PROPOSED AMENDMENTS TO APPLIANCE EFFICIENCY REGULATIONS (Express Terms)

CALIFORNIA CODE OF REGULATIONS, TITLE 20: SECTIONS 1601 - 1608

June 19, 2006

15-Day Language

CALIFORNIA ENERGY COMMISSION

This document does not contain sections of the Express Terms for which no changes are proposed.

Blue text with single underline indicates additional language, and blue text with single strike-though indicates changes that were adopted in 15-Day Language on April 26, 2006

Red text with double underline indicates additional new language, and red text with double-strike though indicates newly deleted language for this additional 15-Day Language.

CALIFORNIA CODE OF REGULATIONS, TITLE 20:
DIVISION 2, CHAPTER 4, ARTICLE 4, SECTIONS 1601-1608:
APPLIANCE EFFICIENCY REGULATIONS

There are no changes proposed for Section 1601

Section 1602. Definitions.

(a) **There are no changes proposed for Section 1602 (a).**

(b) **Refrigerators, Refrigerator-Freezers, and Freezers.**

There are no changes proposed for Section 1602 (b) for definitions beginning with the letter "A" through definitions beginning with the letter "D".

"Envelope" of a walk-in refrigerator or walk-in freezer means the walls and ceiling of the walk-in refrigerator or walk-in freezer but not the doors or floors.

There are no changes proposed for Section 1602 (b) for definitions beginning with the letter "F" through definitions beginning with the letter "K".

"LPW" (lumens per watt) means "average lamp efficacy (LPW)" as defined in Section 1602(k).

There are no changes proposed for Section 1602 (b) for definitions beginning with the letter "M through definitions beginning with the letter "W".

There are no changes proposed for Section 1602 (c) through Section 1602 (j).

(k) **Lamps**.

There are no changes proposed for Section 1602 (k) for definitions beginning with the letter "A" through definitions beginning with the letter "B".

"Clear type lamp" means a general service incandescent lamp with an envelope (commonly referred to as the bulb) that utilizes no diffusive coatings. The filament is plainly visible. The illumination it produces is crisp-edged, with well-defined shadows on the background when an object is positioned in its emissive path. The designation shall be on the lamp packaging, and marketing materials shall identify the lamp as being a clear type lamp. ~~Any lamp labeled as clear" is a "clear type lamp."~~

"Colored Incandescent Lamp" means an incandescent lamp designated and marketed as a colored lamp that has a CRI of less than 50, as determined according to the test method given in CIE publication 13.2; has a correlated color temperature less than 2,500K, or greater than 4,600K, where correlated color temperature is defined as the absolute temperature of a blackbody whose chromaticity nearly resembles that of the light source. The designation shall be on the lamp packaging, and marketing materials shall identify the lamp as being a colored lamp.

"Color rendering index (CRI)" means the measured degree of color shift objects undergo when illuminated by a light source as compared with the color of those same objects when illuminated by a reference source of comparable color temperature, as determined using the applicable test method in Section 1604(k).

"Enhanced Spectrum" or "Modified Spectrum" lamp, as related to incandescent lamps, means an incandescent lamp ~~that contains an integral glass filter or powdered coating~~

~~filter to suppress selective wavelengths of light in the middle of the visual spectrum generally having the effect of enhancing the blue end and/or red end of the spectrum~~ that is not a colored incandescent lamp, and, when operated at its rated voltage and wattage:

1. Has a color point (x,y) chromaticity coordinates on the Commission International de l'Eclairge (C.I.E) 1931 chromaticity diagram that lies below the black-body locus, and
2. Has a color point (x,y) chromaticity coordinates on the C.I.E 1931 chromaticity diagram that lies at least 4 MacAdam steps distant from the color point of a clear lamp with the same filament and bulb shape, operated at the same rated voltage and wattage. The MacAdam steps are defined as referenced in IESNA LM16.

The designation shall be on the lamp packaging, and marketing materials shall identify the lamp as being "enhanced s~~S~~pectrum," "modified spectrum," or a similar designation.

There are no changes proposed for Section 1602 (k) for definitions beginning with the letter "F" through definitions beginning with the letter "I".

"Lamp" means an ~~fluorescent lamp or an incandescent lamp~~ electrical appliance that includes a glass envelope and produces optical radiation for the purpose of visual illumination, designed to be installed into a luminaire by means of an integral lamp-holder. Types of lamps include incandescent, fluorescent, and high intensity discharge (high pressure sodium and metal halide)."

There are no changes proposed for Section 1602 (k) for definitions beginning with the words "Lamp electrical power input" through the end of Section 1602(k).

There are no changes proposed for Section 1602 (l) through Section 1602 (m).

(n) **Luminaires**

~~"Exempted Outdoor Luminaire" means a luminaire certified by the manufacturer to the Commission as meeting all of the following criteria:~~
~~(1) Is rated for use in wet locations as required by the National Electrical Code, Section 410.4(A); and~~
~~(2) Contains a ballast that is rated to operate at ambient air temperatures above 55° C, as specified by UL 1029.~~

"High-intensity discharge (HID) lamp" means an electric-discharge lamp in which the light-producing arc is stabilized by bulb wall temperature, and the arc tube has a bulb wall loading greater than 3 W/cm^2. HID lamps are mercury, metal halide, and high pressure sodium.

