through the end of the section]

Note: Authority cited: Sections 25213, 25218(e), 25401.9(b), 25402(a)-25402(c), and 25960, Public Resources Code; and sections 16, 26, and 30, Governor’s Exec. Order No. B-29-15 (April 1, 2015). Reference: Sections 25216.5(d), 25401.9(b), 25402(a)-25402(c) and 25960, Public Resources Code; and section 16, Governor’s Exec. Order No. B-29-15 (April 1, 2015).

§ 1605. Energy Performance, Energy Design, Water Performance, and Water Design Standards: In General. [No changes]

§ 1605.1. Federal and State Standards for Federally Regulated Appliances.

...[skipping (a)-(j)]

(k) Lamps.

...[skipping (k)(1)]

(2) ~~Federally Regulated Incandescent Reflector Lamps Manufactured On or After July 15, 2012.~~

~~(A) The average lamp efficacy of federally-regulated incandescent reflector lamps with a rated lamp wattage between 40-205 watts, and manufactured on or after July 15, 2012, and sold before January 1, 2020, shall be not less than the applicable values shown in Table K-3, subject to the following:~~

~~(A) The standards specified in Table K-3 shall apply with respect to:~~

- ~~1. ER incandescent reflector lamps, BR incandescent reflector lamps, BPAR incandescent reflector lamps, and similar bulb shapes on and after January 1, 2008; and~~
- ~~2. Incandescent reflector lamps with a diameter of more than 2.25 inches, but not more than 2.75 inches, on and after June 15, 2008.~~

EXCEPTION to Section 1605.1(k)(2)(A). The standards specified in Table K-3 shall not apply to the following types of incandescent reflector lamps:

- (1) Lamps rated at 50 watts or less that are ER30, BR30, BR40, or ER40;
- (2) Lamps rated at 65 watts that are BR30, BR40, or ER40 lamps; or
- (3) R20 incandescent reflector lamps rated 45 watts or less.

**Table K-3
Standards for Federally Regulated Incandescent Reflector Lamps Manufactured On or After July 15, 2012, and Sold Before January 1, 2020**

<i>Lamp Spectrum</i>	<i>Lamp Diameter (inches)</i>	<i>Rated Voltage</i>	<i>Minimum Average Lamp Efficacy (LPW)¹</i>
Standard Spectrum	> 2.5	≥ 125	6.8 x P ^{0.27}
		< 125	5.9 x P ^{0.27}
	≤ 2.5	≥ 125	5.7 x P ^{0.27}
		< 125	5.0 x P ^{0.27}
Modified Spectrum	> 2.5	≥ 125	5.8 x P ^{0.27}
		< 125	5.0 x P ^{0.27}
	≤ 2.5	≥ 125	4.9 x P ^{0.27}
		< 125	4.2 x P ^{0.27}
¹ P = Rated Lamp Wattage, in Watts			

(B) See sections 1605.1(k)(6) and 1605.3(k)(1)(B) for energy efficiency standards for incandescent reflector lamps that are general service lamps and sold on or after January 1, 2020.

(3) Medium Base Compact Fluorescent Lamps.

(A) A bare lamp or covered lamp (no reflector) medium base compact fluorescent lamp manufactured on or after January 1, 2006, and sold before January 1, 2020, shall meet the requirements set forth in Table K-4.

**Table K-4
Standards for Medium Base Compact Fluorescent Lamps Manufactured On or After January 1, 2006, and Sold Before January 1, 2020**

<i>Factor</i>	<i>Requirements</i>
<i>Labeled Wattage (Watts) and Configuration¹</i>	<i>Measured Initial Lamp Efficacy: lumens/watt must be at least:²</i>
<i>Bare Lamp:</i>	
Labeled Wattage < 15	45.0
Labeled Wattage ≥ 15	60.0
<i>Covered Lamp (no reflector)</i>	
Labeled Wattage < 15	40.0
15 ≥ Labeled Wattage < 19	48.0
19 ≥ Labeled Wattage < 25	50.0
Labeled Wattage ≥ 25	55.0
Lumen Maintenance at 1,000-hours	≥90%
Lumen Maintenance at 40% of Lifetime ²	80%
Rapid Cycle Stress Test	Each lamp must be cycled once for every two hours of lifetime. ² At least 5 lamps must meet or exceed the minimum number of cycles.
Lifetime ²	≥ 6,000
¹ Use labeled wattage to determine the appropriate efficacy requirements in this table; do not use measured wattage for this purpose.	
² Lifetime refers to lifetime of a compact fluorescent lamp as defined in section 1602(k) of this Article.	

