

itl boulder

THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



INDEPENDENT TESTING LABORATORIES, INC.
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303)442-1255 • FAX: (970)535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

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REPORT NUMBER: ITL86243
DATE: 01/19/16
PREPARED FOR: B-K LIGHTING, INC.
CATALOG NUMBER: MN-LED-e67-SP-12-C, SN-MN-LED-e67-SP-12, ST-MN-LED-e67-SP-12,
SF-MN-LED-e67-SP-12, TF-MN-LED-e67-SP-12, RM-MN-LED-e67-SP-12,
PM-MN-LED-e67-SP-12, WM-MN-LED-e67-SP-12, SM-MN-LED-e67-SP-12,
CH-LED-e67-SP-12

ADDRESS: 40429 BRICKYARD DRIVE
MADERA, CA 93636-9515

LUMINAIRE: MACHINED CYLINDRICAL METAL HOUSING, 1 BLACK CIRCUIT BOARD WITH 3
LEDS, ONE CLEAR PLASTIC LENS WITH ONE CONICAL OPTIC PER LED WITH
SEMI-HEMISPHERICAL RECESSED CENTER TOWARD LED, CLEAR MICRO-PRISMATIC
FLAT GLASS LENS IN MACHINED CYLINDRICAL BLACK PAINTED METAL LENS
FRAME. LENS PRISMS OUT. LUMINAIRE AIMED AT THE HORIZON FOR THIS
TEST.

LAMP: THREE WHITE LIGHT EMITTING DIODES (LEDS), AIMED AT THE HORIZON.

DRIVER: B-K LIGHTING 524438/400188-L

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT
VOLTAGE (12VAC, 60Hz) TO THE DRIVER.

	Calibration Due:
INSTRUMENTS:	
Associated Power Technologies APT5020 AC Power Source	N/A
Yokogawa WT210 Digital Power Meter #9	01/31/16
Ocean Optics QE65000 Spectroradiometer	09/23/16
ITL 1.5m Diameter Integrating Sphere S15-2, 4PI Geometry	09/23/16

OBJECT OF TEST: Measure the Absolute Flux in lumens*, Spectral Power Distribution (SPD),
Correlated Color Temperature (CCT), Color Rendering Index (CRIa,1-14),
Chromaticity Coordinates (x,y; u',v'), ANSI C78.377 Duv, Total Radiant
Flux*, Scotopic / Photopic Lumen Ratio, and electrical data including
ANSI C82.77-2002 Power Factor (PF) and Total Harmonic Distortion (THD)
to the test sample.

PROCEDURE: The test sample was provided by the customer and had an unknown number
of operating hours. The test sample was mounted inside the integrating
sphere and allowed to stabilize. After stabilization occurred,
measurements were taken. In order to measure mean performance, multiple
data sets were recorded and averaged. Readings were taken with the test
sample operating at 12VAC input in a 25 +/-1 degree Celsius free
air ambient and in accordance with IESNA LM-79-08. All data are traceable
to the National Institute of Standards and Technology.

RESULTS: (continued subsequent pages)

THIS ITL REPORT WITH THE USE OF THE NVLAP LOGO SHALL NOT BE USED BY THE CLIENT TO CLAIM
PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE
FEDERAL GOVERNMENT.

Checked	<u>N WHITE</u>
Approved	<u>P O'CONNOR</u> Sphere Lab Supervisor

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RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	457 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4622
Chromaticity Ordinate y	0.4119
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2634
Chromaticity Ordinate v'	0.5282
Correlated Color Temp CCT (K)	2678
ANSI C78.377-2008 Duv	0.000
Total Radiant Flux (milliWatts)	1404 *
Scotopic / Photopic Lumen Ratio	1.217
ELECTRICAL	
Input Voltage (Volts AC)	12.0
Input Current (Amps AC)	0.603
Input Power (Watts)	6.54
Input Power Factor (%)	90.4
Input Current THD (%)	45.3
Input Voltage THD (%)	1.4
EFFICACY (lumens/Watt)	69.9

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	80
R1 Light greyish red	78
R2 Dark greyish yellow	89
R3 Strong yellowish green	97
R4 Moderate yellowish green	78
R5 Light bluish green	78
R6 Light blue	87
R7 Light violet	81
R8 Light reddish purple	54
R9 Strong red	0
R10 Strong yellow	75
R11 Strong green	77
R12 Strong blue	72
R13 Light yellowish pink (skin)	80
R14 Moderate olive green (leaf)	99

*NOTE: Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.



