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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

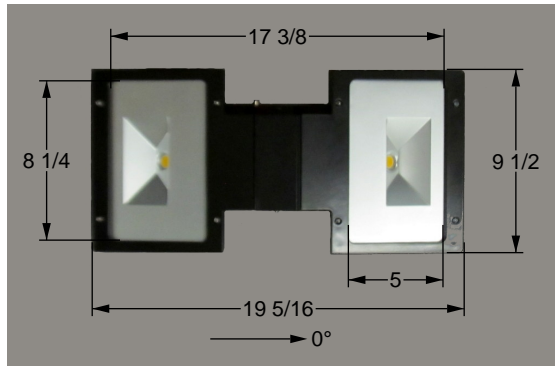
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NVLAP LAB CODE: 200925-0

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

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 20 foot mounting height.



REPORT NUMBER: ITL81186

ISSUE DATE: 04/09/14

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PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: CLED2X26Y - PLED2X26Y -
PLED2X26Y/UP (SURFACE, PENDENT,
PENDENT INDIRECT)

LUMINAIRE: ONE LUMINAIRE CONSISTING OF
TWO OPPOSING LIGHT HEADS, EACH LIGHT
HEAD CONSISTING OF: CAST FINNED METAL
HOUSING, MACHINED METAL HEAT SINK, 1
CIRCUIT BOARD WITH 1 LED, MOLDED
PLASTIC REFLECTOR WITH SEMI-SPECULAR
FINISH, CLEAR FLAT GLASS LENS IN CAST
BROWN PAINTED METAL FRAME.

TOTAL INPUT WATTS = 59.0 AT 120.0 VOLTS
LAMPS: TWO WHITE MULTI-CHIP LIGHT

EMITTING DIODES (LED'S), TILTED 35-
DEGREES FROM VERTICAL BASE-UP
POSITION.

LED DRIVERS: TWO RAB RD26S

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

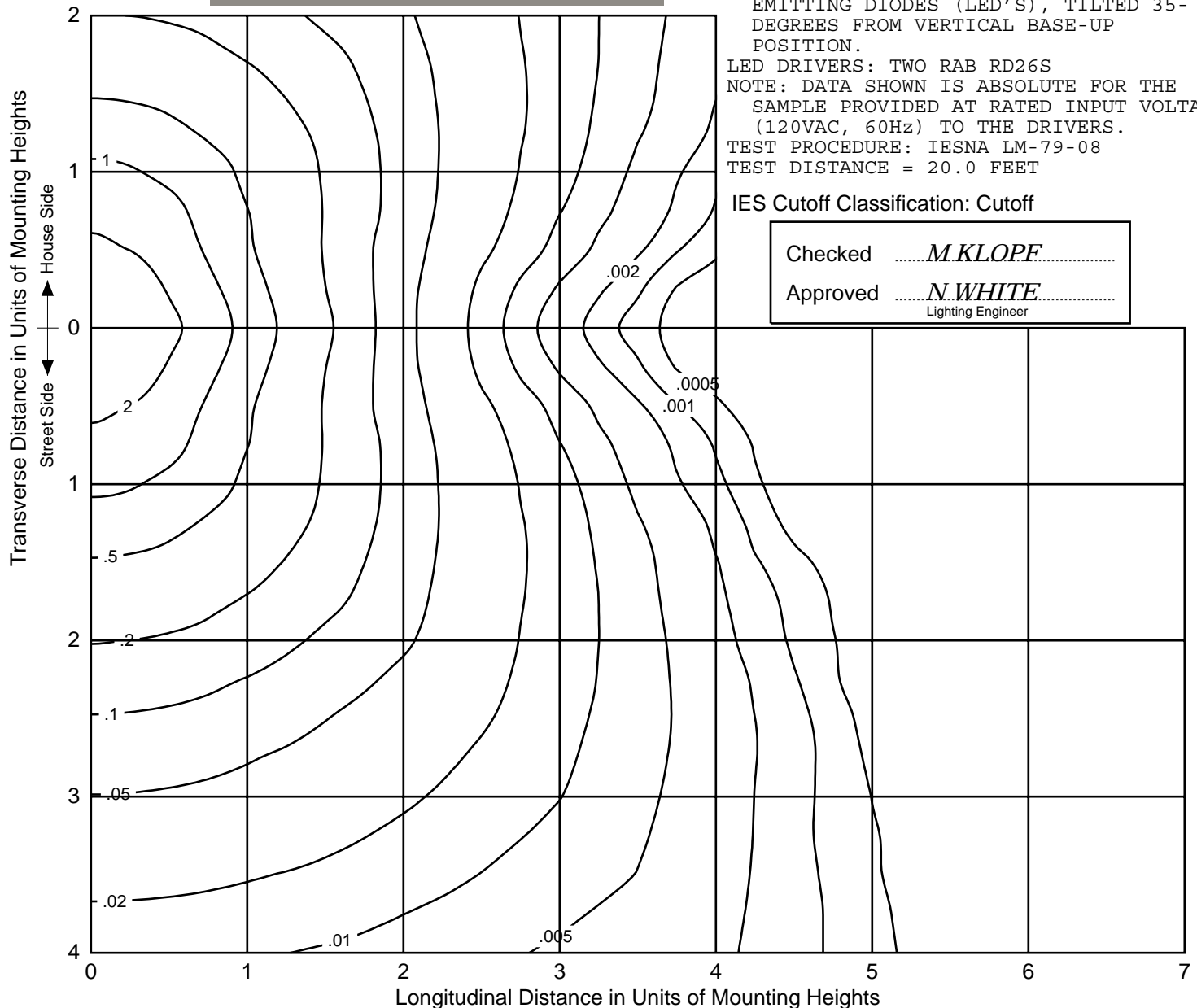
TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 20.0 FEET