(B) See sections 1605.1(k)(6) and 1605.3(k)(1)(B) for energy efficiency standards for compact fluorescent lamps that are general service lamps and sold on or after January 1, 2020.

(4) ~~Federally Regulated General Service Incandescent Lamps and Modified Spectrum General Service Incandescent Lamps.~~

(A) The energy consumption rate of federally regulated general service incandescent lamps and modified spectrum general service incandescent lamps, manufactured on or after the effective dates shown and sold before January 1, 2020, shall be no greater than the maximum rated wattage shown in Tables K-5 and K-6.

~~(A)~~1. These standards apply to each lamp that:

~~1.a.~~ 1.a. is intended for a general service or general illumination application (whether incandescent or not);

~~2.b.~~ 2.b. has a medium screw base or any other screw base not defined in ANSI C81.61-2006; and

~~3.c.~~ 3.c. is capable of being operated at a voltage at least partially within the range of 110 to 130 volts; ~~and~~

~~4.~~ 4. is ~~manufactured or imported after December 31, 2011.~~

~~(B)~~2. Each lamp described in section 16045.1(k)(4)(A)1. of this Article shall have a color rendering index that is greater than or equal to:

~~1.a.~~ 1.a. 80 for nonmodified spectrum lamps; or

~~2.b.~~ 2.b. 75 for modified spectrum lamps.

**Table K-5
Standards for Federally Regulated General Service Incandescent Lamps Manufactured On or After the Effective Date Shown Below, and Sold Before January 1, 2020**

<i>Rated Lumen Ranges</i>	<i>Maximum Rate Wattage</i>	<i>Minimum Rate Lifetime</i>	<i>Effective Date</i>
1490-2600	72	1,000 hours	January 1, 2012
1050 – 1489	53	1,000 hours	January 1, 2013
750 – 1049	43	1,000 hours	January 1, 2014
310 – 749	29	1,000 hours	January 1, 2014

Table K-6
Standards for Federally Regulated Modified Spectrum General Service Incandescent Lamps
Manufactured On or After the Effective Date Shown Below, and Sold Before January 1, 2020

<i>Rated Lumen Ranges</i>	<i>Maximum Rate Wattage</i>	<i>Minimum Rate Lifetime</i>	<i>Effective Date</i>
1118-1950	72	1,000 hours	January 1, 2012
788-1117	53	1,000 hours	January 1, 2013
563-787	43	1,000 hours	January 1, 2014
232-562	29	1,000 hours	January 1, 2014

(B) See sections 1605.1(k)(6) and 1605.3(k)(1)(B) for energy efficiency standards for general service incandescent lamps that are general service lamps and sold on or after January 1, 2020.

(5) Candelabra Base Incandescent Lamps and Intermediate Base Incandescent Lamps.

(A) The energy consumption rate of federally regulated candelabra base incandescent lamps and intermediate base incandescent lamps, manufactured on or after January 1, 2012, and sold before January 1, 2020, shall be no greater than the maximum rated wattage shown in Table K-7.

Table K-7
Standards for Federally Regulated Candelabra Base Incandescent Lamps and Intermediate
Base Incandescent Lamps Manufactured On or After January 1, 2012, and Sold Before
January 1, 2020

<i>Lamp Base Type</i>	<i>Maximum Rated Wattage</i>
Candelabra	60
Intermediate	40

(B) See sections 1605.1(k)(6) and 1605.3(k)(1)(B) for energy efficiency standards for candelabra base incandescent lamps and intermediate base incandescent lamps that are general service lamps and sold on or after January 1, 2020.

(6) General Service Lamps. General service lamps sold on or after January 1, 2020, shall have a minimum lamp efficacy of 45 lumens per watt.

...[skipping through the end of the section]

Note: Authority cited: Sections 25213, 25218(e), 25401.9(b), 25402(a)-25402(c), and 25960, Public Resources Code; and sections 16, 26, and 30, Governor's Exec. Order No. B-29-15 (April 1, 2015).

Reference: Sections 25216.5(d), 25401.9(b), 25402(a)-25402(c), and 25960, Public Resources Code; and section 16, Governor's Exec. Order No. B-29-15 (April 1, 2015).

§ 1605.2. State Standards for Federally Regulated Appliances. [No changes]

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

...[skipping (a)-(j)]

(k) Lamps.