"Lamp-ballast system efficiency" means the efficiency of a lamp and ballast combination expressed as a percentage and calculated by dividing the output circuit lamp power by the input circuit power as measured in accordance with ANSI C82.6-~~1985~~2005 (American National Standard for Reference Ballasts for Metal Halide Lamps – Methods of Measurement).

There are no changes proposed for Section 1602 (n) for definitions beginning with the letter "M" through definitions beginning with the letter "H".

"Torchiere" means a portable electric lighting fixture (luminaire) with a reflector bowl giving light directed upward so as to give indirect illumination. A torchiere may, but does not necessarily, include downward-directed lamps in addition to the upward, indirect illumination.

"Under-cabinet luminaire" means a luminaire designed for mounting in, on, under, or within modular office furniture.

"Wet location fixture" or "Wet location luminaire" means a ~~fixture~~ luminaire that is designed to be exposed to the weather or to water saturation, and is constructed to prevent the entrance of rain, snow, ice, and dust. Outdoor parks and parking lots, outdoor recreational areas (tennis, golf, baseball, etc.), car wash areas, and building exteriors are examples of wet locations.

There are no changes proposed for Section 1602 (o) through Section 1602 (q).

Section 1602(r)

(r) **Cooking Products and Food Service Equipment.**

"Commercial convection oven" means an appliance that is not a consumer product and that is designed for cooking food by forcing hot air over it using a fan in a closed cavity.

"Commercial hot food holding cabinet" means ~~an appliance that is not a consumer product and that is designed to hold hot food that has been cooked in a separate appliance, at a specified temperature.~~ a heated, fully enclosed compartment, with one or more solid or partial glass doors, that is designed to maintain the temperature of hot food that has been cooked in a separate appliance. "Commercial hot food holding cabinet" does not include heated glass merchandising cabinets, drawer warmers or cook-and-hold appliances.

"Commercial range top" means an appliance that is not a consumer product and that is designed for cooking food by direct or indirect heat transfer from one or more cooking units to one or more cooking containers.

"Cook-and-hold" appliance means a multiple-mode appliance intended for cooking food that may be used to hold the temperature of the food that has been cooked in the same appliance.

"Cooking products" means consumer products that are used as the major household cooking appliances. They are designed to cook or heat different types of food by one or more of the following sources of heat: gas, electricity, or microwave energy. Each product may consist of a horizontal cooking top containing one or more surface units or one or more heating compartments. They must be one of the following classes: conventional ranges, conventional cooking tops, conventional ovens, microwave ovens, microwave/conventional ranges, and other cooking products.

"Drawer warmer" means an appliance that consists of one or more heated drawers and that is designed to hold hot food that has been cooked in a separate appliance at a specified temperature.

"Food service equipment" means a commercial hot food holding cabinet, a commercial convection oven, or a commercial range top.

"Heated glass merchandising cabinet" means an appliance with a heated cabinet constructed of glass or clear plastic doors which, with 70% or more clear area, is designed to display and maintain the temperature of hot food that has been cooked in a separate appliance.

There are no changes proposed for Section 1602(s) through the end of Section 1602(u).

The following standards are incorporated by reference in Section 1602.

Number	***Title***
FEDERAL TEST METHODS	
CFR, Title 10, Section 430.23 (2005)	
Copies available from:	Superintendent of Documents U.S. Government Printing Office Washington, DC 20402 www.access.gpo.gov/nara/cfr
AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)	
ANSI C78.1-1991 (R1996)	Dimensional and Electrical Characteristics of Fluorescent Lamps, Rapid Start Types
ANSI C78.3-1991 (R1996)	Dimensional and Electrical Characteristics of Fluorescent Lamps, Instant Start and cold Cathode Types
ANSI C82.6-~~1985~~2005	Standard for Reference Ballasts for Metal Halide Lamps—Methods of Measurement
Copies available from:	American National Standards Institute 1819 L Street, NW, 6th Floor Washington, DC 20036 www.ansi.org Phone: (202) 293-8020 FAX: (202) 293-9287

There are no changes proposed from the above "AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)" standard incorporated by reference in Section 1602 through the end of Section 1602.1

There are no changes proposed for Section 1603.

Section 1604. Test Methods for Specific Appliances.

There are no changes proposed for Section 1604(a) through Section 1604(c).

(d) **Spot Air Conditioners, Evaporative Coolers, Ceiling Fans, Whole House Fans, and Residential Exhaust Fans**.

The test methods for spot air conditioners, evaporative coolers, ceiling fans, whole house fans, and residential exhaust fans are shown in Table D.