IES Cutoff Classification: Cutoff

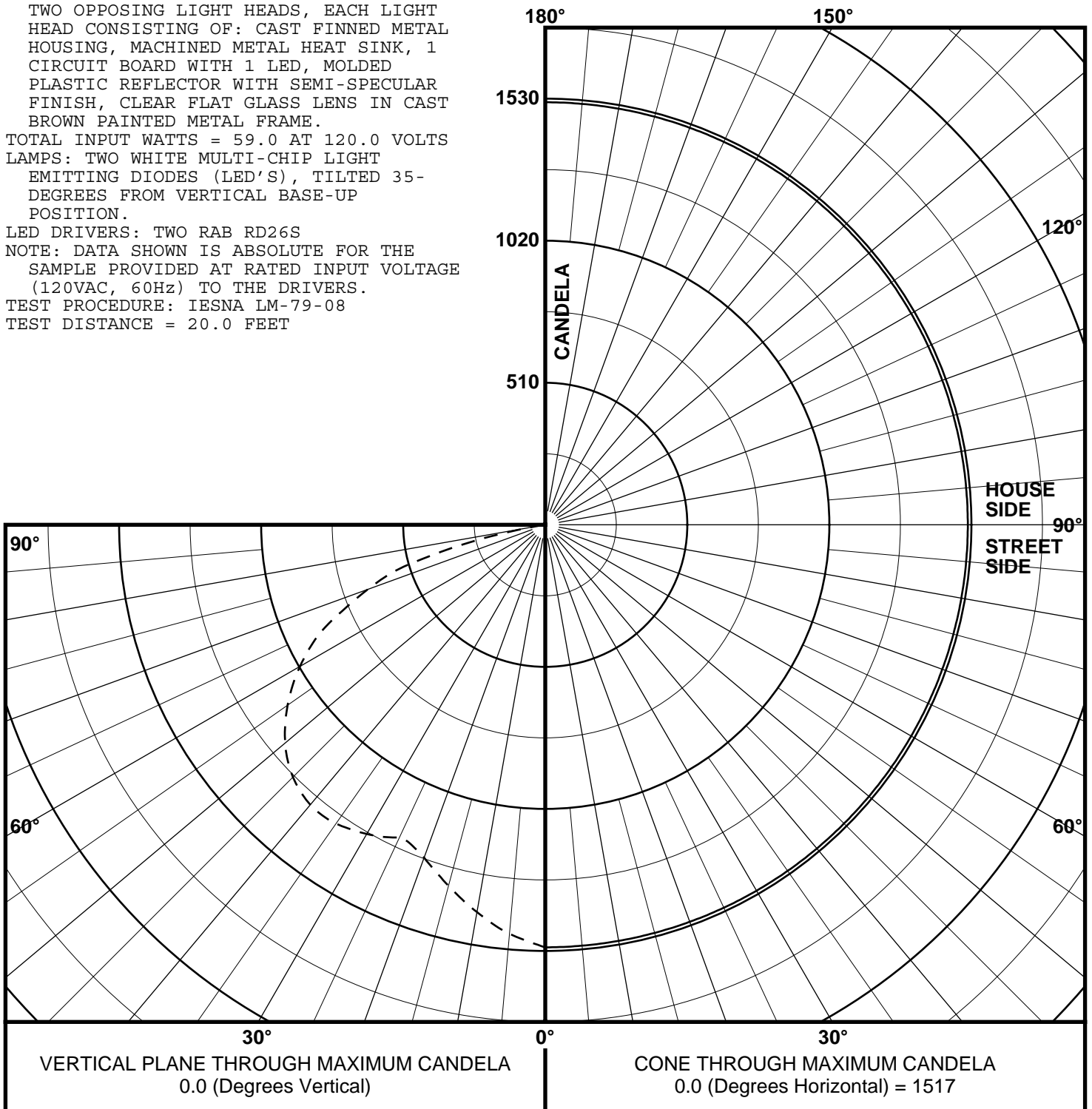
Checked M.KLOPF

Approved N.WHITE
Lighting Engineer



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(120VAC, 60Hz) TO THE DRIVERS.
TEST PROCEDURE: IESNA LM-79-08
TEST DISTANCE = 20.0 FEET

