

The MaxLite logo features a large, bold, white letter 'M' with a green outline, followed by the word 'axLite' in a white, sans-serif font. A small registered trademark symbol (®) is located to the upper right of the 'e' in 'Lite'.

MaxLite®

A NEW WAVE OF LIGHT

What You Need to Know About California Compliance – T20, T24 and JA8

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WHAT YOU NEED TO KNOW ABOUT CALIFORNIA COMPLIANCE – T20, T24, & JA8

Presented by: Chris Primous - VP of OEM National Accts and Industry Relations, MaxLite



Topics to be covered

- California lighting compliance overview
- Understanding Title 20
- Understanding T24
 - What is JA8?
- Differences in the two programs
- Finding compliant products
- Q&A



Note: Link to presentation material will be made available to all participants soon after webinar

CALIFORNIA LIGHTING COMPLIANCE

Title 20

- Regulates appliances sold in the state
- Clearly defines a very specific scope of state-regulated appliances
 - Applicable to individual products such as lamps (bulbs), portable luminaires
- Mandatory for all appliances covered under scope of state regulations. Such products must be certified to be legally sold in the state. Hefty fines may apply for non-compliance



Title 24

- Building code standards for all new construction in the state of California
 - Applicable to buildings, not individual products
- Mandatory for new construction and remodels (all permits). Enforced by inspectors
- Differing requirements for Non-Residential and Residential construction
 - No specific individual luminaire requirements for Non-Residential
 - Some Residential construction requires state-certified (JA8) lighting products



TITLE 20

Mandatory Appliance Efficiency Regulations – Lamps(bulbs), Portable Luminaires, Components



WHAT IS CALIFORNIA TITLE 20?

- Title 20 is California's appliance efficiency regulations
 - Includes Federal standards (adopted verbatim) for lighting products covered by Department of Energy and additional State standards required for lighting and other products
 - current regulations: <http://www.energy.ca.gov/appliances/>
- Manufacturers must certify regulated products to the California Energy Commission prior to being sold or offered for sale in the state of California
- Failure to certify products can result in fines of up to \$2,500 per non-compliant item



LIGHTING PRODUCTS REGULATED UNDER TITLE 20

Federally and California regulated

- Fluorescent Lamp Ballasts
- General Service Fluorescent Lamps
- Incandescent Reflector Lamps
- Med. Base CFLs
- General Service Incandescent Lamps and Modified Spectrum General Service Incandescent Lamps
- Candelabra and Intermediate Base Incandescent Lamps
- Emergency Lighting and Self-Contained Lighting Controls
- Traffic Signal Modules and Traffic Signal Lamps
- Torchieres
- Metal Halide Lamp Fixtures

California-only State-regulated

- State-Regulated Incandescent Reflector Lamps
- State-Regulated General Service Incandescent Lamps, General Service Lamps, and Modified Spectrum Incandescent Lamps
- GU-24 Base Lamps
- Illuminated Exit Signs
- Self-Contained Lighting Controls
- Metal Halide Luminaires
- Under-Cabinet Luminaires (commercial office only)
- Portable Luminaires
- GU-24 Adaptors

All products in both lists shown are required to be certified and registered in CEC database

LAMPS (BULBS) REGULATED UNDER TITLE 20

- **General Service Lamps (GSLs)**
 - INC, CFL, LED, OLED lamps with medium screw base and intended for general service applications
 - Only includes lamps with output $\geq 310\text{lm}$, $\leq 2,600\text{lm}$
 - Does not include INC reflector lamps, fluorescent tubes
- **State-Regulated LED lamps (SLEDs)**
 - LED lamps with E12, E17, E26, GU24 base (only these bases)
 - Includes downlight retrofits with bases above
 - Output $\leq 2600\text{lm}$
 - CCT = 2200K to 7000K
- **State-regulated Small Diameter Directional Lamps (SDDLs)**
 - 12V, 24V, 120V INC, CFL, LED lamps with Dia. $\leq 2.25''$
 - Pin Base or E26 Base
 - Only includes lamps with output $\leq 850\text{lm}$ or Wattage $\leq 75\text{W}$; and Rated Life $> 300\text{hrs}$



3 categories of lamps are regulated by the state of California under T20

GSL REGULATIONS UNDER TITLE 20

General Service Lamp (GSL) definition/scope:

- Only includes lamps with med. screw base sockets
- INC, CFL, LED, OLED (all technologies) lamps intended for general service applications and capable of being operated at 110V to 130V
- Only includes lamps with lumen output $\geq 310\text{lm}$ and $\leq 2,600\text{lm}$
- Does not include INC reflector lamps, fluorescent tubes
- Includes most INCANDESCENT omni med screw base lamps