~~(1) Incandescent Reflector Lamps. See section 1605.1(k)(2) for standards for federally regulated incandescent reflector lamps.~~

~~(2)(1) Standards for State-Regulated LED Lamps and General Service Lamps.~~

~~(A) General service lamps manufactured on or after January 1, 2018, and sold before January 1, 2020, shall meet the standards shown in Table K-8. ~~The energy consumption rate of state-regulated LED lamps with a lumen output of 150 lumens or greater for candelabra bases, or 200 lumens or greater for other bases, manufactured on or after the effective dates shown in Table K-9 shall meet the standards shown in that table.~~~~

**Table K-8
Standards for ~~State-Regulated~~ General Service Lamps -- Tier II**

<i>Lumen Ranges</i>	<i>Minimum Lamp Efficacy</i>	<i>Minimum Rated Lifetime</i>	<i>Effective Date</i>
310-2600	45 lumens per watt	1,000 Hours	<u>Manufactured on or after January 1, 2018, and sold before January 1, 2020</u>

~~(B) General service lamps sold on or after January 1, 2020, shall have a minimum lamp efficacy of 45 lumens per watt.~~

(2) State-Regulated LED Lamps.

(A) State-regulated LED lamps with lumen output of 150 lumens or greater for ~~candelabra~~E12 bases, or 200 lumens or greater for ~~other~~E17, E26, and GU24 bases, and manufactured on or after January 1, 2018, shall meet all of the standards shown in Table K-9 and shall have the following:

~~(i)~~1. A color point that meets the requirements in Table B1 of Annex B of ANSI C78.377-2015 for color targets and color consistency.

~~(ii)~~2. A CRI (Ra) of 82 or greater.

~~(iii)~~3. Individual color scores of R1, R2, R3, R4, R5, R6, R7, and R8 of 72 or greater.

- ~~(iv)~~4. A power factor of 0.7 or greater.
 - ~~(v)~~5. A rated life of 10,000 hours or greater as determined by the lumen maintenance and time to failure test procedure.
 - ~~(vi)~~6. State-regulated LED lamps that have an ANSI standard lamp shape of A shall meet the omnidirectional light distribution requirements of ENERGY STAR's Product Specification for Lamps Version 2.0 (December 2015).
 - ~~(vii)~~7. State-regulated LED lamps that have an ANSI standard lamp shape of B, BA, C, CA, F, or G shall meet the decorative light distribution requirements of ENERGY STAR's Product Specification for Lamps Version 1.1 (August 2014).
- (B) In addition to the requirements in section 1605.3(k)(2)(A) of this Article, state-regulated LED lamps manufactured on or after July 1, 2019 shall have a standby mode power of 0.2 watt or less.

**Table K-9
Standards for State-Regulated LED Lamps**

<i>Effective Date</i>	<i>Minimum Compliance Score</i>	<i>Minimum Efficacy Lumens Per Watt</i>
January 1, 2018	282	68
July 1, 2019	297	80
This compliance score shall be calculated as the sum of the efficacy and 2.3 times the CRI of a lamp.		

- (3) **State-regulated Small Diameter Directional Lamps.** State-regulated small diameter directional lamps manufactured on or after January 1, 2018 must have a rated life of 25,000 hours or greater as determined by the lumen maintenance and time to failure test procedure and meet one of the following requirements:
- (A) have luminous efficacy of at least 80 lumens per watt.
 - (B) have a minimum luminous efficacy of 70 lumens per watt or greater and a minimum compliance score of 165 or greater, where compliance is calculated as the sum of the luminous efficacy and CRI.
- (4) **GU24 Base Lamps.** GU24 base lamps shall not be incandescent lamps.
- (5) See section 1605.1(k) of this Article for energy efficiency standards for federally regulated lamps.

...[skipping through the end of the section]

Note: Authority cited: Sections 25213, 25218(e), 25401.9(b), 25402(a)-25402(c), and 25960, Public Resources Code; and sections 16, 26, and 30, Governor's Exec. Order No. B-29-15 (April 1, 2015).

Reference: Sections 25216.5(d), 25401.9(b), 25402(a)-25402(c) and 25960, Public Resources Code; and section 16, Governor's Exec. Order No. B-29-15 (April 1, 2015).

§ 1606. Filing by Manufacturers; Listing of Appliances in the MAEDbS.

(a) Filing of Statements.

Each manufacturer shall electronically file with the Executive Director through the MAEDbS a statement for each appliance that is sold or offered for sale in California. The statement shall contain all of the information described in paragraphs (2) through (4) of this subsection and shall meet all of the requirements of paragraph (1) of this subsection and all other applicable requirements in this Article.