Table D
Spot Air Conditioner, Ceiling Fan, Evaporative Cooler, Whole House Fan, and Residential Exhaust Fan Test Methods

Appliance	***Test Method***
Spot Air Conditioners	ANSI/ASHRAE 128-2001
Ceiling Fans, Except Low-Profile Ceiling Fans	EPA Energy Star Solid State Test Method for Ceiling Fans (2004)
Evaporative Coolers	ANSI/ASHRAE 133-2001 for packaged direct evaporative coolers and packaged indirect/direct evaporative coolers; ANSI/ASHRAE 143-2000 for packaged indirect evaporative coolers; with the following modifications for both test methods: (A) Saturation effectiveness and total power of direct evaporative coolers and cooling effectiveness and total power of indirect evaporative coolers shall be measured at an airflow rate that corresponds to 0.3" external static pressure; (B) indoor dry bulb temperature shall be 80° F; (C) outdoor dry bulb temperature shall be 91° F; (D) outdoor wet bulb temperature shall be 69° F; and (E) Evaporative Cooler Efficiency Ratio (ECER) shall be calculated using the following formula: $ECER = 1.08 * (t_{in} - (t_{db} - \varepsilon * (t_{db} - t_{wb}))) * Q / W$ Where: t_{in} = indoor dry bulb temperature from (B) t_{db} = outdoor dry bulb temperature from I t_{wb} = outdoor wet bulb temperature from (D) ε = measured saturation effectiveness divided by 100 or measured cooling effectiveness from (A) Q = measured air flow rate (cfm) from (A) W = measured total power (~~W~~watts) from (A)
Whole House Fans	HVI-916, tested with manufacturer-provided

	louvers in place (1995)
Residential Exhaust Fans	HVI-916 (1995)

(e) **Gas Space Heaters and Oil Space Heaters**.

There are no changes proposed for Section 1604(f)(1) through Section 1604(f)(4).

There are no changes proposed for Section 1604(f)(5)(A) through Section 1604(f)(5)(E).

(F) Report the following values:

Measured Volume, V	=	gallons
First Hour Rating, F_{hr}	=	gallons/hr
Rated electrical input, P	=	kW
Size (overall dimensions)	=	inches (h x w x d)
Recovery Efficiency, E_r	=	%
Standby Loss, S	=	%/hr
Standby Loss	=	~~W~~watts
Annual Energy Consumption, E_{annual}	=	kBtu

There are no changes proposed for Section 1604(g) through Section 1604(j).

(k) **Lamps.** The test method for federally-regulated general service fluorescent lamps, state-regulated general service incandescent lamps, ~~state regulated enhanced spectrum lamps,~~ state-regulated incandescent reflector lamps, and federally-regulated incandescent reflector lamps is 10 CFR Section 430.23(r) (2005).

There are no changes proposed for Section 1604(l) through Section 1604(m).

(n) **Luminaires**.

(1) There is no test method for torchieres.

(2) The test method for metal halide luminaires is ANSI C82.6-~~1985 (R 1996)~~2005. Ballasts may be tested separately, outside the luminaire. A sample of at least five ballasts shall be tested for each lamp wattage for which the ~~fixture~~ luminaire and ballasts are rated. The average of these tests shall be used for certification and compliance purposes.

Ballast efficiency for High Intensity Discharge (HID) luminaire means the efficiency of a lamp and ballast combination expressed as a percentage and calculated by Efficiency = P_{out}/P_{in}, as measured. P_{out} is the measured operating lamp wattage and P_{in} is the measured operating input wattage ~~when tested under the following conditions~~.

The lamp, and the capacitor when it is provided, is to constitute a nominal system in accordance with the ANSI C78.43-2004. P_{in} and P_{out} are to be measured after lamps have been stabilized according to Section 4.4 of ANSI C82.6-2005 using a wattmeter with accuracy specified in Section 4.5 of ANSI C82.6-2005 for ballasts with a frequency of 60 Hz and shall have a basic accuracy of ± 0.5 percent at the higher of (a.) three times the output operating frequency of the ballast, or (b.) 2 kHz for ballast with a frequency greater than 60 Hz.

~~(A) The input voltage to the ballast shall be considered to be 120, 208, 240, 277, or 480 V unless the ballast is intended for other system voltages, in which case, rated voltage is to be considered the marked voltage or the mid-point of a range.~~

~~(B) The ballast is to be loaded with the lamp, wattage, type and size as specified on the ballast. Where more than one lamp is specified, the measurement is to be made with each lamp. Where a range, such as lamp wattage, is specified, the ballast is to be measured with the highest and lowest in the range.~~

~~(C) The lamp and, when provided, capacitor are to constitute a nominal system. A nominal system is to be considered to exist when, with the system stabilized at rated voltage, the ballast output lamp wattage and voltage are within ±5 percent of the ballast rating in accordance with the ANSI C78 series standards or the manufacturer's data sheet.~~

~~(D) During the input and output measurements, the ballast is to be mounted in a setup which consists of a test alcove as prescribed for the Normal Temperature Test in the Standard for High Intensity Discharge Lamp Ballasts UL 1029.~~

~~(E) The power input, Pin and the power output, Pout are to be measured after 6 hours of operation using a true root-mean-square (rms) wattmeter rated for the voltages being measured.~~

(3) The test method for under-cabinet luminaires is 10 CFR 430.23(q) (2005).

There are no changes proposed for Section 1604(o) through the end of Section 1604(u).

There are no changes proposed for the documents incorporated by reference in Section 1604 other than the following reference to, "ANSI C82.6-1985 (R 1996)":

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI C82.6-~~1985 (R1996)~~2005	Ballasts for High Intensity Discharge Lamps – Method of Measurement
ANSI C78.43-2004	American National Standards for Electric Lamps - Single-Ended Metal Halide Lamps

There are no changes proposed for Section 1604 from the above document incorporated by reference in Section 1604, "ANSI C82.6-1985 (R 1996)", to the end of Section 1604

There are no changes proposed for Section 1605 through the end of Section 1605.2.

