H-4186.2 _____

HOUSE BILL 2758
_____

State of Washington   **60th Legislature**   **2008 Regular Session**

By Representatives Morris, Morrell, and Hudgins

Read first time 01/16/08.   Referred to Committee on Technology, Energy & Communications.

1   AN ACT Relating to adding products to the energy efficiency code;
2 and amending RCW 19.260.040.

3 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

4   **Sec. 1.** RCW 19.260.040 and 2006 c 194 s 3 are each amended to read
5 as follows:
6   The legislature establishes the following minimum efficiency
7 standards for the types of new products set forth in RCW 19.260.030.
8   (1)(a) Automatic commercial ice cube machines must have daily
9 energy use and daily water use no greater than the applicable values in
10 the following table:

Equipment type	Type of cooling	Harvest rate (lbs. ice/24 hrs.)	Maximum energy use (kWh/100 lbs.)	Maximum condenser water use (gallons/100 lbs. ice)
Ice-making head	water	<500	7.80 - .0055H	200 - .022H
		>=500<1436	5.58 - .0011H	200 - .022H
		>=1436	4.0	200 - .022H

Equipment Type		Capacity		Maximum water use
Ice-making head	air	450	10.26 - .0086H	Not applicable
		>=450	6.89 - .0011H	Not applicable
Remote condensing but not remote compressor	air	<1000	8.85 - .0038	Not applicable
		>=1000	5.10	Not applicable
Remote condensing and remote compressor	air	<934	8.85 - .0038H	Not applicable
		>=934	5.3	Not applicable
Self-contained models	water	<200	11.40 - .0190H	191 - .0315H
		>=200	7.60	191 - .0315H
Self-contained models	air	<175	18.0 - .0469H	Not applicable
		>=175	9.80	Not applicable

Where H= harvest rate in pounds per twenty-four hours which must be reported within 5% of the tested value.

"Maximum water use" applies only to water used for the condenser.

(b) For purposes of this section, automatic commercial ice cube machines shall be tested in accordance with ARI 810-2003 test method as published by the air-conditioning and refrigeration institute. Ice-making heads include all automatic commercial ice cube machines that are not split system ice makers or self-contained models as defined in ARI 810-2003.

(2) Commercial clothes washers must have a minimum modified energy factor of 1.26. For the purposes of this section, capacity and modified energy factor are defined and measured in accordance with the current federal test method for clothes washers as found at 10 C.F.R. Sec. 430.23.

(3) Commercial prerinse spray valves must have a flow rate equal to or less than 1.6 gallons per minute when measured in accordance with the American society for testing and materials' "Standard Test Method for Prerinse Spray Valves," ASTM F2324-03.

(4)(a) Commercial refrigerators and freezers must meet the applicable requirements listed in the following table:

Equipment Type	Doors	Maximum Daily Energy Consumption (kWh)
Reach-in cabinets, pass-through cabinets, and roll-in or roll-through cabinets that are refrigerators	Solid	0.10V+ 2.04
	Transparent	0.12V+ 3.34
Reach-in cabinets, pass-through cabinets, and roll-in or roll-through cabinets that are "pulldown" refrigerators	Transparent	.126V+ 3.51

Reach-in cabinets, pass-through cabinets, and roll-in or roll-through cabinets that are freezers	Solid	0.40V+ 1.38
	Transparent	0.75V+ 4.10
Reach-in cabinets that are refrigerator-freezers with an AV of 5.19 or higher	Solid	0.27AV - 0.71

kWh= kilowatt hours

V= total volume (ft^3)

AV= adjusted volume= [1.63 x freezer volume (ft^3)]+ refrigerator volume (ft^3)

(b) For purposes of this section, "pulldown" designates products designed to take a fully stocked refrigerator with beverages at 90 degrees F and cool those beverages to a stable temperature of 38 degrees F within 12 hours or less. Daily energy consumption shall be measured in accordance with the American national standards institute/American society of heating, refrigerating and air-conditioning engineers test method 117-2002, except that the back-loading doors of pass-through and roll-through refrigerators and freezers must remain closed throughout the test, and except that the controls of all appliances must be adjusted to obtain the following product temperatures.

