

DOES YOUR LAMP MEET THE CALIFORNIA QUALITY STANDARD?

Accelerating the adoption of high-quality LED replacement lamps in California homes



The Voluntary California Quality LED Lamp Specification requires that LED lamps meet certain product performance criteria. This “California Quality” specification was developed by the California Energy Commission in collaboration with the California Public Utilities Commission (CPUC) to accelerate consumer adoption of LED lamps. Many California utilities are using the California Quality Specification to determine which lamps they will include in their rebate and incentive programs.

The specification’s color quality criteria include the correlated color temperature of a lamp’s output, its color consistency over time, and the lamp’s color rendering capability ($CRI \geq 90$ and $R9 > 50$). California Quality lamps must provide continuous dimming (10–100%) with no visible flicker or audible noise. Best-in-class lamps from a growing number of manufacturers are being independently tested to verify their performance and determine if they meet the California Quality Specification.

LED LAMP SPECIFICATION COMPARISON

The “California Quality” specification for LED lamps exceeds certain Energy Star criteria. These criteria are critical to lighting quality and consumer satisfaction.

LED Lamp Specifications	California Quality	Energy Star Version 1.0, Solid-State Lamps
Color Rendering	$CRI \geq 90$, $R9 > 50$	$CRI \geq 80$, $R9 > 0$
Color Temperature (CCT) & Consistency	2700K or 3000K within a 4-step MacAdam ellipse	2700K, 3000K, 3500K, 4000/4100K, 5000K or 6500K within a 7-step MacAdam ellipse
Dimming Performance without Flicker or Noise	10–100% continuous	20–100% (only required of those lamps marketed as dimmable)
Power Factor (PF)	$PF \geq 0.9$	$PF \geq 0.7$
Minimum Warranty	5 years with free replacement	3 years

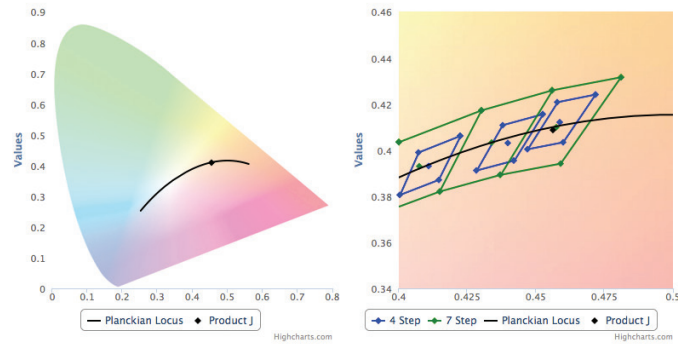


LED Performance Database

Product Characteristics

	CLTC	Energy Star	Product Packaging
Wattage	9.73	10	10
Luminous Flux	1010.86	1008	940
Color Rendering Index	93.14	92	Not Listed
Correlated Color Temperature	2732.29	2700	2700
Rated Life	N/A	25000	30000
Lamp Shape	N/A	A-Arbitrary	A19
Dimmable	N/A	Yes	Yes
Beam Distribution	N/A	Not Listed	Omni-Dir.
Warranty	N/A	3	6
Efficacy	101.10	100.80	94.00
R9	N/A	N/A	N/A

details



LED PERFORMANCE DATABASE

ledperformancedatabase.org

The California Lighting Technology Center, at the University of California, Davis, worked with stakeholders to create a third-party LED lamp testing program and a database for test results. This database will help utilities and other organizations understand how the market is evolving and identify which lamps meet the California Quality standard. The LED Performance Database allows registered users to compare photometric and electrical test results from CLTC's labs with data provided by manufacturers. The database also allows users to search and filter results, perform statistical analysis, and see results presented in user-friendly graphics.

LIST YOUR BEST-IN-CLASS LAMPS

Manufacturers can see their best-in-class lighting products listed in the LED Performance Database by contacting CLTC and submitting product samples for testing. For more information about CLTC's photometric and electrical testing capabilities and the LED Performance Database, please contact:

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ABOUT THE CALIFORNIA LIGHTING TECHNOLOGY CENTER, UC DAVIS:

CLTC is part of the Department of Design at the University of California, Davis. It was established in 2003 by the California Energy Commission in collaboration with the U.S. Department of Energy and the National Electrical Manufacturers Association.

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