

itl boulder
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

PHONE: (303) 442-1255

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NVLAP
NVLAP LAB CODE: 200925-0

INDEPENDENT TESTING LABORATORIES, INC.

4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 9 foot mounting height.



REPORT NUMBER: ITL81202

ISSUE DATE: 04/10/14 PAGE: 1 OF 7

PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: GLED26N OR GPLED26N (W/ PRISMATIC LENS - CEILING OR PENDENT MOUNT)

LUMINAIRE: CAST 2-PIECE BROWN PAINTED FINNED METAL HOUSING, 4 CAST METAL HEAT SINKS/CIRCUIT BOARD MOUNTING BRACKETS, 4 CIRCUIT BOARDS EACH WITH 1 LED AND MOLDED PLASTIC CIRCUIT BOARD PERIMETER OVERLAY WITH SPECULAR FINISH, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH AND 1 APERTURE PER LED, CLEAR PLASTIC DROP LENS WITH RADIALLY PRISMATIC BOTTOM AND PRISMATIC SIDES IN CAST BROWN PAINTED METAL FRAME. LENS RADIAL PRISMS IN, AND SIDE PRISMS IN AND OUT.

LAMPS: FOUR WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDs), AIMED 5-DEGREES BELOW THE HORIZON.

TOTAL INPUT WATTS = 27.5 AT 120.0 VOLTS
LED DRIVER: RAB RD26S

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

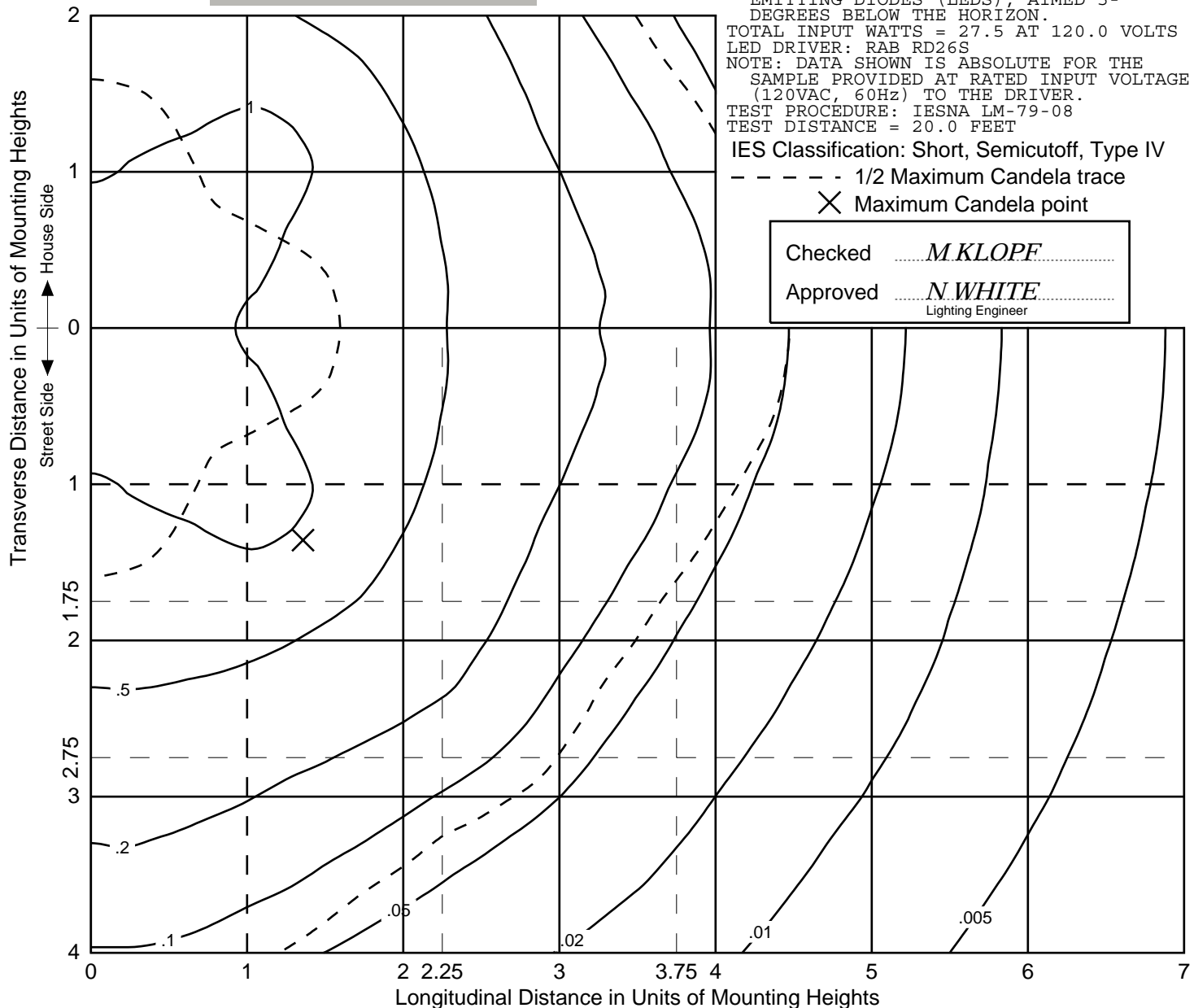
TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 20.0 FEET