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

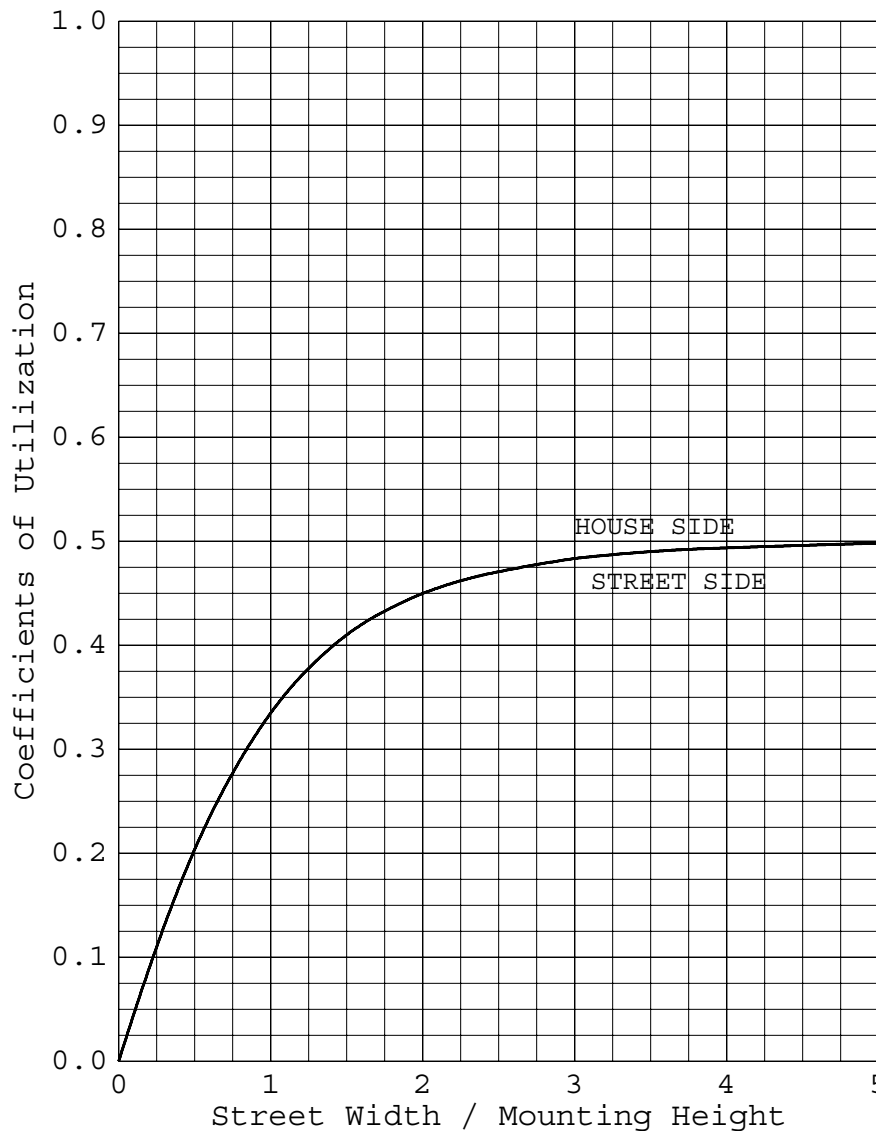




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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	2142	50.0
DOWNWARD HOUSE SIDE	2142	50.0
DOWNWARD TOTAL	4285	100.0
UPWARD STREET SIDE	0	0.0
UPWARD HOUSE SIDE	0	0.0
UPWARD TOTAL	0	0.0
TOTAL FLUX	4285	100.0

EFFICACY = 72.6 lm/W

ALL CANDELA AND LUMENS IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY.
THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE
LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.



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FLUX DISTRIBUTION BY SOLID ANGLE

(PER IESNA TM-15-11, LUMINAIRE CLASSIFICATION
SYSTEM FOR OUTDOOR LUMINAIRES)

	LUMENS	PERCENT OF FIXTURE	BUG ZONE RATINGS
FORWARD LIGHT	2142.	50.0	
FL (0- 30)	549.2	12.8	
FM (30- 60)	1126.7	26.3	
FH (60- 80)	458.9	10.7	G0
FVH(80- 90)	7.7	0.2	G0
BACK LIGHT	2142.	50.0	
BL (0- 30)	549.2	12.8	B2
BM (30- 60)	1126.7	26.3	B2
BH (60- 80)	458.9	10.7	B1 G1
BVH(80- 90)	7.7	0.2	G0
UPLIGHT	0.	0.0	
UL (90-100)	0.0	0.0	U1
UH (100-180)	0.0	0.0	U0
TRAPPED LIGHT	0.	0.0	
TOTAL FLUX	4285.	100.0	

BACKLIGHT, UPLIGHT, AND GLARE (BUG) RATINGS
(PER ADDENDUM A FOR IESNA TM-15-11)

BUG RATING: B2 U1 G1



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CANDELA TABULATION

		LATERAL ANGLE										
		0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0
	180.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	165.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	135.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	125.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	115.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	105.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	95.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	92.5	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	90.0	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
