

**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](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

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REPORT NUMBER: ITL86244  
DATE: 01/05/16  
PREPARED FOR: B-K LIGHTING, INC.  
CATALOG NUMBER: MN-LED-e68-SP-12-C, SN-MN-LED-e68-SP-12, ST-MN-LED-e68-SP-12,  
SF-MN-LED-e68-SP-12, TF-MN-LED-e68-SP-12, RM-MN-LED-e68-SP-12,  
PM-MN-LED-e68-SP-12, WM-MN-LED-e68-SP-12, SM-MN-LED-e68-SP-12,  
CH-LED-e68-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.

INSTRUMENTS:	Associated Power Technologies APT5020 AC Power Source	Calibration Due: 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	<i>N WHITE</i>
Approved	<i>P O'CONNOR</i> Sphere Lab Supervisor

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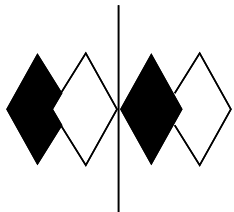
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RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	491 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4385
Chromaticity Ordinate y	0.4064
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2506
Chromaticity Ordinate v'	0.5225
Correlated Color Temp CCT (K)	2992
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	1491 *
Scotopic / Photopic Lumen Ratio	1.357
ELECTRICAL	
Input Voltage (Volts AC )	12.0
Input Current (Amps AC )	0.608
Input Power (Watts)	6.58
Input Power Factor (%)	90.2
Input Current THD (%)	46.0
Input Voltage THD (%)	1.5
EFFICACY (lumens/Watt)	74.7

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	81
R1 Light greyish red	79
R2 Dark greyish yellow	89
R3 Strong yellowish green	97
R4 Moderate yellowish green	79
R5 Light bluish green	79
R6 Light blue	86
R7 Light violet	83
R8 Light reddish purple	58
R9 Strong red	4
R10 Strong yellow	74
R11 Strong green	77
R12 Strong blue	67
R13 Light yellowish pink (skin)	81
R14 Moderate olive green (leaf)	98

\*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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NVLAP LAB CODE: 200925-0

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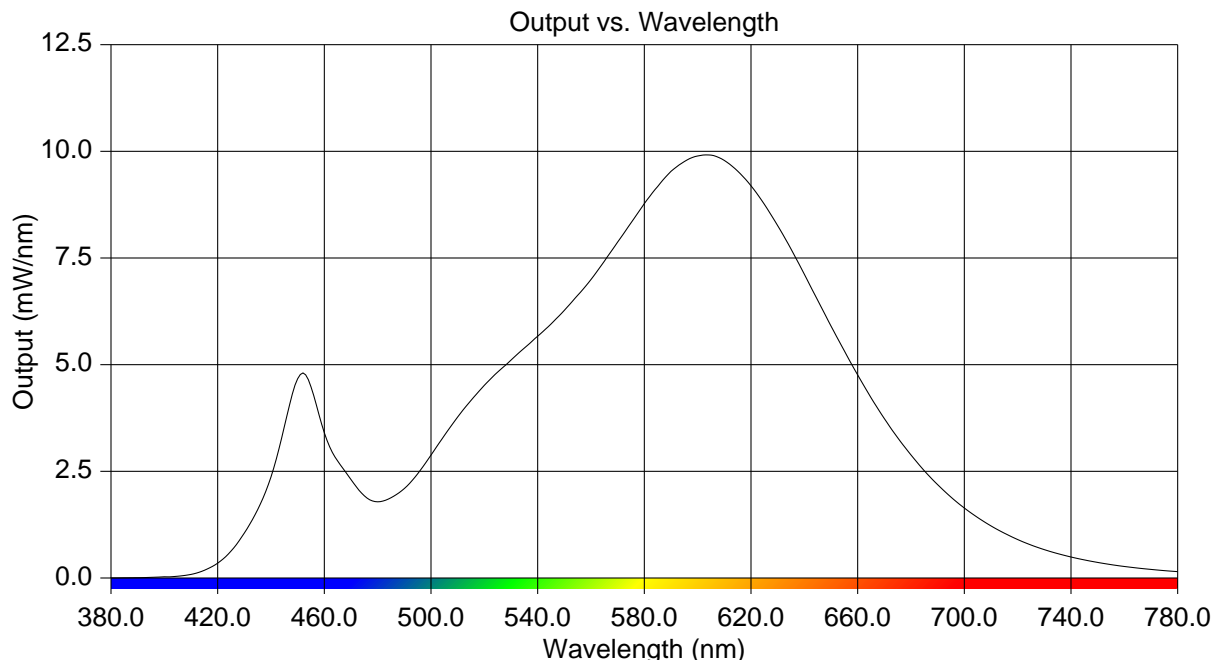
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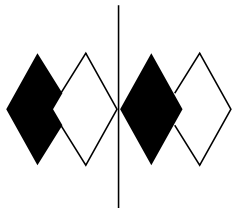
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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.002	515	4.162	650	5.905
385	0.005	520	4.516	655	5.325
390	0.007	525	4.826	660	4.760
395	0.015	530	5.107	665	4.226
400	0.029	535	5.389	670	3.736
405	0.041	540	5.666	675	3.288
410	0.084	545	5.952	680	2.883
415	0.180	550	6.273	685	2.512
420	0.347	555	6.626	690	2.187
425	0.631	560	6.996	695	1.896
430	1.054	565	7.424	700	1.640
435	1.602	570	7.874	705	1.417
440	2.369	575	8.323	710	1.221
445	3.548	580	8.775	715	1.051
450	4.671	585	9.175	720	0.901
455	4.480	590	9.531	725	0.773
460	3.404	595	9.760	730	0.664
465	2.743	600	9.891	735	0.572
470	2.307	605	9.912	740	0.492
475	1.926	610	9.786	745	0.424
480	1.786	615	9.536	750	0.365
485	1.881	620	9.192	755	0.314
490	2.096	625	8.760	760	0.270
495	2.442	630	8.258	765	0.233
500	2.880	635	7.712	770	0.201
505	3.339	640	7.120	775	0.173
510	3.773	645	6.511	780	0.149





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## CIE Chromaticity Diagram