IES Classification: Short, Semicutoff, Type IV

--- 1/2 Maximum Candela trace

X Maximum Candela point



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MOUNT)

LUMINAIRE: CAST 2-PIECE BROWN PAINTED
FINNED METAL HOUSING, 4 CAST METAL
HEAT SINKS/CIRCUIT BOARD MOUNTING
BRACKETS, 4 CIRCUIT BOARDS EACH WITH 1
LED AND MOLDED PLASTIC CIRCUIT BOARD
PERIMETER OVERLAY WITH SPECULAR
FINISH, MOLDED PLASTIC REFLECTOR WITH
SPECULAR FINISH AND 1 APERTURE PER
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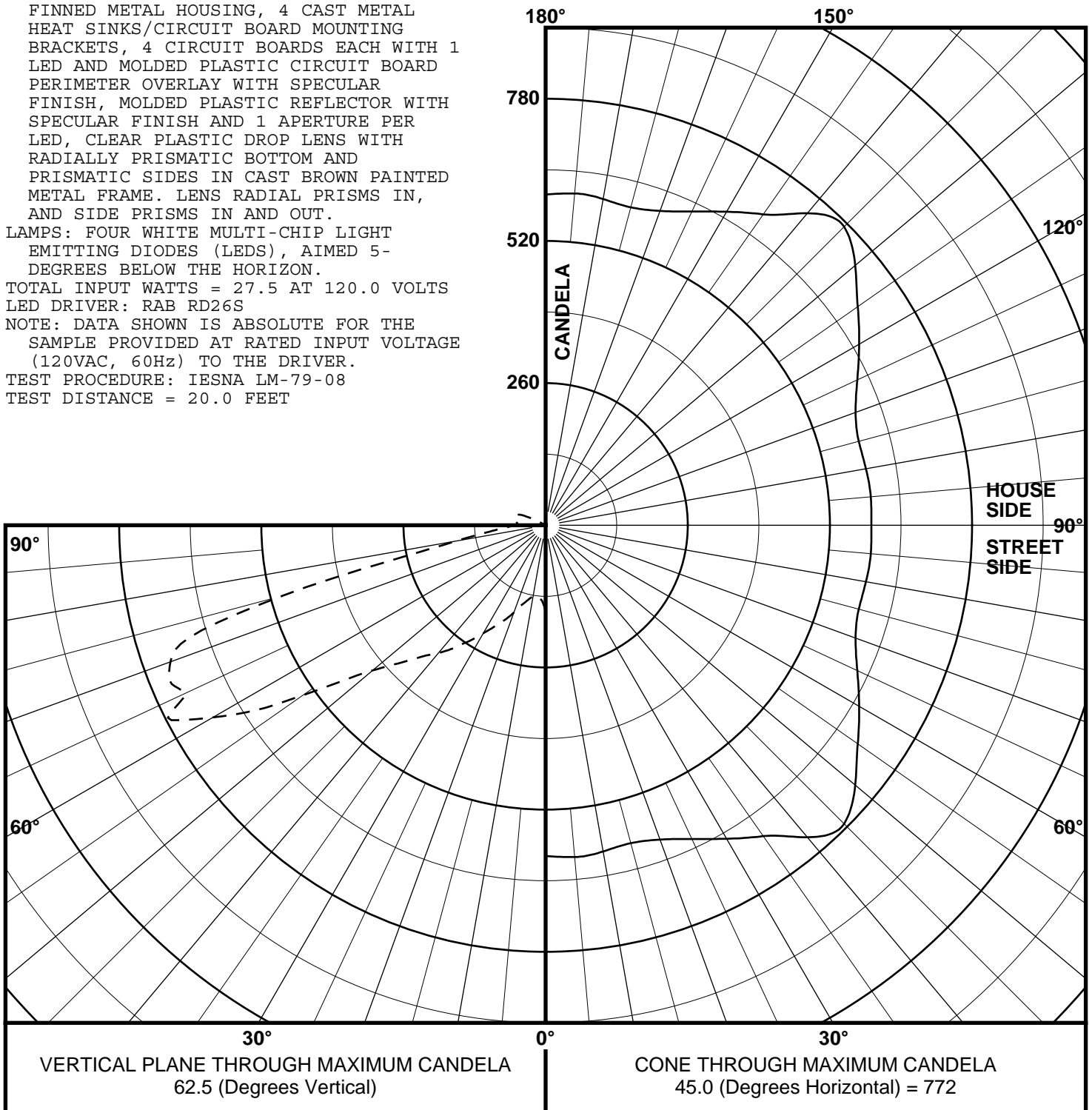
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TOTAL INPUT WATTS = 27.5 AT 120.0 VOLTS
LED DRIVER: RAB RD26S