GSL REGULATIONS UNDER TITLE 20

General Service Lamp (GSL) requirements:

- Applies to all GSLs manufactured on/after January 1, 2018
- Requirements for GSLs have been in place in 2011. Increased requirements in 2018
- **Only includes lamps with med screw base (E26), output $\geq 310\text{lm}$, $\leq 2,600\text{lm}$**



Effective date	Min. Rated Lifetime	Min. Efficacy	Min. CRI
January 1, 2018	1,000 hours	45 lm/w	80CRI (non-modified spectrum) 75 CRI (modified spectrum)

Lamps that show a manufacturing date code prior to Jan. 1, 2018 can still be sold in the state without meeting these regulations

These regulations mean most med. screw base Incandescent Lamps need to be 45 lm/w to be sold in CA

GSL REGULATIONS UNDER TITLE 20

Products exempt from 45lm/w and other state requirements for General Service Lamps:

- Lamps without med screw base (E26), lamps with output < 310lm or > 2,600lm
- Linear fluorescent, incandescent reflector lamps
- Lamps packaged with ceiling fan light kits
- 22 other lamp types
 - Appliance lamp
 - Marine Lamp
 - Shatter-resistant lamp
 - Vibration service lamp
 - Black light lamp
 - Marine signal service lamp
 - Sign service lamp
 - G shape lamp (with dia > 5")
 - Bug lamp
 - Mine service lamp
 - Silver bowl lamp
 - T shape lamp (≤ 40W or length > 10")
 - Colored lamp
 - Plant light lamp
 - Showcase lamp
 - Infrared lamp
 - Reflector lamp
 - 3-way lamp
 - B, BA, CA, F, G16 ½, G-25, G30, S, M-14 lamp of ≤ 40W
 - Left-hand thread lamp
 - Rough service lamp
 - Traffic signal lamp

GSL regulations are primarily for common med. screw base omni INC and CFLs

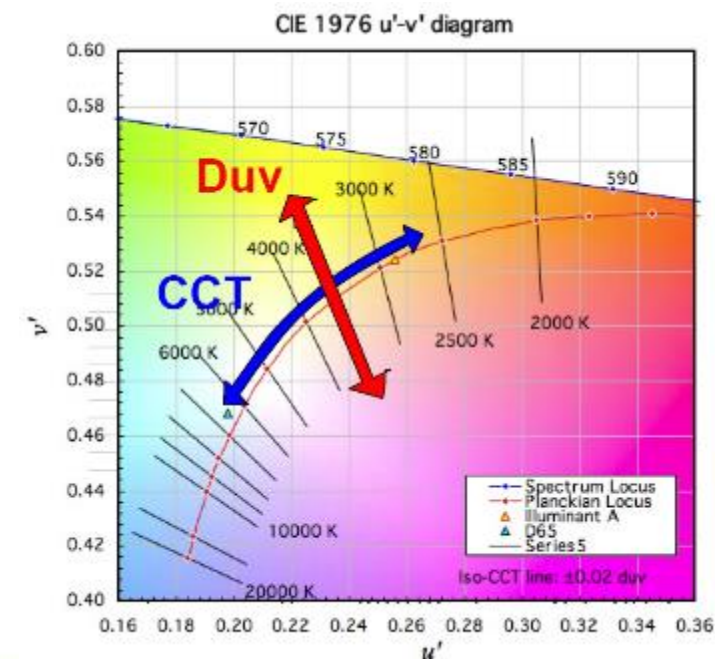
Note: Some of these lamps are still regulated under one of other two state regulations: LED Lamps, SDDLs



LED LAMP (BULB) REGULATIONS UNDER TITLE 20

State-Regulated LED Lamp (SLED) definition/scope:

- LED lamps with E12, E17, E26, GU24 base (only these bases)
- Includes downlight retrofits with bases above
- Output $\leq 2600\text{lm}$
- Capable of producing white light with:
 - CCT = 2200K to 7000K
 - Duv between -0.012 and 0.012



LED LAMP (BULB) REGULATIONS UNDER TITLE 20

State-regulated LED lamps (SLEDs) manufactured on/after January 1, 2018 with output $\geq 150\text{lm}$ (E12 base) or $\geq 200\text{lm}$ (other bases)