Product or compartment type	Integrated average product temperature in degrees Fahrenheit
Refrigerator	38$\pm$ 2
Freezer	0$\pm$ 2

(5) Metal halide lamp fixtures designed to be operated with lamps rated greater than or equal to 150 watts but less than or equal to 500 watts shall not contain a probe-start metal halide lamp ballast.

(6)(a) Single-voltage external AC to DC power supplies shall meet the requirements in the following table:

Nameplate output	Minimum Efficiency in Active Mode
< 1 Watt	0.49 * Nameplate Output
> or= 1 Watt and < or= 49 Watts	0.09 * Ln (Nameplate Output)+ 0.49
> 49 Watts	0.84
	Maximum Energy Consumption in No-Load Mode
< 10 Watts	0.5 Watts

> or= 10 Watts and < or= 250 Watts	0.75 Watts

Where Ln (Nameplate Output) - Natural Logarithm of the nameplate output expressed in Watts

(b) For the purposes of this section, efficiency of single-voltage external AC to DC power supplies shall be measured in accordance with the United States environmental protection agency's "Test Method for Calculating the Energy Efficiency of Single-Voltage External AC to DC and AC to AC Power Supplies," by Ecos Consulting and Power Electronics Application Center, dated August 11, 2004.

(7)(a) The lamp electrical power input of state-regulated incandescent reflector lamps ((shall meet the minimum average lamp efficacy requirements for federally regulated incandescent reflector lamps contained in 42 U.S.C. Sec. 6295(i)(1)(A).)) manufactured on or after the effective dates listed in the following table, shall be no greater than the applicable requirements shown in the following table:

Frost or Clear	Maximum Power Use (watts)	
Lumens (L)	January 1, 2009	January 1, 2009
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, 2009	January 1, 2009
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

1	$562 \leq L < 730$	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 20.5
2	$730 \leq L < 909$	(0.0500 * Lumens) + 22.5	57
3	$909 \leq L < 963$	(0.0500 * Lumens) + 22.5	(0.2200 * Lumens) - 143
4	$963 \leq L < 1010$	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 20.5
5	$1010 \leq L < 1250$	(0.0500 * Lumens) + 22.5	71
6	$1250 \leq L < 1310$	(0.0500 * Lumens) + 22.5	(0.2500 * Lumens) - 241.5
7	$1310 \leq L < 1490$	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 20.5
8	$1490 \leq L < 1800$	(0.0500 * Lumens) + 22.5	95
9	$1800 \leq L < 1850$	(0.0500 * Lumens) + 22.5	(0.4000 * Lumens) - 625
10	$L \geq 1850$	(0.0500 * Lumens) + 22.5	(0.0500 * Lumens) + 22.5

11 (b) The average lamp efficacy of state-regulated incandescent
12 reflector lamps manufactured on or after January 1, 2009, shall be not
13 less than the applicable requirements listed in the following table:

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

21 (c) The following types of incandescent lamps are exempt from these
22 requirements:
23 (i) Lamps rated at fifty watts or less of the following types: BR
24 30, ER 30, BR 40, and ER 40;
25 (ii) Lamps rated at sixty-five watts of the following types: BR
26 30, BR 40, and ER 40; and
27 (iii) R 20 lamps of forty-five watts or less.
28 (8) Unit heaters must be equipped with intermittent ignition
29 devices and must have either power venting or an automatic flue damper.
30 (9) Wine chillers designed and sold for use by an individual must
31 not exceed the applicable requirements listed in the following table:

Equipment Type	Maximum Annual Appliance Energy Consumption (kWh)
Wine chillers with manual defrost	$13.7V + 267$
Wine chillers with automatic defrost	$17.4V + 344$

V = volume in ft^3.