	87.5	2.	2.	2.	2.	2.	1.	1.	0.	0.	0.	0.
	85.0	7.	6.	6.	6.	5.	4.	2.	1.	0.	0.	0.
V	82.5	19.	17.	18.	17.	26.	43.	8.	3.	1.	1.	1.
E	80.0	72.	69.	85.	112.	148.	177.	68.	11.	3.	2.	2.
R	77.5	237.	236.	250.	278.	308.	311.	202.	75.	15.	4.	4.
T	75.0	419.	420.	431.	450.	443.	394.	300.	179.	67.	12.	8.
I	72.5	585.	584.	580.	561.	527.	501.	366.	255.	141.	42.	23.
C	70.0	678.	674.	664.	647.	627.	615.	445.	311.	197.	87.	65.
A	67.5	772.	767.	760.	746.	724.	685.	527.	375.	249.	144.	132.
L	65.0	873.	863.	854.	836.	798.	738.	589.	440.	304.	217.	214.
	62.5	951.	948.	933.	904.	857.	786.	638.	492.	358.	301.	302.
A	60.0	1017.	1013.	995.	965.	911.	830.	683.	532.	404.	384.	390.
N	57.5	1076.	1072.	1053.	1020.	958.	869.	723.	570.	456.	468.	481.
G	55.0	1129.	1125.	1106.	1072.	1001.	904.	759.	607.	516.	550.	565.
L	52.5	1177.	1172.	1153.	1117.	1038.	934.	792.	644.	581.	630.	646.
E	50.0	1219.	1213.	1196.	1159.	1070.	959.	821.	682.	650.	707.	723.
	47.5	1254.	1248.	1231.	1191.	1096.	980.	847.	722.	720.	780.	798.
	45.0	1281.	1275.	1258.	1214.	1116.	998.	874.	773.	791.	853.	870.
	42.5	1300.	1293.	1276.	1228.	1129.	1014.	899.	830.	861.	922.	936.
	40.0	1312.	1305.	1286.	1234.	1137.	1028.	922.	892.	929.	990.	1002.
	37.5	1315.	1308.	1287.	1233.	1141.	1044.	957.	954.	995.	1054.	1066.
	35.0	1310.	1302.	1281.	1227.	1145.	1054.	1007.	1015.	1057.	1116.	1125.
	32.5	1297.	1290.	1268.	1221.	1145.	1073.	1060.	1075.	1116.	1173.	1180.
	30.0	1282.	1275.	1256.	1211.	1142.	1108.	1115.	1134.	1173.	1224.	1230.
	25.0	1240.	1234.	1225.	1209.	1190.	1194.	1217.	1238.	1270.	1313.	1319.
	20.0	1272.	1270.	1271.	1272.	1267.	1280.	1306.	1327.	1353.	1386.	1389.
	15.0	1342.	1341.	1344.	1346.	1343.	1355.	1384.	1401.	1419.	1443.	1446.
	10.0	1412.	1412.	1414.	1414.	1410.	1421.	1447.	1457.	1467.	1485.	1484.
	5.0	1474.	1474.	1474.	1472.	1465.	1471.	1491.	1493.	1497.	1510.	1510.
	0.0<<	1517.	1517.	1517.	1517.	1517.	1517.	1517.	1517.	1517.	1517.	1517.