NOTE: DATA SHOWN IS ABSOLUTE FOR THE
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(120VAC, 60Hz) TO THE DRIVER.

TEST PROCEDURE: IESNA LM-79-08
TEST DISTANCE = 20.0 FEET

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

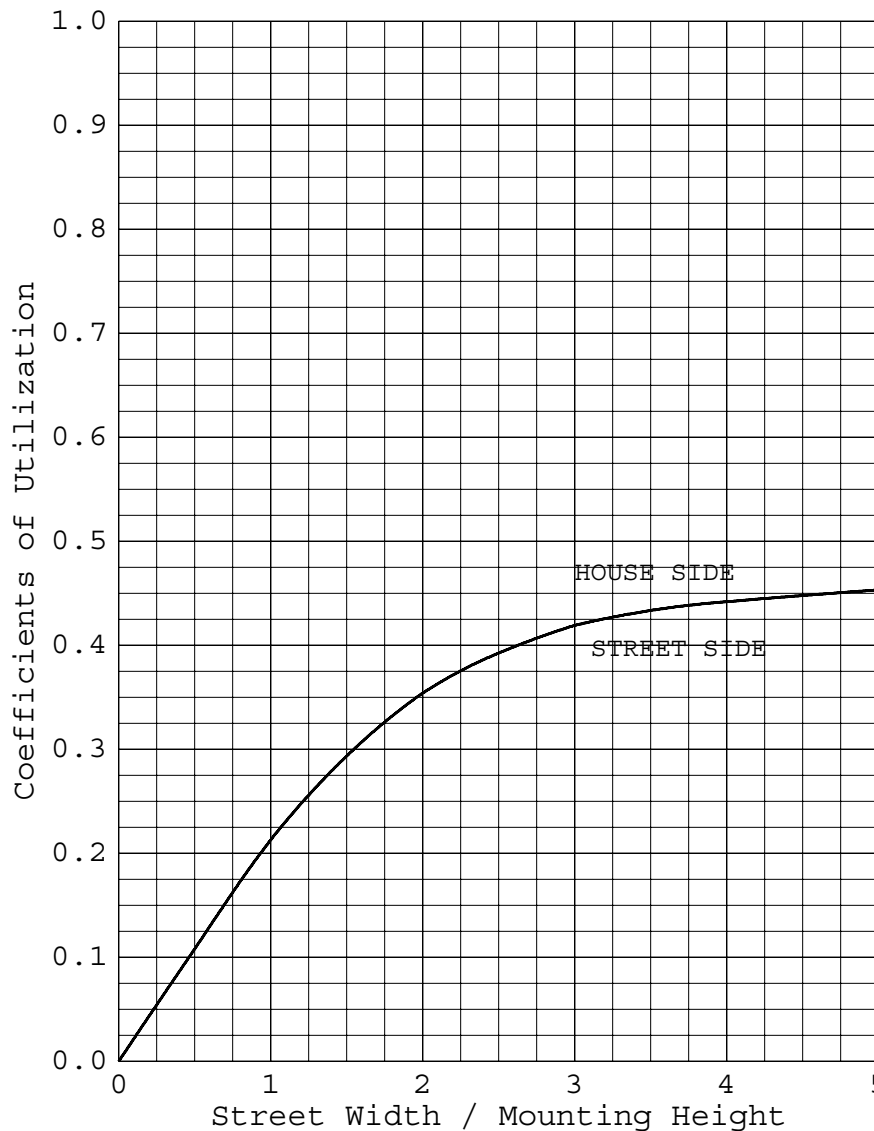




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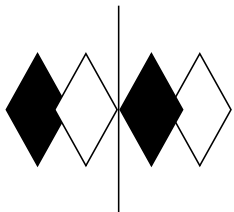
COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	1066	46.9
DOWNWARD HOUSE SIDE	1066	46.9
DOWNWARD TOTAL	2132	93.8
UPWARD STREET SIDE	70	3.1
UPWARD HOUSE SIDE	70	3.1
UPWARD TOTAL	140	6.2
TOTAL FLUX	2272	100.0

EFFICACY = 82.6 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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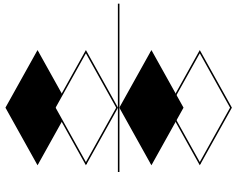
FLUX DISTRIBUTION BY SOLID ANGLE

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

	LUMENS	PERCENT OF FIXTURE	BUG ZONE RATINGS
FORWARD LIGHT	1066.	46.9	
FL (0- 30)	72.2	3.2	
FM (30- 60)	373.6	16.4	
FH (60- 80)	568.3	25.0	G0
FVH(80- 90)	51.7	2.3	G1
BACK LIGHT	1066.	46.9	
BL (0- 30)	72.2	3.2	B0
BM (30- 60)	373.6	16.4	B1
BH (60- 80)	568.3	25.0	B2 G0
BVH(80- 90)	51.7	2.3	G1
UPLIGHT	140.	6.2	
UL (90-100)	55.8	2.5	U3
UH (100-180)	84.2	3.7	U3
TRAPPED LIGHT	0.	0.0	
TOTAL FLUX	2272.	100.0	

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

BUG RATING: B2 U3 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