(10) Freezers that are designed and sold for use by an individual consumer that exceed 30 ft^3 but do not exceed 39 ft^3, and are manufactured on or after January 1, 2009, shall be no greater than the applicable requirements listed in the following table:

Appliance	Maximum Annual Energy Consumption (kWh)
Upright Freezers with manual defrost	$7.55AV + 258.3$
Upright Freezers with automatic defrost	$12.43AV + 326.1$
Chest Freezers	$9.88AV + 143.7$

AV = adjusted total volume, expressed in ft^3, which is 1.73 x freezer volume (ft^3).

(11) The internal illumination of the following appliances, manufactured on or after January 1, 2009, shall be only by (1) T-8 fluorescent lamps with electronic ballasts, or (2) a lighting system that has no fewer lumens per watt than a system using only T-8 fluorescent lamps with electronic ballasts:

(a) Remote reach-in cabinets with transparent doors, remote pass-through cabinets with transparent doors, and remote roll-in or roll-through cabinets with transparent doors;

(b) Cabinets without doors; and

(c) Wine chillers that are not consumer products.

(12)(a) Walk-in refrigerators and walk-in freezers manufactured on or after the effective dates shown in the following table, with the applicable motor types shown in the following table, shall be manufactured with the required components shown in the following table:

Motor Type	Effective Date	Required Components

All	January 1, 2009	Automatic door closers that firmly close all reach-in doors
All	January 1, 2009	Automatic door closers on all doors no wider than four feet or higher than seven feet, that firmly close walk-in doors that have been closed to within one inch of full closure
All	January 1, 2009	Envelope insulation > R-28 for Refrigerators
All	January 1, 2009	Envelope insulation > R-36 for Freezers
Condenser Fan Motors < 1 HP	January 1, 2009	(i) Electronically commutated motors; (ii) Permanent split capacitor-type motors; (iii) Polyphase motors > 1/2 HP; or (iv) Motors of equivalent efficiency as determined by the department
Single-phase Evaporator Fan Motors < 1 HP and < 460 volts	January 1, 2009	(i) Electronically commutated motors; or (ii) Permanent split capacitor-type motors
Single-phase Evaporator Fan Motors < 1 HP and < 460 volts	January 1, 2011	Electronically commutated motors

        (b) In addition to the requirements in (a) of this subsection,
walk-in refrigerators and walk-in freezers with transparent reach-in
doors that are manufactured on or after January 1, 2009, shall meet the
following requirements:
        (i) Transparent reach-in doors shall be of triple-pane glass with
either heat-reflective treated glass or gas fill;
        (ii) If the appliance has an antisweat heater without antisweat
heat controls, then the appliance shall have a total door rail, glass,
and frame heater power draw of no more than 40 watts (freezers) or 17
watts (refrigerators) per foot of door frame width; and
        (iii) If the appliance has an antisweat heater with antisweat heat
controls, and the total door rail, glass, and frame heater power draw
is more than 40 watts (freezers) or 17 watts (refrigerators) per foot
of door frame width, then: The antisweat heat controls shall reduce

HB 2758

1 the energy use of the antisweat heater in an amount corresponding to
2 the relative humidity in the air outside the door or to the
3 condensation on the inner glass pane.
4   (13)(a) Refrigerated canned and bottled beverage vending machines
5 manufactured on or after January 1, 2009, shall be equipped with hard
6 wired controls or software capable of automatically placing the machine
7 into each of the following low power mode states and automatically
8 returning the machine to its normal operating conditions at the
9 conclusion of the low power mode:
10   (i) Lighting low power state, which means the lights are off for an
11 extended period;
12   (ii) Refrigeration low power state, which means the average
13 beverage temperature is allowed to rise above 40° F for an extended
14 period of time; and
15   (iii) Whole machine low power state, which means the lights are off
16 and the refrigeration operates in its low power state.
17   (b) The low power mode-related controls or software shall be
18 capable of on-site adjustments by the vending operator or machine
19 owner.
20   (14) The daily energy consumption for refrigerated canned and
21 bottled beverage vending machines, and wine chillers that are not
22 consumer products, manufactured on or after the effective dates shown
23 shall be no greater than the applicable requirements listed in the
24 following table:

Maximum Daily Energy Consumption (kWh)		
Appliance	January 1, 2009	January 1, 2010
Refrigerated canned and bottled beverage vending machines when tested at 90° F ambient temperature except multipackage units	$0.55 (8.66 + (0.009 \times C))$	$0.55 (8.66 + (0.009 \times C))$
Refrigerated multipackage canned and bottled beverage vending machines when tested at 75° F ambient temperature	$0.55 (8.66 + (0.009 \times C))$	$0.55 (8.66 + (0.009 \times C))$

V = total volume (ft^3)

AV = Adjusted Volume = [1.63 x freezer volume (ft^3)] + refrigerator volume (ft^3)

C = Rated capacity (number of 12 ounce cans)

(15) 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, 2009, shall not exceed 1.2 kWh/day.

(16) Central air conditioners shall meet the following minimum energy efficiency standards:

(a) Groundwater-source heat pumps, and ground-source heat pumps manufactured on or after January 1, 2009, shall not be less than the applicable requirements listed in the following table:

Appliance	Rating Condition	Minimum Standard
Groundwater-source heat pumps (cooling)	59° F entering water temperature	16.2 EER
Groundwater-source heat pumps (heating)	50° F entering water temperature	3.6 COP
Ground-source heat pumps (cooling)	77° F entering brine temperature	13.4 EER
Ground-source heat pumps (heating)	32° F entering brine temperature	3.1 COP

(b) Air-cooled, water-cooled, glycol-cooled, and evaporatively cooled computer room air conditioners manufactured on or after the effective dates shown, shall be not less than the applicable requirements listed in the following two tables:

		Minimum EER (Btu/watt-hour)			
Appliance	Cooling Capacity (Btu/hr)	Effective January 1, 2009	Effective January 1, 2010	Effective January 1, 2011	Effective January 1, 2012
	< 65,000	8.3	9.3	10.7	11.0

HB 2758

Appliance	Cooling Capacity	Effective January 1, 2009	Effective January 1, 2010	Effective January 1, 2011	Effective January 1, 2012
Air-cooled computer room air conditioners	≥ 65,000 and ≤ 135,000	7.7	8.3	10.4	10.4
	≥ 135,000 - and < 240,000		7.9	10.2	10.2

		Minimum EER (Btu/watt-hour)			
Appliance	Cooling Capacity (Btu/hr)	Effective January 1, 2009	Effective January 1, 2010	Effective January 1, 2011	Effective January 1, 2012
Water-cooled, glycol-cooled and evaporatively cooled computer room air conditioners	< 65,000	8.1	8.3	11.1	11.1
	≥ 65,000 and < 135,000	8.4	9.5	10.5	10.5
	≥ 135,000 - and < 240,000		8.6	8.6	10.0

Air-cooled unitary air conditioners manufactured on or after the effective dates shown, shall be not less than the applicable requirements listed in the following table:

Appliance	Cooling Capacity	Minimum Standards	
		Effective January 1, 2009	Effective January 1, 2010
Air-cooled unitary air conditioners	≥ 240,000 and < 760,000	10.0 EER	10.5 EER

(17)(a) The efficiency of boilers shall be no less than, and the standby loss shall be no greater than, the applicable requirements listed in the following table:

			Standards		
Appliance	Output (Btu/hr)	Minimum AFUE %	Maximum Combustion Efficiency %*	Maximum Standby Loss (watts)	
Gas steam boilers with 3-phase electrical supply	< 300,000	75	-	-	
All other boilers with 3-phase electrical supply	< 300,000	80	-	-	
Natural gas, nonpackaged boilers	≥ 300,000		80	147	
LPG nonpackaged boilers	≥ 300,000	-	80	352	
Oil, nonpackaged boilers	≥ 300,000		83	-	

* At both maximum and minimum rated capacity, as provided and allowed by the controls.