||
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA



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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	36
5- 10	104
10- 15	167
15- 20	221
20- 25	266
25- 30	305
30- 35	341
35- 40	370
40- 45	389
45- 50	396
50- 55	389
55- 60	369
60- 65	335
65- 70	279
70- 75	204
75- 80	100
80- 85	15
85- 90	1
90- 95	0
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
140-145	0
145-150	0
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	140
0- 20	527
0- 30	1098
0- 40	1809
0- 50	2593
0- 60	3352
0- 70	3966
0- 80	4269
0- 90	4285
0-100	4285
0-110	4285
0-120	4285
0-130	4285
0-140	4285
0-150	4285
0-160	4285
0-170	4285
0-180	4285



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ADDRESS: 170 LUDLOW AVE
NORTHVALE, NJ 07647

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DATE: 04/15/14
PREPARED FOR: RAB LIGHTING, INC.
CATALOG NUMBER: CLED2X26Y - PLED2X26Y - PLED2X26Y/UP (SURFACE, PENDENT, PENDENT INDIRECT)

ADDRESS: 170 LUDLOW AVE
NORTHVALE, NJ 07647

LUMINAIRE: ONE LUMINAIRE CONSISTING OF TWO OPPOSING LIGHT HEADS, EACH LIGHT HEAD CONSISTING OF: CAST FINNED METAL HOUSING, MACHINED METAL HEAT SINK, 1 CIRCUIT BOARD WITH 1 LED, MOLDED PLASTIC REFLECTOR WITH SEMI-SPECULAR FINISH, CLEAR FLAT GLASS LENS IN CAST BROWN PAINTED METAL FRAME.

LAMP: TWO WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDs), TILTED 35-DEGREES FROM VERTICAL BASE-UP POSITION.

DRIVERS: TWO RAB RD26S

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

INSTRUMENTS:	Associated Power Technologies APT5040 AC Power Source	Calibration Due: N/A
	Yokogawa WT210 Digital Power Meter #8	12/31/14
	Ocean Optics QE65000 Spectroradiometer	10/16/14
	ITL 2.0m Diameter Integrating Sphere S20-2, 4PI Geometry	10/16/14

OBJECT OF TEST: Measure the Total Radiant Flux*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRI_a,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)