The effective dates of this section shall be the same as the effective dates shown in section 1605.1, 1605.2 or 1605.3 of this Article for appliances for which there is an energy efficiency, energy consumption, energy design, water efficiency, water consumption, or water design standard in section 1605.1, 1605.2, or 1605.3 of this Article. For appliances with no energy efficiency, energy consumption, energy design, water efficiency, water consumption, or water design standard in section 1605.1, 1605.2, or 1605.3 of this Article, the effective date of this section shall be one year after they are added to section 1601 of this Article, unless a different effective date is specified.

EXCEPTIONS to Section 1606(a) of this Article: Section 1606(a) of this Article is not applicable to:

1. external power supplies,
2. small electric motors,~~or~~
3. à la carte chargers meeting the EXCEPTION noted in section 1605.3(w)(2) of this Article; or
4. general service lamps.

...[skipping (a)(1)(A) through (a)(3)]

...[skipping to Table X]

Table X
Data Submittal Requirements

	<i>Appliance</i>	<i>Required Information</i>	<i>Permissible Answers</i>
	All Appliances	* Manufacturer's Name	
		* Brand Name	
		* Model Number	
		Date model to be displayed	
		Regulatory Status	Federally regulated consumer product, federally regulated commercial and industrial equipment, non-federally regulated

...[skipping A through K]

K	Federally-regulated general service fluorescent lamps	*Type	4-foot medium bipin general service fluorescent lamp, 2-foot U-shaped general service fluorescent lamp, 8-foot slim line general service fluorescent lamp, 8-foot high output general service fluorescent lamp, 4-foot miniature bipin standard output general service fluorescent lamp, 4-foot miniature bipin high output general service fluorescent lamp
		Rated Color Rendering Index	
		Correlated Color Temperature (for lamps manufactured on or after July 15, 2012)	
		Minimum Average Lamp Efficacy (LPW)	
	Federally regulated incandescent reflector lamps <u>sold before January 1, 2020</u>	Minimum Average Lamp Efficacy	
	Federally regulated Medium Screw Base Compact Fluorescent	Lamp Power (Watts)	
		Minimum Efficacy (LPW)	
Lamp Configuration		Bare or Covered (no reflector)	

<u>Lamps sold before January 1, 2020</u>	1,000 Hour Lumen Maintenance	True, False
	Lumen Maintenance Requirements	True, False
	Rapid Cycle Stress Test	True, False
	Average Rated Lamp Life	True, False
Federally regulated Medium Screw Base General Service Incandescent <u>and OLED Lamps; OLEDs sold before January 1, 2020</u>	Type	General Service Incandescent, LED, OLED
	Voltage Range	
	Rated Lumen Range	
	Maximum Rate Wattage	
	Minimum Rate Lifetime	
	Color Rendering Index	
	Minimum Efficacy (LPW) (required on or after January 1, 2018)	
	Modified Spectrum	True, False
	Bulb Finish (incandescent only)	Clear, frost, soft white
	ANSI-designated Bulb Shape	A15, A19, A21, A23, A25, PS25, PS30, BT14.5, BT15, CP19, TB19, CA22
Federally regulated Candelabra Base and Intermediate Base Incandescent Lamps <u>sold before January 1, 2020</u>	Base Type	Candelabra, intermediate
	Maximum Rated Wattage	
<u>Federally regulated Medium Screw Base Modified Spectrum General Service Incandescent Lamps sold before January 1, 2020</u>	Type	
	Rated Voltage	
	Rated Lumen Range	
	Maximum Rate Wattage	
	Minimum Rate Lifetime	
	Color Rendering Index	
State-regulated medium screw base general service Compact	Rated lumens	
	Rated lamp wattage	

Fluorescent lamps	Average lamp efficacy	
State-regulated small diameter directional lamps	Base Type	
	Lamp Type (examples PAR16, MR11, MR16, R)	
	Lamp Power (Watts)	
	Lamp Output (Lumens)	
	Beam Angle	
	Center Beam Candle Power (CBCP)	
	Efficacy (Lumens per watt)	
	Color Rendering Index (CRI)	
	Combined CRI + Efficacy (only applies where efficacy < 80 LPW)	
	Correlated Color Temperature	
	Rated Lifetime Test Completed	True, False
	Estimated Rated Lifetime (hours) (when "Rated Lifetime Test Completed" = False)	
	Rated Lifetime (hours) (when "Rated Lifetime Test Completed" = True)	
State-regulated Light Emitting Diode (LED) lamps	*Base Type	E12, E17, E26, GU24, retrofit kit
	Lamp Shape	A, B, BA, C, CA, F, G, Other
	Dimmable	True, False
	Minimum Dimming Level (%) (<u>if</u> when "Dimmable" <u>equals</u> True)	
	Reduced Flicker Operation (<u>if</u> when "Dimmable" <u>equals</u> True)	True, False
	Correlated Color Temperature	
	Duv	
	Rated Lifetime Test Completed	True, False
	Estimated Rated Lifetime (hours) (when "Rated Lifetime Test Completed" = False)	