(b) The efficiency of central furnaces shall be no less than, and the standby loss shall be no greater than, the applicable requirements listed in the following table:

Appliance	Application	Minimum Efficiency %
Central furnaces with 3-phase electrical supply < 225,000 Btu/hour	Mobile Homes	75 AFUE
	All Others	78 AFUE or 80 Thermal Efficiency (at manufacturer's option)

(c) The efficiency of duct furnaces, and unit heaters shall be no less than, and the standby loss shall be no greater than, the applicable requirements listed in the following table:

Appliance	Fuel	Minimum Thermal Efficiency %nl	Maximum Energy

		At maximum rated capacity	At minimum rated capacity	Consumption during standby (watts)
Duct furnaces	Natural gas	80	75	10
Duct furnaces	LPG n2	80	75	147
Unit heaters	Natural gas	80	74	10
Unit heaters	LPG n2	80	74	147
Unit heaters	Oil	81	81	N/A

n1 As provided and allowed by the controls.

n2 Designed expressly for use with LPG.

(d) Natural gas-fired unit heaters and duct furnaces manufactured on or after January 1, 2009, shall have either power venting or an automatic flue damper.

(18)(a) The standby loss of hot water dispensers and minitank electric water heaters manufactured on or after January 1, 2009, shall be not greater than 35 watts.

(b) This subsection does not apply to any water heater:

(i) That is within the scope of 42 U.S.C. Sec. 6292(a)(4) or 6311(1)(F);

(ii) That has a rated storage volume of less than 20 gallons; and

(iii) For which there is no federal test method applicable to that type of water heater.

(19)(a) The energy factor of small water heaters manufactured on or after January 1, 2009, that are not federally regulated consumer products, other than hot water dispensers, booster water heaters, and minitank electric water heaters, shall be no less than the applicable requirements listed in the following table:

Table F-5

Standings for Small Water Heaters that are not Federally Regulated Consumer Products

Appliance	Energy Source	Input Rating	Rated Storage Volume (gallons)	Minimum Energy Factor n1
Storage water heaters	Gas	≤ 75,000 Btu/hr	< 20	0.62 - (.0019 x V)
Storage water heaters	Gas	≤ 75,000 Btu/hr	> 100	0.62 - (.0019 x V)
Storage water heaters	Oil	≤ 105,000 Btu/hr	> 50	0.59 - (.0019 x V)
Storage water heaters	Electricity	≤ 12 kW	> 120	0.93 - (.00132 x V)
Instantaneous water heaters	Gas	≤ 50,000 Btu/hr	Any	0.62 - (.0019 x V)
Instantaneous water heaters	Gas	≤ 200,000 Btu/hr	≥ 2	0.62 - (.0019 x V)
Instantaneous water heaters	Oil	≤ 210,000 Btu/hr	Any	0.59 - (.0019 x V)
Instantaneous water heaters	Electricity	≤ 12 kW	Any	0.93 - (.00132 x V)

n1 Volume (V) = rated storage volume in gallons.

(b) This subsection does not apply to any water heater:

(i) That is within the scope of 42 U.S.C. Sec. 6292(a)(4) or 6311(1)(F);

(ii) That has a rated storage volume of less than 20 gallons; and

(iii) For which there is no federal test method applicable to that type of water heater.

(20) The following standards are established for pool heaters, residential pool pumps, and portable electric spas:

(a) Natural gas pool heaters shall not be equipped with constant burning pilots.

(b) All pool heaters shall have a readily accessible on-off switch that is mounted on the outside of the heater and that allows shutting off the heater without adjusting the thermostat setting.

(c) For heat pump pool heaters manufactured on or after January 1, 2009, the average of the coefficient of performance (COP) at Standard Temperature Rating and the coefficient of performance (COP) at Low Temperature Rating shall be not less than 3.5.

(d) Pool pump motors shall meet the following standards:

(i) Pool pump motors manufactured on or after January 1, 2009, may not be split-phase or capacitor start -- induction run type.

(ii) Pool pump motors with a capacity of 1 HP or more which are manufactured on or after January 1, 2009, shall have the capability of operating at two or more speeds with a low speed having a rotation rate that is no more than one-half of the motor's maximum rotation rate.

(iii) Pool pump motor controls manufactured on or after January 1, 2009, shall have the capability of operating the pool pump at at least two speeds. The default circulation speed shall be the lowest speed, with a high speed override capability being for a temporary period not to exceed one normal cycle.

