

**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: ITL86246  
DATE: 01/19/16  
PREPARED FOR: B-K LIGHTING, INC.  
CATALOG NUMBER: MM-LED-e70-NSP-12-C, RM-MM-LED-e70-NSP-12-C, SN-MM-LED-e70-NSP-12-C,  
ST-MM-LED-e70-NSP-12-C, SF-MM-LED-e70-NSP-12-C,  
TF-MM-LED-e70-NSP-12-C, YM-LED-e70-NSP-12-C, OM-LED-e70-NSP-12-C,  
SM-MM-LED-e70-NSP-12, PM-MM-LED-e70-NSP-12-C,  
WM-MM-LED-e70-NSP-12-C, UL-MM-LED-e70-NSP-12, DM-LED-e70-NSP-12

ADDRESS: 40429 BRICKYARD DRIVE  
MADERA, CA 93636-9515

LUMINAIRE: MACHINED CYLINDRICAL METAL HOUSING, 1 BLACK CIRCUIT BOARD WITH ONE  
LED, CLEAR PLASTIC OPTIC IN MOLDED WHITE PLASTIC FRAME, CLEAR  
MICRO-PRISMATIC FLAT GLASS LENS IN MACHINED BLACK PAINTED  
CYLINDRICAL METAL FRAME WITH UNFINISHED INTERIOR. LENS PRISMS OUT.  
LUMINAIRE AIMED AT THE HORIZON FOR THIS TEST.

LAMP: ONE WHITE LIGHT EMITTING DIODE (LED), AIMED AT THE HORIZON.

DRIVER: B-K LIGHTING 518801/400187-F

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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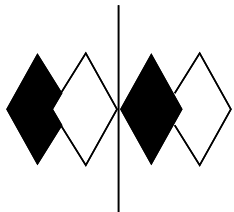
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## RESULTS :

PHOTOMETRIC	
Total Integrated Flux (lumens)	168 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4581
Chromaticity Ordinate y	0.4086
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2622
Chromaticity Ordinate v'	0.5263
Correlated Color Temp CCT (K)	2709
ANSI C78.377-2008 Duv	-0.001
Total Radiant Flux (milliWatts)	519 *
Scotopic / Photopic Lumen Ratio	1.239
ELECTRICAL	
Input Voltage (Volts AC )	12.0
Input Current (Amps AC )	0.325
Input Power (Watts)	2.52
Input Power Factor (%)	64.6
Input Current THD (%)	93.8
Input Voltage THD (%)	1.2
EFFICACY (lumens/Watt)	66.7

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	80
R5 Light bluish green	80
R6 Light blue	88
R7 Light violet	82
R8 Light reddish purple	57
R9 Strong red	5
R10 Strong yellow	76
R11 Strong green	80
R12 Strong blue	74
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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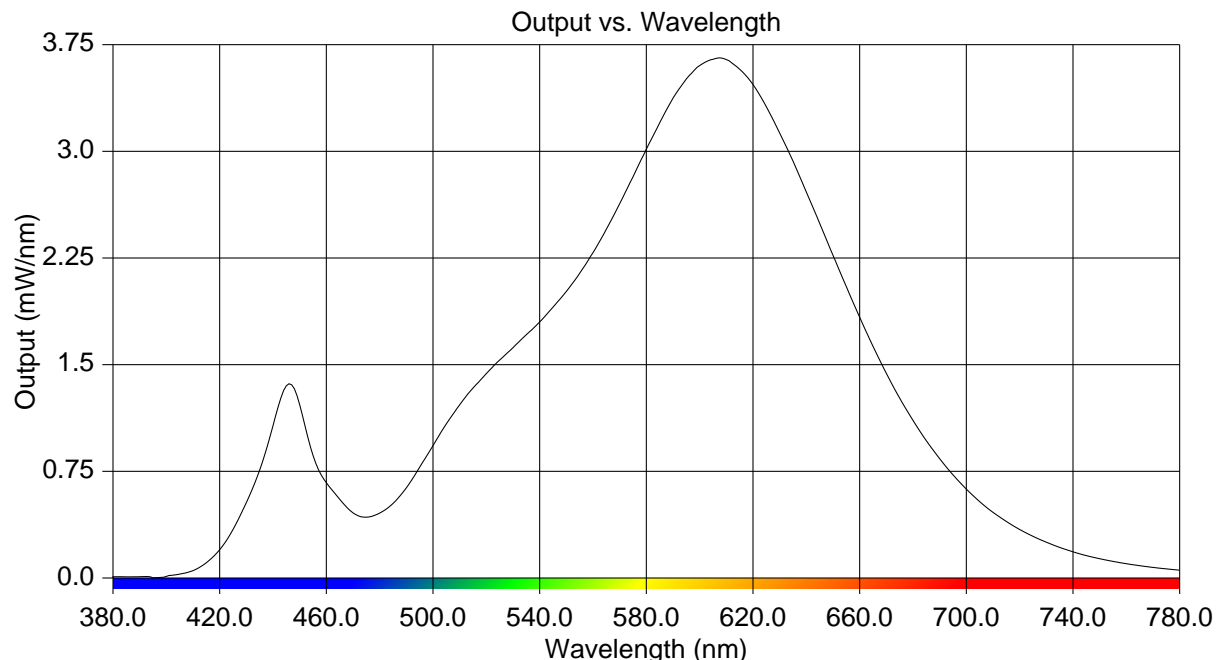
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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.009	515	1.336	650	2.269
385	0.008	520	1.437	655	2.049
390	0.009	525	1.533	660	1.834
395	0.001	530	1.619	665	1.629
400	0.011	535	1.711	670	1.439
405	0.027	540	1.800	675	1.264
410	0.051	545	1.904	680	1.108
415	0.107	550	2.015	685	0.965
420	0.199	555	2.142	690	0.839
425	0.341	560	2.287	695	0.725
430	0.530	565	2.452	700	0.625
435	0.759	570	2.632	705	0.537
440	1.070	575	2.821	710	0.462
445	1.352	580	3.015	715	0.398
450	1.219	585	3.200	720	0.341
455	0.862	590	3.374	725	0.293
460	0.670	595	3.509	730	0.252
465	0.554	600	3.603	735	0.215
470	0.458	605	3.647	740	0.184
475	0.428	610	3.645	745	0.157
480	0.457	615	3.577	750	0.136
485	0.524	620	3.470	755	0.117
490	0.634	625	3.314	760	0.101
495	0.779	630	3.129	765	0.087
500	0.931	635	2.932	770	0.074
505	1.084	640	2.714	775	0.064
510	1.217	645	2.494	780	0.055





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## CIE Chromaticity Diagram