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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	3
5- 10	9
10- 15	16
15- 20	25
20- 25	37
25- 30	53
30- 35	70
35- 40	85
40- 45	101
45- 50	119
50- 55	153
55- 60	219
60- 65	309
65- 70	339
70- 75	317
75- 80	171
80- 85	66
85- 90	38
90- 95	27
95-100	28
100-105	29
105-110	27
110-115	22
115-120	7
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	13
0- 20	54
0- 30	144
0- 40	300
0- 50	519
0- 60	892
0- 70	1540
0- 80	2028
0- 90	2132
0-100	2187
0-110	2243
0-120	2271
0-130	2272
0-140	2272
0-150	2272
0-160	2272
0-170	2272
0-180	2272



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ADDRESS: 170 LUDLOW AVE
NORTHVALE, NJ 07647

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CATALOG NUMBER: GLED26N OR GPLED26N (W/ PRISMATIC LENS - CEILING OR PENDENT MOUNT)

ADDRESS: 170 LUDLOW AVE
NORTHVALE, NJ 07647

LUMINAIRE: CAST 2-PIECE BROWN PAINTED FINNED METAL HOUSING, 4 CAST METAL HEAT SINKS/CIRCUIT BOARD MOUNTING BRACKETS, 4 CIRCUIT BOARDS EACH WITH 1 LED AND MOLDED PLASTIC CIRCUIT BOARD PERIMETER OVERLAY WITH SPECULAR FINISH, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH AND 1 APERTURE PER LED, CLEAR PLASTIC DROP LENS WITH RADIALLY PRISMATIC BOTTOM AND PRISMATIC SIDES IN CAST BROWN PAINTED METAL FRAME. LENS RADIAL PRISMS IN, AND SIDE PRISMS IN AND OUT.

LAMP: FOUR WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDs), AIMED 5-DEGREES BELOW THE HORIZON.