- **CRI ≥ 82**
 - R1 through R8 values ≥ 72
- PF ≥ 0.7
- Rated Life $\geq 10,000$ hrs
- Minimum efficacy and compliance score per below:

	Effective date	Min. Compl Score	Min. Efficacy
TIER 1	January 1, 2018	282	68 lm/w
TIER 2	July 1, 2019	297	80 lm/w

Example:

68 lm/w + (2.3 x 90 CRI) => 275 compl score **FAIL**

75 lm/w + (2.3 x 90 CRI) => 282 compl score **PASS**

SLEDs are defined as:

- LED lamps with E12, E17, E26, GU24 base
- Includes downlight retrofits with bases above
- Output $\leq 2600\text{lm}$
- CCT = 2200K to 7000K



Requirements for State-Regulated LED lamps increase to TIER 2 for lamps manufactured on/after July 1, 2019

DIRECTIONAL LAMP (BULB) REGULATIONS UNDER TITLE 20



State-Regulated Small Diameter Directional Lamp (SDDL) definition/scope:

- 12V, 24V, 120V INC, CFL, LED lamps with Dia. $\leq 2.25''$
- ANSI Pin Base or E26 Base
- Only includes small diameter directional lamps with:
 - Output $\leq 850\text{lm}$ or Wattage $\leq 75\text{W}$
and
 - Rated Life $> 300\text{hrs}$

Lamps that meet this definition are regulated under SDDL and NOT State-Regulated LED lamps

Examples of Small Diameter ANSI pin base lamps include MR16 lamps with GU10 base (120V) and GU5.3 (12V)

DIRECTIONAL LAMP (BULB) REGULATIONS UNDER TITLE 20

State-regulated Small Diameter Directional Lamps (SDDLs)
 manufactured on/after January 1, 2018



SDDLs are defined as:

- 12V, 24V, 120V INC, CFL, LED lamps with Dia. $\leq 2.25''$
- Pin Base or E26 Base
- Output $\leq 850\text{lm}$ or Wattage $\leq 75\text{W}$
and
- Rated Life $> 300\text{hrs}$

Min. Rated Life	Min. Efficacy
25,000 hours	80 lm/w or 70 lm/w + Compliance Score ≥ 165 [Compliance Score = Efficacy + CRI]

Example:

70 lm/w + 90 CRI => 160 compliance score **FAIL**

75 lm/w + 90 CRI => 165 compliance score **PASS**

Requirements applicable to all INC, HALOGEN, CFL, LED lamps

These new requirements will eliminate most INC and halogen MR11, MR16, GU10, R/Par16 lamps sold in CA in favor of LED

PORTABLE LUMINAIRE REQUIREMENTS UNDER TITLE 20

(for all luminaires manufactured on/after Jan. 1, 2010)

Requirements (must meet at least one):

1. Dedicated fluorescent lamp socket connected to high freq. electronic ballast within the portable luminaire
2. Be equipped with GU24 socket and NOT rated for use with INC lamps
3. Be an LED luminaire or portable luminaire with an LED Light Engine with integral heat sink and comply with table N-2

Table N-2 Requirements for portable luminaires with LED Light Engines

Criteria	Requirement
Light Output	200 lm
Min. LED Luminaire efficacy	29 lm/w
Min. LED Light Engine efficacy	40 lm/w
Correlated Color Temp (CCT)	2700K to 5000K
Min. Color Rendering Index (CRI)	75 CRI
Power Factor <small>(for luminaires labeled or sold for residential use)</small>	0.7 PF



PORTABLE LUMINAIRE REQUIREMENTS UNDER TITLE 20

(for all luminaires manufactured on/after Jan. 1, 2010)

Requirements (must meet at least one):

4. Be equipped with E12, E17, or E26 base and ...
 - Pre-packaged and sold together with one screw-base CFL or LED lamp for each socket
 - CFL or LED lamp must be compatible with luminaire controls
 - CFLs must meet ENERGY STAR lamp efficacy of Dec. 31, 2008
 - (50 to 65 lm/w)
 - **LED lamps must meet min. requirements of current T20**
5. Be equipped with one or more single-ended non-screw base halogen lamp sockets (line or low voltage), dimmer control or hi/low controls, and be rated for a max of 100W

***Note:**

- Exceptions for art work luminaires and portable wall mount adjustable luminaires with max 24" articulated arm.
- Portable luminaires with internal power supplies must have zero standby power when luminaire is off



TITLE 20 LABELING REQUIREMENTS

(T20 2016, Section 1607)

Applicable to all regulated appliances:

- Manufacturer's name, brand name, or trademark
- Model Number
- Date of Manufacture
 - Indicating year, month, or smaller (week) increment
 - If the date code is not readily understandable to the layperson, the manufacturer shall immediately, on request, provide the code to CEC
- Information can be on each unit or unit's packaging, or where the unit is contained in a group of several units in a single package, on the packaging of the group



Note: Since enforcement of T20 is per date of manufacture, date codes are critical

FAQS AND IMPORTANT NOTES ABOUT T20

- **Ceiling Fan Light Kits**

- Lamps packaged with Ceiling Fan Light Kits do NOT need to meet T20
 - [Due to federal requirements for ceiling fan light kits]
- Ceiling Fan Light Kits must still be certified to CEC to be sold in CA
- Ceiling Fan Light Kits with screw base would still require state-certified JA8 light sources to be used for T24 installations

- **Special applications of LED lamps**

- The requirements for state-regulated LED lamps and small-diameter directional lamps are independent of end-use or application and are based only on lamp characteristics. A lamp is covered if it meets the definition of a state-regulated LED lamp or a small-diameter directional lamp per T20

- **LED Light Engines and Retrofit Kits**

- LED Engines and Retrofit kits that do NOT include a E12, E12, E26, or GU24 base do not meet the state-regulated lamp definition and therefore NOT regulated by T20



More T20 FAQs: http://www.energy.ca.gov/appliances/documents/state-regulated_lamps_FAQ.html#exemptions

FAQS AND IMPORTANT NOTES ABOUT T20

- **LED Luminaires and T20**

- With the exception of portable luminaires, most luminaires are not regulated by T20, only lamps (bulbs) and other lighting components described
- A luminaire that connect to a branch circuit with cord and plug is a “portable luminaire” and regulated by T20

- **Color Tunable LED lamps**

- Color tunable LED lamps must meet requirements in the mode where it is capable of producing white light
 - (with Duv between -0.012 and 0.012 and CCT between 2200K and 7000K)
 - Modes of operation outside of this range do not need to meet requirements



More T20 FAQs: http://www.energy.ca.gov/appliances/documents/state-regulated_lamps_FAQ.html#exemptions

TITLE 20 ENFORCEMENT

(T20 2016, Section 1608-1609)

- Title 20 enforcement is by the California Energy Commission (CEC)
 - Periodic testing and verification may be performed by CEC
- It is illegal to sell or offer for sell in the state any regulated product that is not certified to the CEC and listed in the MAEDBS
 - Includes online retailers shipping into the state
- Any person including a **retailer, manufacturer, contractor, importer or distributor** that sells or offers for sell a regulated appliance that is not listed may be subject to civil penalties for each unit sold or offered for sale
- Four violations under T20:
 - Failure to certify, does not meet standard, failure to mark, providing false information
- Civil penalties can be assessed **up to \$2,500 for each violation** (per unit sold)



TITLE 24

New Construction Building Code – Residential and Non-Residential Buildings



TITLE 20 VS TITLE 24



- Individual products are certified to the state and verified by certification data registered online with California Energy Commission (CEC)
- Mandatory for all state-regulated appliances
 - Lamps(bulbs), portable luminaires, lighting components must be certified to the state and registered on database to be sold in CA
 - Fines for regulated products sold in the state that are not certified



- Building code required to be met and verified by inspectors prior to permit
- Required only for new/remodel construction and certain alterations where building permits are needed
- T24 not applicable to individual products
 - T24 is achieved through certifying an overall efficient building application, not by individual products
 - Products are NOT certified as T24 compliant, although certain products may be useful in supporting T24 building compliance
 - Non-Residential - Many ways to achieve T24 through controls and other application and calculation methods. No individual luminaire certifications needed.
 - Residential – Requires all luminaires to be High Efficacy. High Efficacy means the use of JA8 certified light sources in many cases.

Regulated products must also be T20 certified when used in T24 construction

WHAT IS CALIFORNIA TITLE 24?

What is California Title 24?

Title 24 is California's building energy efficiency standards. It is required to be met for any building that requires a permit.

Lighting installations in all newly constructed buildings and additions and alterations of existing buildings must meet applicable Title 24 requirements in order to receive a permit. Compliance is verified by building inspectors.

Title 24 is updated every 3 years by the California Energy Commission (CEC), current applicable version is T24 2016. T24 2019 is currently under development.