(e) The standby power of portable electric spas manufactured on or after January 1, 2009, shall be not greater than $5(V^{2/3})$ watts where V = the total volume, in gallons.

(21)(a) The leakage rate of tub spout diverters shall be no greater than the applicable requirements shown in the following table:

Appliance	Testing Conditions	Maximum Leakage Rate Effective January 1, 2009
	When new	0.01 gpm
Tub spout diverters	After 15,000 cycles of diverting	0.05 gpm

(b) Showerhead-tub spout diverter combinations shall meet both the standard for showerheads and the standard for tub spout diverters.

(22) The idle energy rate of commercial hot food holding cabinets manufactured on or after January 1, 2009, shall be no greater than 40 watts per cubic foot of measured interior volume.

(23) Distribution Transformers. The efficiency of all low-voltage dry-type distribution transformers when tested at 35 percent of the rated output power, manufactured on or after January 1, 2009, shall be no less than the applicable requirements listed in the following table:

Standards for Distribution Transformers			
Single Phase		Three Phase	
Rated Power	Minimum	Rated Power	Minimum

Output kVa	Efficiency %	Output kVa	Efficiency %
≥ 15 < 25	97.7	≥ 15 < 30	97.0
≥ 25 < 37.5	98.0	≥ 30 < 45	97.5
≥ 37.5 < 50	98.2	≥ 45 < 75	97.7
≥ 50 < 75	98.3	≥ 75 < 112.5	98.0
≥ 75 < 100	98.5	≥ 112.5 < 150	98.2
≥ 100 < 167	98.6	≥ 150 < 225	98.3
≥ 167 < 250	98.7	≥ 225 < 300	98.5
≥ 250 < 333	98.8	≥ 300 < 500	98.6
333	98.9	≥ 500 < 750	98.7
		≥ 750 < 1000	98.8
		1000	98.9

(24)(a) The efficiency in the active mode of power supplies when tested at 115 volts at 60 Hz, manufactured on or after the effective dates shall be no less than the applicable requirements 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 no greater than the applicable requirements shown in the following tables:

(i) This table applies to external power supplies used with laptop computers, mobile phones, printers, print servers, scanners, personal digital assistants (PDAs), and digital cameras, on or after January 1, 2009. This table applies to external power supplies used with wireline telephones and all other applications on or after July 1, 2009.

Nameplate Output	Minimum Efficiency in Active Mode
0 to < 1 watt	0.49 * Nameplate Output
≥ 1 and ≤ 49 watts	0.09 * Ln (Nameplate Output) + 0.49
> 49 watts	0.84
	Maximum Energy Consumption in No-Load Mode
0 to < 10 watts	0.5 watts
≥ 10 to ≤ 250 watts	0.75 watts

Where Ln (Nameplate Output) = Natural Logarithm of the nameplate output expressed in watts.

(ii) This table applies to external power supplies on or after July 1, 2010.

Nameplate Output	Minimum Efficiency in Active Mode
≤ 1 watt	0.5 * Nameplate Output
≥ 1 and ≤ 51 watts	0.09 * Ln (Nameplate Output) + 0.5
> 51 watts	0.85
	Maximum Energy Consumption in No-Load Mode
Any output	0.5 watts

Where Ln (Nameplate Output) = Natural Logarithm of the nameplate output expressed in watts.

(b) 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 requirements in this subsection until five years after the effective dates indicated.

(25) The power usage of consumer audio and video equipment manufactured on or after the effective dates shown shall be not greater than the applicable shown in the following table. 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 requirements shown in the following table:

Appliance Type	Effective Date	Maximum Power Usage (watts)
Compact Audio Products	January 1, 2010	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, 2009	3 W in TV standby-passive mode

1	Digital Versatile Disc Players and	January 1, 2009	3 W in Video standby-passive mode
2	Digital Versatile Disc Recorders		
3	Digital Television Adapters	January 1, 2011	1 W in standby-passive mode,
4			8 W in STB on mode

--- END ---