There are no changes proposed for Section 1605.3(a) through Section 1605.3(f).

There are no changes proposed for Section 1605.3(g)(1) through Section 1605.3(g)(5).

(g) **Pool Heaters, Residential Pool Pumps, and Portable Electric Spas.**

(6) **Portable Electric Spas**. The standby power of portable electric spas manufactured on or after January 1, 2006, shall be not greater than $5(V^{2/3})$ ~~W~~watts where V = the total volume, in gallons.

There are no changes proposed for Section 1605.3(h) through Section 1605.3(j).

Section 1605.3 (k)

(k) **Lamps.**

(1) See Section 1605.1(k) for energy efficiency standards for federally-regulated general service fluorescent lamps and federally-regulated incandescent reflector lamps.

(2) Energy Efficiency Standards for State-Regulated General Service Incandescent Lamps.

The lamp electrical power input of state-regulated general service incandescent lamps manufactured on or after the effective dates shown in Table K-3, shall be no greater than the applicable values shown in Table K-3.

Table K-3
Standards for State-Regulated General Service Incandescent Lamps

~~***Lamp Type***~~	~~***Maximum Lamp Electrical Power Input (Watts)***~~
	~~***January 1, 2006***~~
~~Frost or Clear~~	~~(0.0500 * Lumens) + 21~~
~~Soft White~~	~~(0.0500 * Lumens) + 22.5~~

Lumens (L)	Maximum Power Use (watts)		
	January 1, 2006	January 1, 2008	January 1, 2009
Frost or Clear			
$L \leq 300$	(0.0500 * Lumens) + 21	(0.0500 * Lumens) + 21	$0.05Lumens + 20$
$300 < L \leq 700$	(0.0500 * Lumens) + 21	35	35
$700 < L \leq 740$	(0.0500 * Lumens) + 21	$\frac{11}{20}Lumens - 350$	$\frac{11}{20}Lumens - 350$
$740 < L \leq 950$	(0.0500 * Lumens) + 21	57	57
$950 < L \leq 1020$	(0.0500 * Lumens) + 21	$\frac{1}{5}Lumens - 133$	$\frac{1}{5}Lumens - 133$
$1020 < L \leq 1300$	(0.0500 * Lumens) + 21	71	71
$1300 < L \leq 1350$	(0.0500 * Lumens) + 21	$\frac{33}{100}Lumens - 358$	$\frac{33}{100}Lumens - 358$
$1350 < L \leq 1500$	(0.0500 * Lumens) + 21	$0.05Lumens + 20$	$0.05Lumens + 20$
$1500 < L \leq 1850$	(0.0500 * Lumens) + 21	95	95
$1850 < L \leq 1900$	(0.0500 * Lumens) + 21	(0.0500 * Lumens) + 21	$\frac{2}{5}Lumens - 645$
$1900 < L \leq 2500$	(0.0500 * Lumens) + 21	(0.0500 * Lumens) + 21	$0.05Lumens + 20$
$2500 < L \leq 3000$	(0.0500 * Lumens) + 21	(0.0500 * Lumens) + 21	145
Soft White			
$L \leq 270$	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 22.5	$0.05Lumens + 21.5$
$270 < L \leq 670$	(0.0500 * Lumens) + 22.5	35	35
$670 < L \leq 725$	(0.0500 * Lumens) + 22.5	$\frac{2}{5}Lumens - 233$	$\frac{2}{5}Lumens - 233$
$725 < L \leq 925$	(0.0500 * Lumens) + 22.5	57	57
$925 < L \leq 1000$	(0.0500 * Lumens) + 22.5	$\frac{7}{100}Lumens - \frac{31}{4}$	$\frac{7}{100}Lumens - \frac{31}{4}$
$1000 < L \leq 1250$	(0.0500 * Lumens) + 22.5	71	71
$1250 < L \leq 1300$	(0.0500 * Lumens) + 22.5	$\frac{31}{100}Lumens - \frac{633}{2}$	$\frac{31}{100}Lumens - \frac{633}{2}$
$1300 < L \leq 1470$	(0.0500 * Lumens) + 22.5	$0.05Lumens + 21.5$	$0.05Lumens + 21.5$
$1470 < L \leq 1800$	(0.0500 * Lumens) + 22.5	95	95
$1800 < L \leq 1850$	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 22.5	$W = \frac{19}{50}L - 589$
$1850 < L \leq 2470$	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 22.5	$0.05Lumens + 21.5$
$2470 < L \leq 3000$	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 22.5	145