California T24 2016 (T24-2016) became effective January 1, 2017



TITLE 24 - RESIDENTIAL VS NON-RESIDENTIAL REQUIREMENTS

T24 NON-RESIDENTIAL Requirements

- Includes certain mandatory measures such as:
 - Area controls to operate lighting
 - Multi-level lighting requirements for dimming based on square footage and qty of luminaires/lamps
 - Daylighting controls capable of shedding load to eliminate energy waste
- Includes energy budget with two options:
 - Prescriptive approach: based on LPD (lighting power density)
 - Performance approach: combined measures based on TDV (time dependent valuation)

Since Non-Res requirements focus heavily on controls, many builders comply using dimmable/controllable luminaires

T24 RESIDENTIAL Requirements

- All lighting installed in residential construction must be “High Efficacy”
 - High Efficacy has certain specific definitions in the state
- All luminaires must include a compliant light source at the time of inspection
 - Light sources do not necessarily need to be included in the packaging with the fixture
- Light sources or Luminaires must be certified and registered and appropriately marked “JA8-2016” or “JA8-2016-E” (elevated temp/enclosed rated)

Many Residential applications comply by using JA8 certified light sources in standard socketed luminaires

Residential requirements are product specific, Non-Residential requirements consider the entire building application

T24 NON-RESIDENTIAL REQUIREMENTS

- T24 lighting requirements for Non-Residential applications varies by space, and can be met using many kinds of luminaire and controls combinations
 - Indoor Lighting Requirements:
 - Dimming
 - Daylighting control
 - Occupancy Sensor
 - Emergency backup
 - Outdoor Lighting requirements:
 - Uplight/Glare control
 - Area Control
 - Multi-Level Lighting
 - Shutoff Control
 - Automatic Daylighting Control
 - Specific LPD per zone



Luminaires cannot be “T24 Compliant” since, especially in Non-Residential projects, T24 can be met using a wide variety of luminaires and controls.

Some products such as controls and luminaires with features to support some of these requirements MAY be marketed as “SUPPORTS T24 COMPLIANCE”



Many ways to meet T24 Non-Res requirements with most controls + luminaires

T24 RESIDENTIAL REQUIREMENTS

Scope of Residential Requirements

- All indoor and outdoor lighting attached to single family buildings, within dwellings in multi-family buildings.
- Residential spaces in non-residential buildings
- Includes:
 - Single Family Buildings, indoor and outdoor lighting
 - High Rise multifamily residential units
 - Hotel and motel guest rooms
 - Fire station dwellings
 - Dormitory and senior housing dwellings
 - Sheds and garages on residential sites



T24 Residential requirements are applicable to many spaces other than general single-family residences

T24 RESIDENTIAL REQUIREMENTS

All permanently installed lighting must be “High Efficacy”

- T24 is only applicable to permanently installed lighting
- Permanently installed lighting definition per T24:
 - Attached to walls, ceilings and columns
 - Attached to top or bottom of permanently installed cabinets
 - Inside permanently installed cabinets
 - Attached to ceiling fans
 - Integral to exhaust fans
 - Integral to garage door openers
 - Part of track lighting and flexible lighting systems



***Important Note:** Permanently installed luminaires may have either plug-in or hardwired connection. A portable luminaire (contains a cord/plug) that is attached or mounted as described above, will be subject to T24 regulations.

T24 RESIDENTIAL REQUIREMENTS

All permanently installed lighting must be “High Efficacy”

High Efficacy Lighting	
Luminaires of this type are automatically classified as high efficacy, and therefore exempt from needed state-certified light sources.	All other luminaire types, including below, must be JA8 certified integrated luminaires or must have a JA8 certified light source in them at the time of inspection
<ul style="list-style-type: none"> • Pin-based linear fluorescent or CFL light sources using electronic ballasts • Pulse-start metal halide • High pressure sodium • GU24 sockets containing light sources other than LEDs (such as CFL) • Luminaires with hardwired high freq generator and induction lamp • Inseparable SSL luminaires that are installed outdoors • Inseparable SSL luminaires containing colored light sources that are installed to provide decorative lighting 	<ul style="list-style-type: none"> • All light sources in ceiling recessed downlights <ul style="list-style-type: none"> • Recessed downlights also must contain screw-base sockets • GU24 sockets containing LED light sources • All screw base luminaires • Inseparable SSL luminaires installed indoors • Any light source not otherwise listed in this table
No JA8 Certification Required	JA8 Certification Required

