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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955
NVLAP LAB CODE: 200925-0
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

REPORT NUMBER: ITL82342
DATE: 07/31/14
PREPARED FOR: RAB LIGHTING, INC.
CATALOG NUMBER: TRLED2X4-37Y/D10

ADDRESS: 170 LUDLOW AVE
NORTHVALE, NJ 07647

LUMINAIRE: FABRICATED METAL HOUSING WITH WHITE PAINTED INTERIOR FINISH, FORMED WHITE PAINTED METAL DRIVER COVER, 4 WHITE CIRCUIT BOARDS EACH WITH 32 LEDS, CLEAR FLAT PRISMATIC PLASTIC LENS IN FABRICATED WHITE PAINTED METAL FRAME. LENS PRISMS OUT.

LAMP: ONE HUNDRED TWENTY-EIGHT WHITE LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

DRIVER: RAB LIGHTING RDD-037W-350G, DRIVER HAS MULTIPLE LEADS, ONLY LINE INPUT AND LED OUTPUT LEADS CONNECTED FOR THIS TEST.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120.0 AND 277.0 VAC, 60Hz) TO THE DRIVER. DRIVER INFORMATION PROVIDED BY CLIENT.

INSTRUMENTS:		Calibration Due:
	Associated Power Technologies APT5040 AC Power Source	N/A
	Yokogawa WT210 Digital Power Meter #8	12/31/14
	Ocean Optics QE65000 Spectroradiometer	07/14/15
	ITL 2.0m Diameter Integrating Sphere S20-2, 4PI Geometry	07/14/15

OBJECT OF TEST: Measure the Total Radiant Flux*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRIa,1-14), Chromaticity Coordinates (x,y; u'v'), ANSI C78.377 Duv, and electrical data including ANSI C82.77-2002 Power Factor (PF) and Total Harmonic Distortion (THD) to the test sample. Report Off-State Power. Measure electrical data including Total Harmonic Distortion (THD) at maximum rated voltage.

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 120.0 VAC input. Electrical data was also recorded at maximum nominal rated input voltage (277.0 VAC). All testing performed 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. Off-State Power was reported with no voltage applied to the sample.

*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.

RESULTS: (continued subsequent pages)

Checked *N THOMAS*
Approved *P O'CONNOR*
Sphere Lab Supervisor

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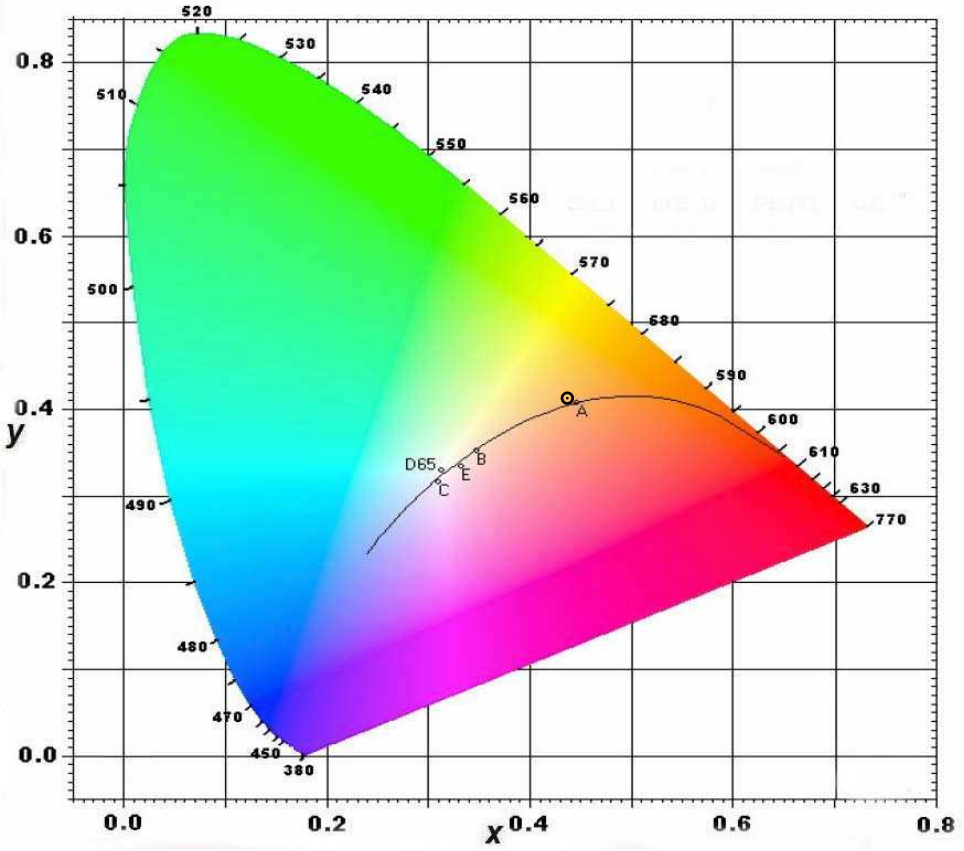
CIE Chromaticity Diagram



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RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4367
Chromaticity Ordinate y	0.4124
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2469
Chromaticity Ordinate v'	0.5246
Correlated Color Temp CCT (K)	3071
ANSI C78.377-2008 Duv	0.003
Total Radiant Flux (milliWatts)	10380 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.325
Input Power (Watts)	38.8
Input Power Factor (%)	99.5
Input Current THD (%)	9.9
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.147
Input Power (Watts)	38.4
Input Power Factor (%)	94.3
Input Current THD (%)	13.1
Input Voltage THD (%)	0.1

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	81
R1 Light greyish red	79
R2 Dark greyish yellow	87
R3 Strong yellowish green	95
R4 Moderate yellowish green	80
R5 Light bluish green	78
R6 Light blue	83
R7 Light violet	87
R8 Light reddish purple	63
R9 Strong red	13
R10 Strong yellow	70
R11 Strong green	76
R12 Strong blue	60
R13 Light yellowish pink (skin)	80
R14 Moderate olive green (leaf)	97

*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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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.242	515	28.744	650	43.243
385	0.231	520	31.283	655	40.042
390	0.239	525	33.488	660	36.882
395	0.254	530	35.557	665	33.722
400	0.289	535	37.572	670	30.697
405	0.374	540	39.688	675	27.741
410	0.563	545	41.976	680	24.951
415	0.943	550	44.395	685	22.355
420	1.677	555	46.883	690	19.969
425	3.020	560	49.519	695	17.780
430	5.343	565	52.018	700	15.709
435	8.907	570	54.353	705	13.835
440	14.434	575	56.444	710	12.129
445	23.580	580	58.351	715	10.578
450	32.418	585	59.997	720	9.211
455	31.023	590	61.298	725	8.006
460	22.723	595	62.204	730	6.957
465	17.685	600	62.631	735	6.026
470	14.455	605	62.522	740	5.235
475	11.557	610	61.912	745	4.528
480	10.464	615	60.723	750	3.920
485	11.137	620	59.081	755	3.393
490	12.885	625	57.034	760	2.930
495	15.640	630	54.693	765	2.526
500	19.061	635	52.104	770	2.180
505	22.592	640	49.289	775	1.878
510	25.837	645	46.336	780	1.625