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Frost or Clear		
	Maximum Power Use (watts)	
Lumens (L)	January 1, 2006	January 1, 2008
L < 340	(0.0500 * Lumens) + 21	(0.0500 * Lumens) + 21
340 ≤ L < 562	(0.0500 * Lumens) + 21	38
562 ≤ L < 610	(0.0500 * Lumens) + 21	(0.2400 * Lumens) – 97
610 ≤ L < 760	(0.0500 * Lumens) + 21	(0.0500 * Lumens) + 19
760 ≤ L < 950	(0.0500 * Lumens) + 21	57
950 ≤ L < 1013	(0.0500 * Lumens) + 21	(0.2000 * Lumens) - 133
1013 ≤ L < 1040	(0.0500 * Lumens) + 21	(0.0500 * Lumens) + 19
1040 ≤ L < 1300	(0.0500 * Lumens) + 21	71
1300 ≤ L < 1359	(0.0500 * Lumens) + 21	(0.2700 * Lumens) - 280
1359 ≤ L < 1520	(0.0500 * Lumens) + 21	(0.0500 * Lumens) + 19
1520 ≤ L < 1850	(0.0500 * Lumens) + 21	95
1850 ≤ L < 1900	(0.0500 * Lumens) + 21	(0.4200 * Lumens) - 682
L ≥ 1900	(0.0500 * Lumens) + 21	(0.0500 * Lumens) + 21

Soft White		
	Maximum Power Use (watts)	
Lumens (L)	January 1, 2006	January 1, 2008
L < 310	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 22.5
310 ≤ L < 514	(0.0500 * Lumens) + 22.5	38
514 ≤ L < 562	(0.0500 * Lumens) + 22.5	(0.2200 * Lumens) - 75
562 ≤ L < 730	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 20.5
730 ≤ L < 909	(0.0500 * Lumens) + 22.5	57
909 ≤ L < 963	(0.0500 * Lumens) + 22.5	(0.2200 * Lumens) - 143
963 ≤ L < 1010	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 20.5
1010 ≤ L < 1250	(0.0500 * Lumens) + 22.5	71
1250 ≤ L < 1310	(0.0500 * Lumens) + 22.5	(0.2500 * Lumens) – 241.5
1310 ≤ L < 1490	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 20.5
1490 ≤ L < 1800	(0.0500 * Lumens) + 22.5	95
1800 ≤ L < 1850	(0.0500 * Lumens) + 22.5	(0.4000 * Lumens) – 625
L ≥ 1850	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 22.5

~~(3) Energy Efficiency Standards for State-Regulated Enhanced Spectrum Incandescent Lamps.~~

~~The lamp electrical power input of state-regulated enhanced spectrum incandescent lamps manufactured on or after the effective dates shown in Table K-4, shall be no greater than the applicable values shown in Table K-4.~~

~~Table K-4~~
~~Standards for State-Regulated Enhanced Spectrum Incandescent Lamps~~

~~Lumens (L)~~	~~Maximum Power Use (watts) January 1, 2009~~
~~$L \leq 270$~~	~~$0.05Lumens + 21.5$~~
~~$270 < L \leq 455$~~	~~35~~
~~$455 < L \leq 595$~~	~~$\frac{4}{25}(Lumens - 600) + 57.5$~~
~~$600 < L \leq 695$~~	~~57~~
~~$695 < L \leq 790$~~	~~$\frac{3}{20}(Lumens - 800) + 72.5$~~
~~$790 < L \leq 1090$~~	~~71~~
~~$1090 < L \leq 1195$~~	~~$\frac{9}{40}(Lumens - 1200) + 95$~~
~~$1195 < L \leq 1450$~~	~~95~~
~~$1450 < L$~~	~~$\frac{2}{15}Lumens - \frac{295}{3}$~~

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~~(4)~~(3) Energy Efficiency Standards for State-Regulated Incandescent Reflector Lamps.

The average lamp efficacy of state-regulated incandescent reflector lamps manufactured on or after ~~June 1, 2007~~ January 1, 2008 shall be not less than the applicable values shown in ~~Table K-5~~ Table K-4. ~~The average lamp efficacy of state-regulated incandescent reflector lamps that have a bulb classification of R-20 and have rated lamp wattage of 45 watts or less manufactured on or after January 1, 2008 shall comply with Table K-5~~

Table K-~~5~~4
Standards for State-Regulated Incandescent Reflector -Lamps

Rated Lamp Wattage	Minimum Average Lamp Efficacy (LPW)
40-50	10.5
51-66	11.0
67-85	12.5
86-115	14.0
116-155	14.5
156-205	15.0

~~Exemptions~~ Exceptions to Section 1605.3(k)(3): This subsection does not apply to the ~~The~~ following incandescent reflector lamps. ~~are exempt from the requirements in Table K-5~~

1. ≤ 45 watt R-20 (reflector, 2.5" diameter)
2. ≤ 50 watt ER-30 (ellipsoidal reflector, 3.75" diameter)
3. ≤ 50 watt ER-40 (ellipsoidal reflector, 5.00" diameter)
4. 65 watt ER-40 (ellipsoidal reflector, 5.00" diameter)
5. ≤ 50 watt BR-30 (bulge reflector, 3.75" diameter)
6. ≤ 50 watt BR-40 (bulge reflector, 5.00" diameter)
7. 65 watt BR-30 (bulge reflector, 3.75" diameter)
8. 65 watt BR-40 (bulge reflector, 5.00" diameter)

There are no changes proposed for Section 1605.3(i).

Section 1605.3 (m)
(m) **Traffic Signal Modules and Traffic Signal Lamps.**

There are no changes proposed for Section 1605.3(m)(1).

Section 1605.3(m)(2)
(2) **Energy Efficiency Standards for Traffic Signal Modules for Pedestrian Control**. The power consumption of traffic signal modules for pedestrian control manufactured on or after January 1, 2006 shall be not greater than the applicable values shown in Table M-2 when tested at the temperatures shown.