T24 RESIDENTIAL REQUIREMENTS

- All permanently installed luminaires must be High Efficacy
- All such luminaires that contain a socket, must include a JA8 compliant light source
 - (excludes automatically High Efficacy luminaires)
 - E26 sockets are ok
 - No longer any requirement for GU24 base sockets
 - JA8 light sources do NOT necessarily need to be included in the packaging with the fixture, but must be in place at the time of inspection
 - JA8 light sources should be marked as “JA8-2016” or “JA8-2016-E” for elevated temperature tested sources
 - Enclosed Luminaires may only contain light sources marked “JA8-2016-E”
 - Permanently installed night lights shall consume no more than 5W



The state of CA estimates T24 2016 standards will increase new home cost by \$2,700, but will save \$7,400 in energy and maintenance costs over 30 years

T24 RESIDENTIAL REQUIREMENTS

- Recessed downlights and enclosed luminaires are required to contain a JA8 compliant light source that meets elevated temp requirements
 - Such light sources must be marked “JA8-2016-E”
- Recessed downlights shall NOT include screw base sockets
- Must also be IC/AT rated
- Shall not contain lamps that are labeled “not for use in enclosed or recessed fixtures”



Builders are required to submit a lighting schedule to the occupants showing all interior luminaires and lamps installed

T24 RESIDENTIAL OUTDOOR REQUIREMENTS

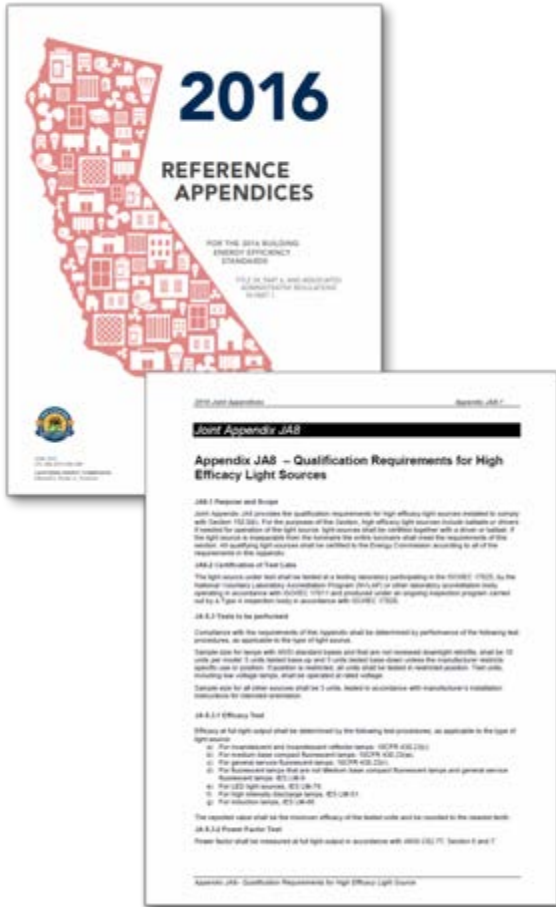


- Outdoor Residential Luminaires

- All outdoor lighting on single family residential buildings must be high efficacy
- If the outdoor luminaire is a SSL Inseparable Luminaire, it is automatically a “High Efficacy” luminaire
- All outdoor lighting mounted to single family residential buildings is still required to be controlled by one of the following combinations:
 1. Photocell and motion sensor
 2. Photocell and time switch
 3. Astronomical time clock
 4. EMCS with features of astronomical time clock, does not allow the luminaire to be on during day, may be programmed for auto off at night

***Note:** Lighting that is NOT attached to a building on a single-family site is NOT regulated by the state (such as landscape lighting)

WHAT IS JA8?



- The primary Title 24 2016 Building Efficiency Standards documentation is approximately 289pgs
 - There is an accompanying separate **Reference Appendices** document of 500+ pgs
 - It contains the Residential Appendices (RA1-RA8), Nonresidential Appendices (NA1-NA4), and the Joint Appendices (JA1-JA10)
- **Joint Appendix 8 (JA8)** of the Reference Appendices provides all of the qualification requirements for high efficacy light sources installed to comply with section 150.0(k) of the standards
- All qualifying light sources must be certified to the state of California and registered on the California Energy Commission (CEC) database

JA8 REQUIREMENTS

Joint Appendix 8 of the 2016 Title 24 Building Efficiency Standards

Summary of major requirements:

Efficacy	≥ 45 lpw
Power Factor	≥ 0.9 PF
Color Rendering	≥ 90 CRI + R9 ≥ 50
CCT	≤ 4000K (engines), ≤ 3000K (lamps)
Dimming	≤ 10%
Flicker	< 30% for freq less than 200Hz at 100% and 20% of light output (Tested per JA10)
Lifetime	≥ 15,000 hours
Testing	ENERGY STAR Elevated Temperature Life test required for all Omni Lamps (>=10W) and engines that are NOT labeled “not for use in enclosed fixtures” or “not for use in recessed fixtures”
Labeling	“JA8-2016” or “JA8-2016-E” (elevated temp test/enclosed). Exceptions for engines/lamps with dia. less than 1.0” and decorative lamps with dia. less than 2.0”



FAQS AND IMPORTANT NOTES ABOUT T24

JA8 Certified LED Light Engines

- JA8 Certified LED Light Engines that are **REMOVABLE** are treated just like lamps by the state of California for T24 and can be used to certify any luminaire as high efficacy
 - **Luminaire itself would NOT need to be JA8 certified**
- Note that JA8 Certified LED Light Engines have completed 6,000hrs of life testing similar to JA8 lamps
- If the LED Light Engine is not removable and requires destruction or damage to the luminaire, the luminaire is deemed an Inseperable SSL Luminaire and must be certified

Inseperable SSL Luminaires

- Inseperable SSL Luminaires that utilize LED Light Engines are NOT required to have JA8 Certified LED Light Engines to get the Inseperable SSL Luminaire JA8 Certified
- JA8 Certification of the luminaire must meet dimmable, flicker, and other specifications but can utilize LM80 data of the LEDs. 6,000hours life test not needed



MaxLite offers various JA8 Certified LED Light Engines:

<http://www.maxlite.com/products/led-light-engines/list>



FAQS AND IMPORTANT NOTES ABOUT T24

Ceiling Fan Light Kits, Ventilation Fans

- Light Kits in Ceiling fans and Ventilation Fans are treated just like luminaires and need to be high efficacy for T24 (requires technology that is automatically high efficacy, or light kit includes a JA8 certified source at the time of inspection)



JA8 COMPLIANT LAMPS VS T20 LAMPS

Table 2 - Key Differences			
Parameter	Title 24 - JA8 (2016)	Title 20 (2016)	
Lamp Type	All Residential (Except Night Lights)	General Service LED Lamps (Tier 1)	Small Diameter Directional Lamps
Effective Date	January 1, 2017	January 1, 2018	January 1, 2018
Base Type	All (Except Night Lights)	E12, E17, E26 and GU-24	ANSI ANSLG C81.61-2009 or E26
Power Factor	≥ 0.9	≥ 0.7	No requirement
Start Time	≤ 0.5 sec	No requirement	No requirement
Lifetime	$\geq 15,000$ hours	$\geq 10,000$ hours	$\geq 25,000$ hours
Dimming	Down to 10 percent	No requirement	No requirement
Efficacy	≥ 45 lm/W	≥ 68 lm/W and $((2.3 \times CRI) + lm/W) \geq 282$	≥ 80 lm/W or ≥ 70 lm/W and $(lm/W + CRI) \geq 165$
CCT	Inseparable ≤ 4000 K Separable ≤ 3000 K	No requirement	No requirement
Chromaticity	$-0.0033 \leq Duv \leq 0.0033$	ANSI C78.377-2015 compliant	No requirement
CRI	≥ 90	≥ 82	No requirement
R1-R8	No requirement	≥ 72	No requirement
R9	≥ 50	No requirement	No requirement

JA8 requirements are more stringent in most categories than T20

Note that all JA8 lamps regulated by T20 must be certified to both JA8 and T20

HOW TO FIND CALIFORNIA COMPLIANT PRODUCTS

List of T20 and JA8 certified products can be found online on the MAEDBS database online using PUBLIC SEARCH feature [Modernized Appliance Efficiency Database \(MAEDBS\)](#)

The screenshot shows the search interface for the California Energy Commission's Modernized Appliance Efficiency Database (MAEDBS). The page header includes the CA.GOV logo and the text "CALIFORNIA ENERGY COMMISSION". A "SEARCH" button is visible in the header. The main content area is titled "Quick Search" and contains instructions for using the search feature. Below the instructions are several search filters: "Model Number", "Appliance Type" (highlighted), "Company", "Brand", and "Appliance Status". There are two dropdown menus: "Select Category" with "Lighting Products" selected, and "Select Appliance Type" with "2016 JA8 High Efficacy L" selected. "Search" and "Clear" buttons are located to the right of the dropdowns. At the bottom of the page, there are links for "Accessibility", "Conditions of Use", and "Privacy Policy".

