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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



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

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REPORT NUMBER: ITL86263
DATE: 01/12/16
PREPARED FOR: B-K LIGHTING, INC.
CATALOG NUMBER: MD-LED-e70-1

ADDRESS: 40429 BRICKYARD DRIVE
MADERA, CA 93636-9515

LUMINAIRE: CYLINDRICAL PLASTIC HOUSING WITH CAST BLACK PAINTED METAL TRIM. ONE LED MODULE CONSISTING OF: MACHINED CYLINDRICAL METAL HOUSING, MACHINED METAL CIRCUIT BOARD MOUNTING BASE, 1 BLACK CIRCUIT BOARD WITH 1 LED, CLEAR PLASTIC OPTIC ABOVE LED WITH RECESSED TOP CENTER, CLEAR FROSTED GLASS LENS IN CAST BLACK PAINTED METAL FACEPLATE WITH 1 APERTURE, LENS FROSTED SIDE IN.

LAMP: ONE WHITE LIGHT EMITTING DIODE (LED), VERTICAL BASE-DOWN POSITION.

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)

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

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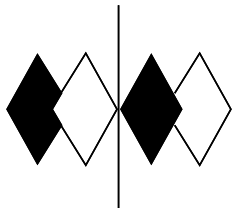
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RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	12.6 *
SPECTORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4658
Chromaticity Ordinate y	0.4143
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2647
Chromaticity Ordinate v'	0.5296
Correlated Color Temp CCT (K)	2647
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	39 *
Scotopic / Photopic Lumen Ratio	1.203
ELECTRICAL	
Input Voltage (Volts AV)	12.0
Input Current (Amps AV)	0.329
Input Power (Watts)	2.52
Input Power Factor (%)	63.8
Input Current THD (%)	97.7
Input Voltage THD (%)	1.1
EFFICACY (lumens/Watt)	5.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	81
R1 Light greyish red	78
R2 Dark greyish yellow	89
R3 Strong yellowish green	97
R4 Moderate yellowish green	79
R5 Light bluish green	78
R6 Light blue	88
R7 Light violet	81
R8 Light reddish purple	54
R9 Strong red	0
R10 Strong yellow	75
R11 Strong green	78
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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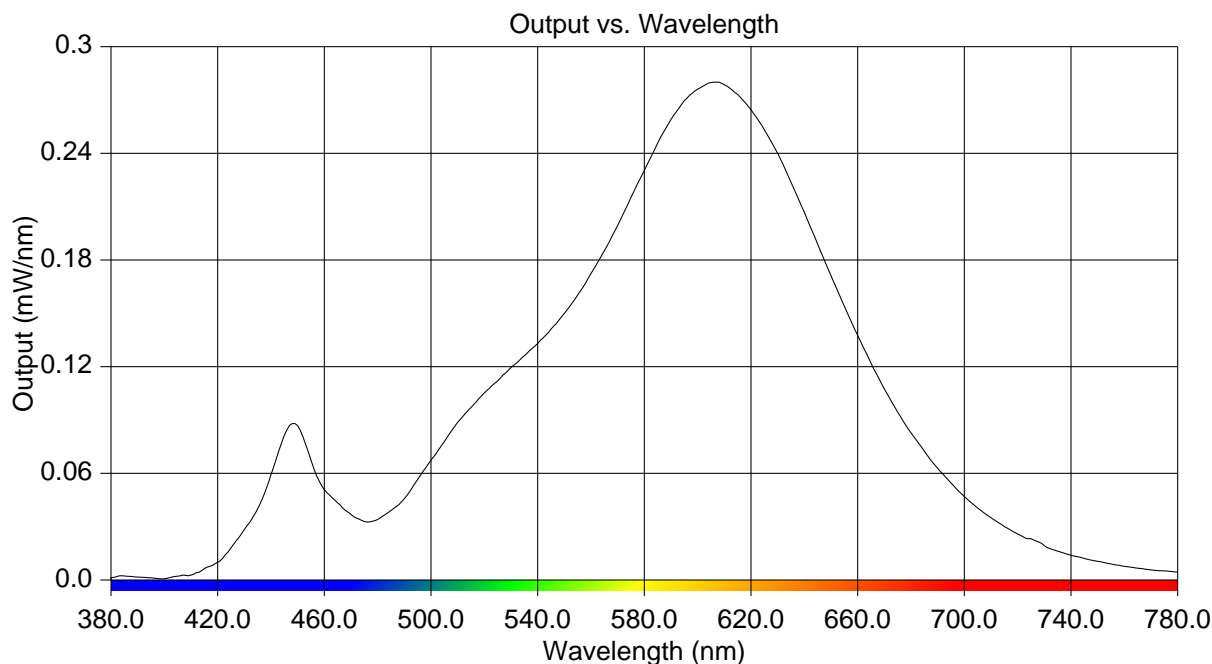
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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.001	515	0.097	650	0.171
385	0.002	520	0.105	655	0.154
390	0.002	525	0.112	660	0.138
395	0.001	530	0.120	665	0.122
400	0.001	535	0.126	670	0.107
405	0.002	540	0.133	675	0.094
410	0.003	545	0.141	680	0.083
415	0.006	550	0.150	685	0.072
420	0.010	555	0.160	690	0.063
425	0.018	560	0.172	695	0.055
430	0.028	565	0.185	700	0.047
435	0.040	570	0.199	705	0.040
440	0.059	575	0.215	710	0.035
445	0.081	580	0.230	715	0.030
450	0.087	585	0.246	720	0.026
455	0.067	590	0.259	725	0.023
460	0.051	595	0.270	730	0.019
465	0.043	600	0.276	735	0.016
470	0.037	605	0.280	740	0.014
475	0.033	610	0.279	745	0.012
480	0.034	615	0.273	750	0.011
485	0.039	620	0.265	755	0.009
490	0.046	625	0.253	760	0.008
495	0.057	630	0.240	765	0.007
500	0.067	635	0.224	770	0.006
505	0.078	640	0.207	775	0.005
510	0.089	645	0.189	780	0.004





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CIE Chromaticity Diagram