Table M-2
Standards for Traffic Signal Modules for Pedestrian Control

Type	*at 25° C (77° F)*	*At 74° C (165.2° F)*
Hand or 'Don't Walk' sign or countdown.	10 ~~W~~watts	12 ~~W~~watts
Walking Person or 'Walk' sign	9 ~~W~~watts	12 ~~W~~watts

(3) **Energy Efficiency Standards for Traffic Signal Lamps**. The power consumption of traffic signal lamps manufactured on or after March 1, 2003, shall be not greater than 25 watts.

(n) **Luminaires.**

(1) **Energy Efficiency Standard and Energy Design Standard for Torchieres.** Torchieres manufactured on or after March 1, 2003, shall not consume more than 190 watts and shall not be capable of operating with lamps that total more than 190 watts. Torchieres manufactured on or after January 1, 2006, shall not use more than 190 watts. A torchiere shall be deemed to use more than 190 watts if any commercially available lamp or combination of lamps can be inserted in its socket(s) and cause the torchiere to draw more than 190 watts when operated at full brightness.

(2) **Energy Efficiency Standard for Metal Halide Luminaires.** Metal halide luminaires, manufactured on or after the effective dates shown in Table N-1, shall meet the requirements shown in Table N-1.

Table N-1
Standards for Metal Halide Luminaires

Lamp Position	***Lamp Rating***	***Effective Date***	***Requirements***
Vertical (base-up)	150-500 ~~W~~watts	Jan. 1, 2006	Luminaires shall not contain a probe-start metal halide ballast.
Vertical (base-down)	150-500 ~~W~~watts	Jan 1, 2008	Luminaires shall not contain a probe-start metal halide ballast.
All	150-500 watts	Jan 1, 2008	Luminaires shall not contain a probe-start metal halide ballast.
All	150-500 watts	Jan 1, 2008	Luminaires with metal halide lamps shall contain metal halide ballasts with a minimum ballast efficiency of 88 percent. Exceptions: 1. Luminaires that use electronic ballasts that operate at 480 volts; or 2.Luminaires that meet all of the following criteria: a. rated only for 150 watt lamps; and b. rated for use in wet locations as specified by the National Electrical Code, Section 1410.4(A); and c. contain a ballast that is rated to operate at ambient air temperatures above 50º C as specified by UL 1029.
~~All~~	~~150-200 watts~~	~~Jan 1, 2008~~	~~Luminaires (except "exempted outdoor luminaires" and luminaires operating at 480V) shall contain a metal halide ballast with minimum ballast efficiency = (0.00016* lamp watts) + 0.86~~

~~All~~	~~210-500 watts~~	~~Jan 1, 2009~~	~~Luminaires (except "exempted outdoor luminaires" and luminaires operating at 480V) shall contain a metal halide ballast with minimum ballast efficiency = (0.00016* lamp watts) + 0.86~~

Notes: ~~Fixtures~~ Luminaires are covered if they are capable of operating lamps ~~that fall~~ within the range of included lamp wattages. Vertical includes products rated **only** for use within 15° of vertical.

(3) **Energy Efficiency Standards for Under-Cabinet Luminaires**. Under-cabinet luminaires that are equipped with T-8 fluorescent lamps and that are designed to be attached to office furniture and that are manufactured on or after January 1, 2006 shall be equipped with ballasts that have a ballast efficacy factor not less than the applicable values shown in Table N-2.

EXCEPTIONS:

1. Luminaires equipped with T-8 ballasts designed for dimming.

2. Luminaires that are:

(a) specifically and exclusively designed for use in applications where electromagnetic interference from electronic ballasts would interfere with critical, sensitive instrumentation and equipment such as medical imaging devices; and

(b) clearly, legibly, and permanently labeled, in at least 12 point type and in a place likely to be seen by the purchaser and the installer, "This 'luminaire' or 'fixture' is intended exclusively for use in applications where critical, sensitive equipment would be adversely affected by electronic lamp ballast electromagnetic radiation".

Table N-2
Standards for Under-Cabinet Luminaires

Lamp Length (inches)	*Minimum Ballast Efficacy Factor (BEF) for one lamp*	*Minimum Ballast Efficacy Factor (BEF) for two lamps*
≤29	4.70	2.80
>29 and ≤35	3.95	2.30
>35 and ≤41	3.40	1.90
>41 and ≤47	3.05	1.65
≥47	2.80	1.45

There are no changes proposed for Section 1605.3(o) through Section 1605.3(q).

(r) **Cooking Products and Food Service Equipment.**

(1) **Energy Standards for Food Service Equipment.** There is no energy efficiency standard or energy design standard for food service equipment other than commercial hot food holding cabinets.

(2) **Energy Efficiency Standards for Commercial Hot Food Holding Cabinets.** The idle energy rate of commercial hot food holding cabinets manufactured on or after

January 1, 2006 shall be no greater than 40 ~~W~~watts per cubic foot of measured interior volume.

(3) **Cooking Products.** See Section 1605.1(r) for the energy design standard for cooking products that are federally-regulated consumer products.

There are no changes proposed for Section 1605.3(s) through Section 1605.3(t).

