



Light Laboratory, Inc.



CEC TITLE 24 COMPLIANCE REPORT

Report Number:	L121703512CEC
Report Date:	1/2/2018
Client:	Clarte Lighting 975 N. Todd Ave. Azusa, CA 91702
Report Prepared By:	Jeff Ahn
Report Reviewed By:	Steve Kang
Test Facility:	Light Laboratory, Inc. 8165 E. Kaiser Blvd. Anaheim, CA 92808

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

1. GENERAL INFORMATION

Model Tested:	RR2-297-PAR16
Manufacturer:	Clarte Lighting
Light Source Type	PAR 16 LED MODULE
Product Type:	Inseparable SSL luminaire
Dimming(Yes/No):	Yes
Dimming Range:	10% - 100%
Dimmer Model used for test:	LUTRON CTCL-153P
LED Driver Model Number:	BUCK II

2. SUMMARY OF TEST RESULTS

ITEM	MEASURED	VERDICT	COMPLIANCE THRESHOLD
Initial Efficacy	51 lm/W	PASS	≥ 45 lumens/Watt
Power Factor at Full Rated Power	0.93	PASS	≥ 0.90
Correlated Color Temperature (CCT)	2995	PASS	≤ 4000 K
Duv	-0.00019	PASS	≥ -0.0033 and ≤ +0.0033
Color Rendering Index (CRI)	93.7	PASS	≥ 90
Color Rendering R9 (red)	60.76	PASS	≥ 50
Start Time	0.033 sec	PASS	≤ 0.5 sec
6,000 hour lumen maintenance	N/A	N/A	≥ 86.7% or NA for integral luminaires providing TM-21 L70 projections based on light source LM80 data
LM-80 and TM-21 Projected Time to L70	≥ 36,000 hours	PASS	≥ 25,000 hours, or N/A for light sources providing 6,000 hour lumen maintenance testing
Rated life	-	-	≥ 15,000 hours
Minimum dimming level	0.18 %	PASS	≤ 10%
Dimming control compatibility	Forward Phase cut control	-	Forward Phase cut control, reverse phase cut, powerline carrier, digital, 0-10 VDC other
NEMA SSL 7A compatible?	Yes	-	If compatible with forward phase cut dimmer control, "Yes". If not, "No".
Flicker	26.1 %	PASS	<30% for frequencies of 200 Hz or below, at 100% and 20% light output
100% light output: Audible Noise	21.7 dBA	PASS	≤ 24 dBA
20% light output: Audible Noise	21.2 dBA	PASS	≤ 24 dBA
Marked in accordance with JA8.5	-	-	Yes. "No" allowed only for lamps and LED light engines with diameter less than 1.0" and decorative lamps with a diameter less than 2.0"

3. TEST RESULTS DETAILS

3.1. Initial Efficacy

Test sample No.	Tested by	Report No.	Measured value (lm/W)
#1	Light Laboratory	L121703505	51
#2	Light Laboratory	L121703506	51
#3	Light Laboratory	L121703507	51

3.2. Power Factor at Full Rated Power

Test sample No.	Tested by	Report No.	Measured value
#1	Light Laboratory	L121703505	0.93
#2	Light Laboratory	L121703506	0.93
#3	Light Laboratory	L121703507	0.93

3.3. Correlated Color Temperature (CCT)

Test sample No.	Tested by	Report No.	Measured value (K)
#1	Light Laboratory	L121703505	2993
#2	Light Laboratory	L121703506	3007
#3	Light Laboratory	L121703507	2986
Average			2995

3.4. Duv

Test sample No.	Tested by	Report No.	Measured value
#1	Light Laboratory	L121703505	-0.00032
#2	Light Laboratory	L121703506	-0.00017
#3	Light Laboratory	L121703507	-0.00007
Average			-0.00019

3.5. Color Rendering Index (CRI)

Test sample No.	Tested by	Report No.	Measured value
#1	Light Laboratory	L121703505	93.8
#2	Light Laboratory	L121703506	93.7
#3	Light Laboratory	L121703507	93.7
Average			93.7

3.6. Color Rendering R9 (red)

Test sample No.	Tested by	Report No.	Measured value
#1	Light Laboratory	L121703505	62.02
#2	Light Laboratory	L121703506	60.19
#3	Light Laboratory	L121703507	60.08
Average			60.76

3.7. Start Time

Test sample No.	Tested by	Report No.	Measured value (sec)
#1	Light Laboratory	L121703501ST	0.033

3.8. 6,000 hour lumen maintenance: N/A

3.9. ISTMT result:

Test sample No.	Tested by	Report No.	Measured value
#1	Light Laboratory	L121703508T	51.9°C
#2	Light Laboratory	L121703509T	50.0°C
#3	Light Laboratory	L121703510T	52.1°C

3.10. TM-21 Projected Time to L70:

Test sample No.	Tested by	Report No.	Reported L70 at 52.1°C
#3	Light Laboratory	L121703511TM21	> 36,000

3.11. Rated life: Product Spec is not provided

3.12. Minimum dimming level:

Test sample No.	Tested by	Report No.	Measured value
#1	Light Laboratory	L121703502DL	0.18 %

3.13. Flicker: (<200Hz)

Test sample No.	Tested by	Report No.	100% Dimming	20 % Dimming
#1	Light Laboratory	L121703503FK	26.1 %	17.87 %

3.14. Audible Noise:

Test sample No.	Tested by	Report No.	100% Dimming	20 % Dimming
#1	Light Laboratory	L121703504AN	21.7 dBA	21.2 dBA

3.15. Marked in accordance with JA8.5: Product Spec is not provided

End of Report