FIND MAXLITE CALIFORNIA COMPLIANT PRODUCTS

MaxLite California Compliance lists

- T20/JA8 product finder

<http://www.maxlite.com/california-compliance>



The screenshot shows the MaxLite website's California compliance page. At the top, the MaxLite logo is followed by the tagline "A NEW WAVE OF LIGHT" and a "25th Anniversary" badge. Social media icons for Facebook, Twitter, YouTube, and LinkedIn are also present. A navigation menu includes links for About MaxLite, Products, Applications, Where to Buy, News, Rebates/Compliance, Partners, Resources, and Customer Support. The main banner features the text "California T24/T20" and two certification logos: "2016 T20 APPLIANCE EFFICIENCY REGULATIONS" and "2016 T24 PART 6 HIGH EFFICACY LIGHTING REQUIREMENTS". Below the banner, there are two green buttons: "T20/JA8 PRODUCT FINDER" and "TITLE 24 2016 FAQs". To the right of these buttons, a text block states: "When it comes to compliance in California, we've got you covered." Below this, a paragraph explains that MaxLite is an industry leader in products certified for Title 20 and Title 24/JA8, and that their product finder can generate a list of compliant products. Two small thumbnail images of product lists are shown at the bottom left. The text block also includes definitions for Title 20 (Appliance Efficiency Regulations) and Title 24 (Building Standards).

MaxLite A NEW WAVE OF LIGHT **25**
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California T24/T20

2016 T20 APPLIANCE EFFICIENCY REGULATIONS
2016 T24 PART 6 HIGH EFFICACY LIGHTING REQUIREMENTS

T20/JA8 PRODUCT FINDER

TITLE 24 2016 FAQs

When it comes to compliance in California, we've got you covered.

MaxLite is the industry leader in products certified for Title 20 and Title 24/JA8. Use our T20/JA8 product finder to generate a list of compliant products.

Title 20 (Appliance Efficiency Regulations) – new appliance efficiency standards in the state of California require LED and other types of lamps manufactured after January 1, 2018 to be state-certified. Selling non-certified lamps in CA that are covered by these regulations can result in significant fines.

Title 24 (Building Standards) – Title 24 outlines energy efficiency standards that apply to the construction of buildings in California. In residential applications, the code requires high-efficacy light sources as defined by [Joint Appendix 8 \(JA8\)](#).

FIND MAXLITE CALIFORNIA COMPLIANT PRODUCTS

MaxLite California Compliance lists

<http://www.maxlite.com/california-compliance>

- Sort by product type and listing to find currently-available T20, JA8, ENERGY STAR, DLC products
- Features multiple category selections to find products that are listed to multiple programs



For a list of MaxLite DLC, ENERGY STAR, T20 or JA8 products: 1. Select product categories 2. Select your type of listing 3. Click "Submit"

PRODUCTS

- Outdoor Fixture
- Indoor Fixture
- Lamps
- Light Sources
- Non-LED
- Special
- Harsh and Hazardous
- All

LISTING

- ENERGY STAR
- DLC
- DLC PREMIUM
- T20
- JA8

Click an Item's SKU to view its data sheet. Click "download" for an Excel or PDF version of our product list with specs. [Excel](#) [PDF](#) [Print this page](#)

Image	Item (SKU)	Order #	Description	Watts	Equivalent Wattage	Lumens	Efficacy (lm/w)	Color Temp (K)	Lifetime	Listing
Lamps										
	10A190LED927/G2/JA8	1408959	OPEN RATED 10W LED A19 DIM 90+CRI 2700K GEN 2 JA8	10.0	60W Inc	800.0	80.0	2700	25000	Energy Star, Title 20, JA8
	10A190LED927/G2/JA8	1408959	OPEN RATED 10W LED A19 DIM 90+CRI 2700K GEN 2 JA8	10.0	60W Inc	800.0	80.0	2700	25000	Energy Star, Title 20

RESOURCES FOR ADDITIONAL INFO



For more info on California Title 20

<http://www.energy.ca.gov/appliances/>

Questions directly to California Energy Commission regarding T20

appliances@energy.ca.gov

FAQ on State-Regulated Lamps

http://www.energy.ca.gov/appliances/documents/state-regulated_lamps_FAQ.html

For more info on California Title 24

<http://www.energy.ca.gov/title24>

Questions directly to California Energy Commission regarding T24

Title24@energy.ca.gov

QUESTIONS?

Thanks for joining! Please use chat window to type any questions desired to answer live, or contact me below:

Presentation copy will be sent to all users soon.

FOR MORE INFORMATION PLEASE CONTACT:

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