(u) **Power Supplies and Consumer Audio and Video Equipment.**

(1) **Power Supplies.** The efficiency in the active mode of power supplies manufactured on or after the effective dates 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 shown shall be not greater than the applicable values shown in Table U-1 or Table U-2.

Power supplies that are made available by a product manufacturer solely as ~~accessories,~~ service parts~~,~~ or spare parts for its products manufactured prior to July 1, 2006 shall be exempt from the requirements in Table U-1 and Table U-2 until June 30, 2009.

Power supplies that are made available by a product manufacturer solely as ~~accessories,~~ service parts~~,~~ or spare parts for its products manufactured between July 1, 2006 and December 31, 2007 shall be exempt from the requirements in Table U-2 until December 31, 2010.

Table U-1
Standards for Power Supplies
Effective July 1, 2006

Nameplate Output	***Minimum Efficiency in Active Mode***
0 to < 1 ~~W~~watt	0.49 * Nameplate Output
≥~~>~~1 and ≤49 ~~W~~watts	0.09 * Ln(Nameplate Output) + 0.49
> 49 ~~W~~watts	0.84
	Maximum Energy Consumption in No-Load Mode
0 to <10 ~~W~~watts	0.5 ~~W~~watts
≥10 to ≤ 250 Wwatts	0.75 ~~W~~watts
Where Ln (Nameplate Output) = Natural Logarithm of the nameplate output expressed in ~~W~~watts.	

Table U-2
Standards for Power Supplies
Effective January 1, 2008

Nameplate Output	***Minimum Efficiency in Active Mode***
<1 ~~W~~watt	0.5 * Nameplate Output
≥1 and ≤51 ~~W~~watts	0.09*Ln(Nameplate Output) + 0.5
> 51 ~~W~~watts	0.85
	Maximum Energy Consumption in No-Load Mode
Any output	0.5 ~~W~~watts
Where Ln (Nameplate Output) = Natural Logarithm of the nameplate output expressed in ~~W~~watts.	

(2) **Consumer Audio and Video Equipment.** The power usage of consumer audio and video equipment manufactured on or after the effective dates shown shall be not greater than the applicable values shown in Table U-3. For equipment that consists of more than one individually powered product, each with a separate main plug, the individually powered products shall each have a power usage not greater than the applicable values shown in Table U-3

Table U-3
Standards for Consumer Audio and Video Equipment

Appliance Type	***Effective Date***	***Maximum Power Usage (Watts)***
Compact Audio Products	January 1, 2007	2 W in Audio standby-passive mode for those without a permanently illuminated clock display 4 W in Audio standby-passive mode for those with a permanently illuminated clock display
Televisions	January 1, 2006	3 W in TV standby-passive mode
Digital Versatile Disc Players and Digital Versatile Disc Recorders	January 1, 2006	3 W in Video standby-passive mode
Digital Television Adapters	January 1, 2007	1 W in STB standby-passive mode, 8 W in STB on mode

NOTE: Authority cited: Sections 25213, 25218(e), 25402(a)-(c), 25553(b) and 25960, Public Resources Code.
Reference: Sections 25216.5(d), 25402(a)-(c), 25553(b) and 25960, Public Resources Code.

Section 1606. Filing by Manufacturers; Listing of Appliances in Database.

There are no changes proposed for Section 1606(a)(1) through Section 1606(a)(3).

There are no changes proposed for Section 1606, Table V, except those subsections shown with changes below:

Table V
Data Submittal Requirements

	Appliance	*Required Information*	*Permissible Answers*
D	Evaporative Coolers	*Type	Direct, indirect, indirect/direct
		Evaporative Media Saturation Effectiveness (%) (for direct evaporative coolers only)	
		Media Type (for direct evaporative coolers only)	Expanded paper, woven plastic, aspen wood, rigid cellulose, other (specify).
		Cooling Effectiveness (for indirect evaporative coolers only)	
		Total Power (~~W~~watts)	
		Airflow Rate (CFM)	
		ECER	
	Ceiling Fans, Except Low-Profile Ceiling Fans	CFM (low, medium, high)	
		Watts (low, medium, high)	
		Efficacy (low, medium, high) [CFM/~~W~~watt]	
		Light Source Type	Compact fluorescent, incandescent, other (specify), None
	Low-Profile Ceiling Fans	none	
	Whole House Fans and Residential Exhaust Fans	*Residential Exhaust Fan Type	Inline single-port, Inline multi-port, Range hood, Bathroom and utility room
		*Whole-House Fan Type	Belt-drive single-fan, Belt-drive dual-fan, Direct-drive single-fan, Direct-drive dual-fan
		Fan Motor Power (watts)	
		Air Flow (CFM)	
		Air Flow Efficiency (CFM/~~W~~watt)	

	Appliance	*Required Information*	*Permissible Answers*
F		Standby Loss, % per hour (except for those models > 140 gallons for which exemption from standby loss standard is claimed)	
		Standby Loss, ~~W~~watts (except for those models > 140 gallons for which exemption from standby loss standard is claimed)	
		R-value of Insulation (for models > 140 gallons except those which comply with standby loss standard)	

