



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: ITL88518-SPHERE
DATE: 10/21/16
PREPARED FOR: LUMOS LIGHTING
CATALOG NUMBER: RP-IND-36-3500-WHT

ADDRESS: 145 YUMA STREET
DENVER, CO 80223

LUMINAIRE: FABRICATED WHITE PAINTED METAL OUTER RING HOUSING/REFLECTOR,
FABRICATED WHITE PAINTED METAL INNER RING HOUSING/CIRCUIT BOARD
MOUNT, 4 WHITE CIRCUIT BOARDS EACH WITH 36 LEDS MOUNTED ON
OUT-FACING SURFACE OF INNER RING HOUSING. 31.5625" ROUND OPEN
CENTER.

LAMP: ONE HUNDRED FORTY-FOUR WHITE LIGHT EMITTING DIODES (LEDs), AIMED AT
THE HORIZON.

DRIVER: ACELEDs AC-40CD1.4APMZ, DRIVER HAS MULTIPLE LEADS, ONLY LINE INPUT
AND LED OUTPUT LEADS CONNECTED FOR THIS TEST. CLIENT STATES DRIVER
PROGRAMMED FOR 1050mA OUTPUT.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT
VOLTAGE (120VAC, 60Hz) TO THE DRIVER.

		Calibration Due:
INSTRUMENTS:	Associated Power Technologies APT5040 AC Power Source	N/A
	Yokogawa WT210 Digital Power Meter #6	12/07/16
	Ocean Optics QE65000 Spectroradiometer	04/19/17
	ITL 2.0m Diameter Integrating Sphere S20-2, 4PI Geometry	04/19/17
	Omega HH802U Digital Thermometer #7	09/07/17

OBJECT OF TEST: Measure the Absolute Flux in lumens*, Spectral Power Distribution (SPD),
Correlated Color Temperature (CCT), Color Rendering Index (CRI_a,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 120VAC 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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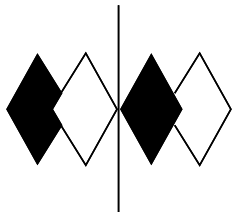
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RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	2752 *
SPECTORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3981
Chromaticity Ordinate y	0.3860
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2330
Chromaticity Ordinate v'	0.5082
Correlated Color Temp CCT (K)	3624
ANSI C78.377-2008 Duv	0.000
Total Radiant Flux (milliWatts)	8434 *
Scotopic / Photopic Lumen Ratio	1.668
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.406
Input Power (Watts)	48.7
Input Power Factor (%)	100.0
Input Current THD (%)	2.1
Input Voltage THD (%)	0.2
EFFICACY (lumens/Watt)	56.5

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	84
R1 Light greyish red	83
R2 Dark greyish yellow	93
R3 Strong yellowish green	95
R4 Moderate yellowish green	80
R5 Light bluish green	83
R6 Light blue	91
R7 Light violet	84
R8 Light reddish purple	63
R9 Strong red	14
R10 Strong yellow	83
R11 Strong green	79
R12 Strong blue	68
R13 Light yellowish pink (skin)	86
R14 Moderate olive green (leaf)	98

*NOTE: The total lumen output shown on this report was obtained from photometric test ITL88518-GONIOPHOTOMETRY



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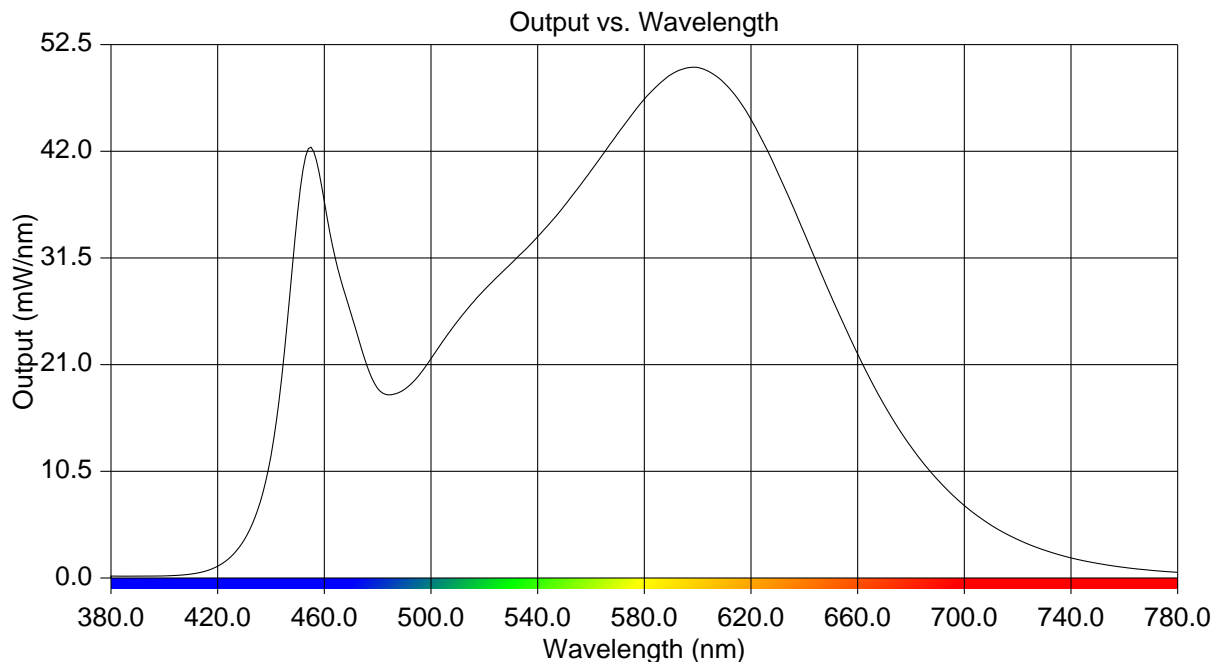
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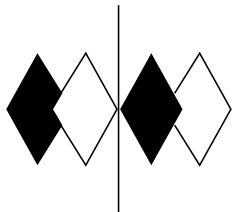
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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.191	515	26.909	650	27.763
385	0.181	520	28.354	655	24.852
390	0.186	525	29.681	660	22.045
395	0.190	530	30.943	665	19.422
400	0.206	535	32.232	670	17.023
405	0.262	540	33.595	675	14.847
410	0.386	545	35.050	680	12.920
415	0.644	550	36.638	685	11.190
420	1.163	555	38.328	690	9.667
425	2.105	560	40.098	695	8.318
430	3.770	565	41.902	700	7.130
435	6.699	570	43.738	705	6.105
440	12.026	575	45.493	710	5.204
445	22.195	580	47.139	715	4.440
450	36.031	585	48.493	720	3.789
455	42.406	590	49.558	725	3.223
460	37.059	595	50.142	730	2.743
465	30.500	600	50.256	735	2.331
470	26.030	605	49.737	740	1.977
475	21.667	610	48.723	745	1.684
480	18.652	615	47.195	750	1.437
485	18.036	620	45.137	755	1.220
490	18.559	625	42.690	760	1.039
495	19.790	630	39.921	765	0.884
500	21.590	635	37.000	770	0.757
505	23.513	640	33.941	775	0.647
510	25.287	645	30.816	780	0.556





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CIE Chromaticity Diagram