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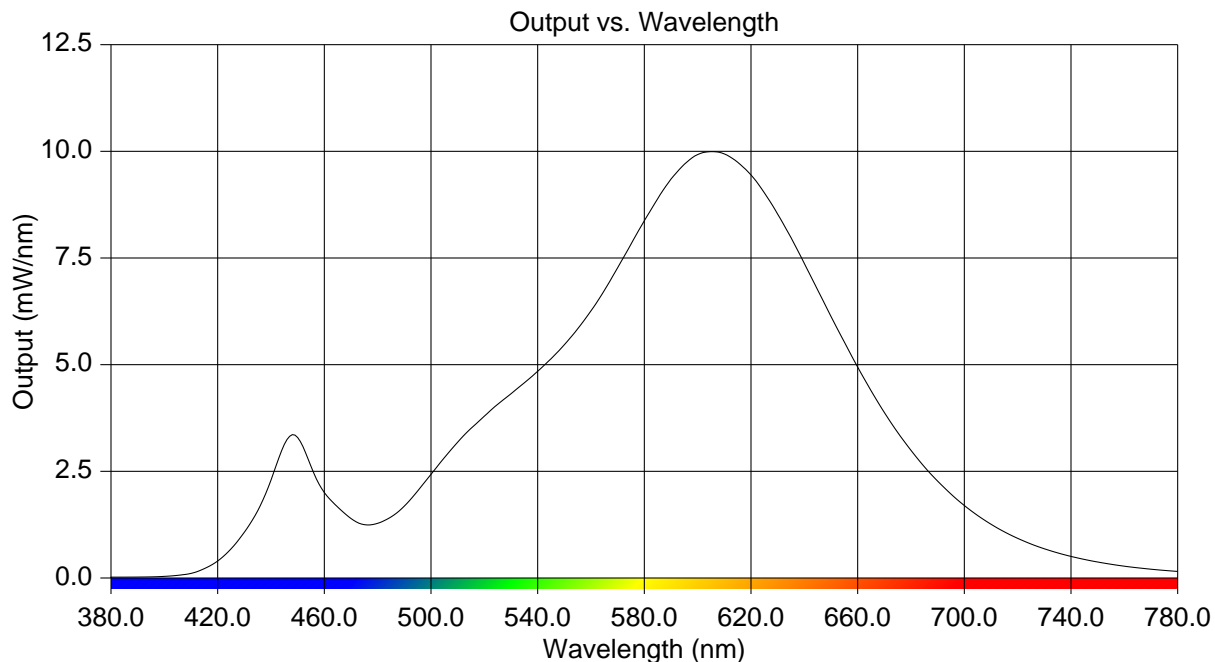
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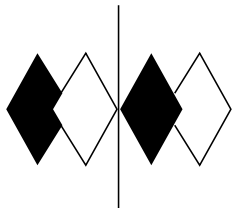
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CH-LED-e67-SP-12

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.020	515	3.507	650	6.130
385	0.020	520	3.793	655	5.531
390	0.022	525	4.070	660	4.944
395	0.026	530	4.318	665	4.392
400	0.038	535	4.574	670	3.879
405	0.062	540	4.845	675	3.412
410	0.107	545	5.137	680	2.992
415	0.220	550	5.467	685	2.607
420	0.398	555	5.840	690	2.270
425	0.682	560	6.262	695	1.967
430	1.072	565	6.740	700	1.699
435	1.573	570	7.273	705	1.464
440	2.294	575	7.824	710	1.260
445	3.132	580	8.373	715	1.082
450	3.292	585	8.888	720	0.929
455	2.617	590	9.350	725	0.797
460	2.003	595	9.697	730	0.685
465	1.664	600	9.924	735	0.589
470	1.394	605	9.993	740	0.506
475	1.250	610	9.939	745	0.435
480	1.282	615	9.745	750	0.375
485	1.430	620	9.447	755	0.322
490	1.685	625	9.029	760	0.277
495	2.040	630	8.527	765	0.239
500	2.429	635	7.979	770	0.206
505	2.819	640	7.371	775	0.178
510	3.183	645	6.751	780	0.154





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CIE Chromaticity Diagram