	Rated Lifetime (hours) (when "Rated Lifetime Test Completed" = True)	
	Lifetime test environment temperature ²	Ambient, Elevated
	Lamp Power (Watts)	
	Lumen Output (Lumens)	
	Efficacy (Lumens per watt)	
	Color Rendering Index (Ra)	
	Compliance Score	
	Power Factor	
	Standby Mode	True, False
	Standby Power (watts) (if applicable)	
	Connected network type (if applicable)	Wi-Fi, ZigBee, ANT, Bluetooth, RF, Wired, Other-(specify)
	R ₁	
	R ₂	
	R ₃	
	R ₄	
	R ₅	
	R ₆	
	R ₇	
	R ₈	
	R ₉ ²	
	Meets applicable luminous intensity distribution requirements	ENERGY STAR Omnidirectional, ENERGY STAR Decorative, none-
	Audible Noise at 100% output (decibels) (ifwhen "Dimmable" =equals True)	
	Audible Noise at 20% output (decibels) (ifwhen "Dimmable" =equals True)	
Start Time ²		

		6000 hour lumen maintenance ²	
		6000 hour survival rate ²	
		Projected time to L70 ²	
		Dimming Control Compatibility (<u>#when</u> “Dimmable” <u>=equals</u> True)	Forward, Phase cut control, reverse phase cut, powerline carrier, digital, 0-10 VDC, other-
		NEMA SSL 7A Compatible ² (If compatible with forward phase cut dimmer control answer “True,” If not answer “False.”)	True, False

* “Identifier” information as described in section 1602(a) of this Article.

1 = Voluntary for federally-regulated appliances

2 = Voluntary for state-regulated appliances

...[skipping remaining text in Table X through end of section 1606]

Note: Authority cited: Sections 25213, 25218(e), 25401.9(b), 25402(a)-25402(c), and 25960, Public Resources Code; and sections 16, 26, and 30, Governor's Exec. Order No. B-29-15 (April 1, 2015).

Reference: Sections 25216.5(d), 25401.9(b), 25402(a)-25402(c), 25402.5.4, and 25960, Public Resources Code; and section 16, Governor's Exec. Order No. B-29-15 (April 1, 2015).

§ 1607. Marking of Appliances. [no changes]

§ 1608. Compliance, Enforcement, and General Administrative Matters.

(a) General Requirements for the Sale or Installation of All Appliances.

Any unit of any appliance within the scope of section 1601 of this Article may be sold or offered for sale in California only if:

- (1) the appliance appears in the most recent MAEDbS established pursuant to section 1606(c) of this Article, unless the only reason for the appliance's absence from the MAEDbS is its failure to comply with an applicable standard in section 1605.1 of this Article;
- (2) the manufacturer has:
 - (A) tested the appliance as required by sections 1603 and 1604 of this Article;
 - (B) marked the unit as required by section 1607 of this Article;
 - (C) for any appliance for which there is an applicable standard in section 1605.2 or 1605.3 of this Article, certified under section 1606(a) of this Article that the appliance complies with the standard;

- (3) the unit has the same components, design characteristics, and all other features that affect energy or water consumption or energy or water efficiency, as applicable, as the units that were tested under sections 1603 and 1604 of this Article and for which information was submitted under section 1606(a) of this Article; and
- (4) for any appliance for which there is an applicable standard in section 1605.2 or 1605.3 of this Article, the unit complies with the standard.

EXCEPTIONS to Sections 1608(a)(1) and 1608(a)(2)(C) of this Article. Sections 1608(a)(1) and 1608(a)(2)(C) of this Article are not applicable to:

1. external power supplies,
2. small electric motors, ~~or~~
3. à la carte chargers meeting the EXCEPTION noted in section 1605.3(w)(2) of this Article, or
4. general service lamps.

...[skipping through the end of the section]

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

Reference: Sections 25216.5(d), 25402(a)-(c) and 25960, Public Resources Code).

§ 1609. Administrative Civil Penalties. [No changes]