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



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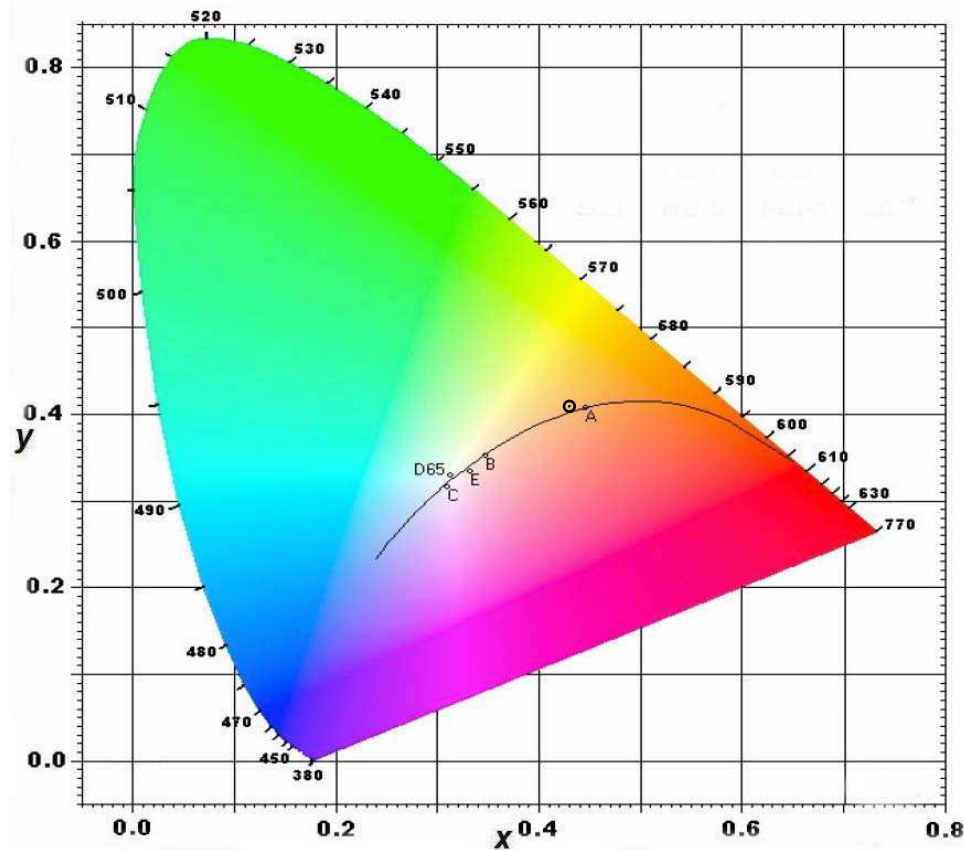
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CIE Chromaticity Diagram





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RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4298
Chromaticity Ordinate y	0.4088
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2440
Chromaticity Ordinate v'	0.5222
Correlated Color Temp CCT (K)	3161
ANSI C78.377-2008 Duv	0.003
Total Radiant Flux (milliWatts)	12649 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.495
Input Power (Watts)	59.0
Input Power Factor (%)	99.3
Input Current THD (%)	7.9
Input Voltage THD (%)	0.1
Off-State Power (Watts)	
	0.0
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.235
Input Power (Watts)	58.8
Input Power Factor (%)	90.3
Input Current THD (%)	11.2
Input Voltage THD (%)	0.1

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	82
R1 Light greyish red	80
R2 Dark greyish yellow	87
R3 Strong yellowish green	95
R4 Moderate yellowish green	83
R5 Light bluish green	80
R6 Light blue	85
R7 Light violet	84
R8 Light reddish purple	59
R9 Strong red	0
R10 Strong yellow	71
R11 Strong green	84
R12 Strong blue	68
R13 Light yellowish pink (skin)	81
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	0.272	515	43.353	650	45.847
385	0.261	520	46.356	655	40.816
390	0.277	525	48.377	660	36.056
395	0.333	530	49.800	665	31.673
400	0.447	535	50.776	670	27.672
405	0.687	540	51.615	675	24.072
410	1.168	545	52.657	680	20.850
415	2.129	550	54.096	685	18.012
420	4.124	555	56.090	690	15.502
425	7.899	560	58.785	695	13.313
430	14.114	565	62.233	700	11.424
435	23.766	570	66.177	705	9.784
440	37.968	575	70.409	710	8.369
445	48.119	580	74.664	715	7.154
450	40.864	585	78.582	720	6.109
455	27.392	590	81.750	725	5.203
460	19.470	595	83.916	730	4.428
465	14.303	600	84.921	735	3.773
470	10.950	605	84.618	740	3.221
475	10.099	610	83.071	745	2.762
480	11.077	615	80.347	750	2.374
485	13.606	620	76.823	755	2.030
490	17.752	625	72.411	760	1.742
495	23.097	630	67.341	765	1.492
500	28.926	635	62.123	770	1.286
505	34.522	640	56.618	775	1.106
510	39.497	645	51.120	780	0.958