	Appliance	*Required Information*	*Permissible Answers*
G	Residential Pool Pumps	Motor Construction	PSC, Cap Start-Cap Run, ECM, Cap Start-induction run, split-phase
		Motor Design	Single-speed, dual-speed, multiple-speed, variable- speed
		Motor has Capability of Operating at Two or More Speeds with the Low Speed having a Rotation Rate that is No More than One-Half of the Motor's Maximum Rotation Rate	Yes, no
		Pool Pump Motor Service Factor	
		Motor Efficiency (%)	
		Rated Horsepower	
		Flow for Curve 'A' (in gpm)	

		Power for Curve 'A' (in ~~W~~watts)	
		Energy Factor for Curve 'A' (in gallons per ~~W~~watt-hour)	
		Flow for Curve 'B' (in gpm)	
		Power for Curve 'B' (in ~~W~~watts)	
		Energy Factor for Curve 'B ' (in gallons per ~~W~~watt-hour)	

	Appliance	***Required Information***	***Permissible Answers***
K	Federally-regulated general service fluorescent lamps, ~~and~~ federally regulated incandescent reflector lamps, and state regulated incandescent reflector lamps	*Type	4-foot medium bi-pin 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, incandescent reflector lamp
		Lumens	
		Nominal Lamp Wattage	
		Color Rendering Index (for general service fluorescent lamp models only)	
		Average Lamp Efficacy	
	State-regulated general service incandescent lamps	Rated Lumens	
		Rated Lamp Wattage	
		Bulb finish	Clear, frost, soft white
		Average Lamp Efficacy	
		ANSI-designated bulb Shape	A-15, A-19, A-21, A-23, A-25, PS-25, PS-30, BT-14.5, BT-15, CP-19, TB-19, CA-22
	~~State-regulated enhanced spectrum incandescent lamps~~	~~Rated Lumens~~	
		~~Rated Lamp Wattage~~	
		~~Average Lamp Efficacy~~	
		~~ANSI-designated bulb Shape~~	~~A-15, A-19, A-21, A-23, A-25, PS-25, PS-30, BT-14.5, BT-15, CP-19, TB-19, CA-22~~

N	Torchieres	*Lamp Type of Upward-Facing Lamp(s)	Screw-based Incandescent, Halogen, Fluorescent Pin-based, Other (specify)
		*Lamp Type of Side Lamp(s)	Screw-based Incandescent, Halogen, Fluorescent Pin-based, Other, None (specify)
		Total Number of Lamp Sockets	
		Maximum Possible Power Demand, All Sockets (watts)	
		Method of Insuring 190 Watt Maximum Power Consumption	Current-limiting Device, Thermal Switch, Other (specify)
	Metal Halide Luminaires	*Lamp Position (orientation)	Vertical Base-Up, Vertical Base-Down, Horizontal, Universal, Other (specify)
		Lamp Rating (watts)	
		Ballast Type [only applies to models manufactured on or after January 1, 2006]	Probe-start electronic, probe-start magnetic, pulse-start electronic, pulse-start magnetic, other (specify)
	Under-Cabinet Fluorescent Fixtures (Luminaires)	Lamp Length (inches)	
		Number of Lamps for which Fixture (Luminaire) is Designed	
		Ballast Efficacy Factor	

Section 1606 (a)

(4) Declaration.

There are no changes proposed for Section 1606(a)(4)(A)(i) through Section 1606(a)(4)(A)(iv)

There are no changes proposed for Section 1606(a)(4)(A)(v)(I) through Section 1606(a)(4)(A)(v)(V)

(VI) for ceiling fans, each package containing a ceiling fan whose diameter exceeds 50 inches is marked, permanently and legibly on an accessible and conspicuous place on the unit's packaging, in characters no less than 1/4", the unit's airflow at high, medium, and low speed in CFM, and the unit's air flow efficiency in CFM/~~W~~ watt at high, medium and low speed;

(VII) for commercial pre-rinse spray valves, each unit is marked, permanently and legibly on an accessible and conspicuous place on the unit, in characters no less than 1/8", the flow rate of the unit, in gallons-per minute (gpm) at 60 psi;

(VIII) for residential pool pumps, each pool pump is marked permanently and legibly on an accessible and conspicuous place on the unit, in characters no less than 1/4", with both the rated horsepower of the pump and the total horsepower of the motor.

There are no changes proposed for Section 1606(a)(4)(B) through the end of Section 1606.

Section 1607. Marking of Appliances.

There are no changes proposed for Section 1607(a) through Section 1607(c).

(d) **Energy Performance Information**.

There are no changes proposed for Section 1607(d)(1) through Section 1607(d)(6).

Section 1607(d)(7)

(7) **Ceiling Fans**. Each package containing a ceiling fan whose diameter exceeds 50 inches shall be marked, permanently and legibly on an accessible and conspicuous place on the unit's packaging, in characters no less than 1/4", the unit's airflow at high, medium, and low speed in CFM, and the unit's air flow efficiency in CFM/~~W~~watt at high, medium and low speed.

There are no changes proposed for Section 1607(d)(8) through the end of Section 1607.

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

There are no changes proposed for Section 1608(a) through Section 1608(e).

Section 1608(f)
(f) **Costs.**

Except as otherwise provided in this Article, all costs of initial tests showing results as described in Section 1608(d)(2)(A) or Section 1608(e)(1)(A) shall be borne by the Commission. All costs of all other tests shall be paid by the manufacturer.

There are no changes proposed for Section 1608(g) through the end of Section 1608.