DRIVER: RAB RD26S

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

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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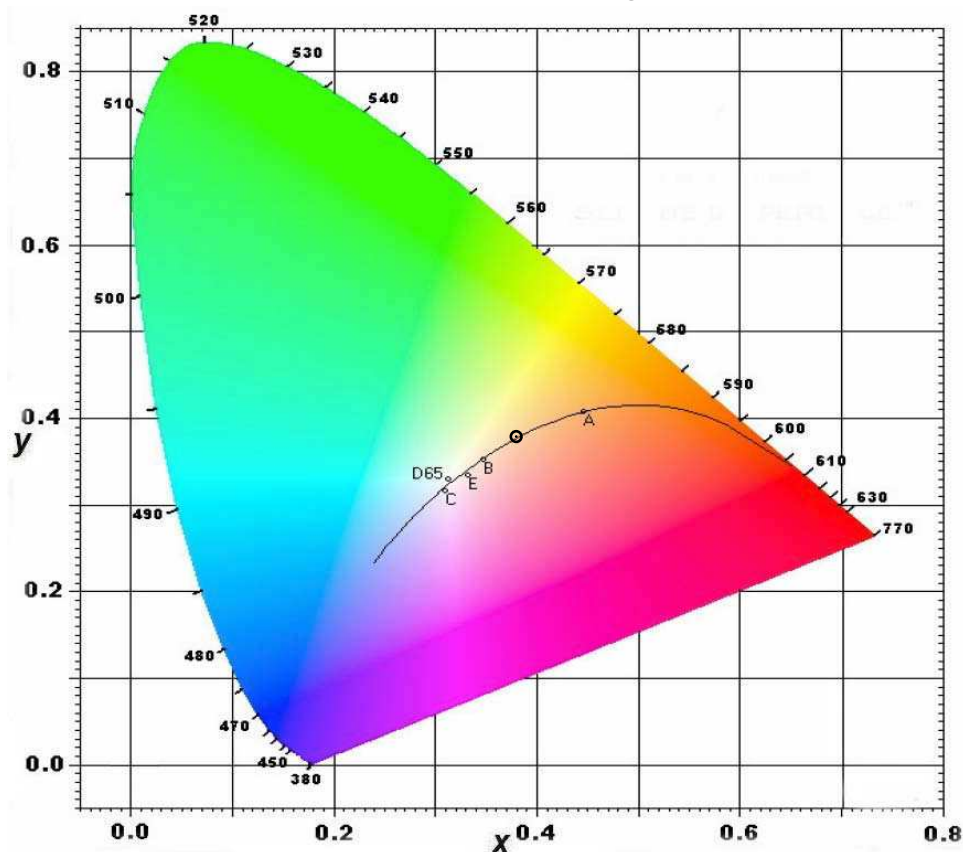
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CIE Chromaticity Diagram





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RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3794
Chromaticity Ordinate y	0.3785
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2237
Chromaticity Ordinate v'	0.5022
Correlated Color Temp CCT (K)	4041
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	6905 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.231
Input Power (Watts)	27.5
Input Power Factor (%)	99.2
Input Current THD (%)	6.8
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)	0.114
Input Power (Watts)	27.5
Input Power Factor (%)	87.1
Input Current THD (%)	10.5
Input Voltage THD (%)	0.1

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	84
R1 Light greyish red	83
R2 Dark greyish yellow	88
R3 Strong yellowish green	92
R4 Moderate yellowish green	84
R5 Light bluish green	83
R6 Light blue	84
R7 Light violet	88
R8 Light reddish purple	68
R9 Strong red	14
R10 Strong yellow	71
R11 Strong green	84
R12 Strong blue	59
R13 Light yellowish pink (skin)	84
R14 Moderate olive green (leaf)	95

*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	0.160	515	26.221	650	20.580
385	0.155	520	28.120	655	18.430
390	0.159	525	29.441	660	16.393
395	0.176	530	30.280	665	14.473
400	0.214	535	30.743	670	12.695
405	0.293	540	31.046	675	11.080
410	0.464	545	31.316	680	9.632
415	0.815	550	31.679	685	8.350
420	1.566	555	32.148	690	7.211
425	3.107	560	32.833	695	6.206
430	6.088	565	33.698	700	5.334
435	11.068	570	34.638	705	4.579
440	19.658	575	35.634	710	3.930
445	34.251	580	36.646	715	3.373
450	45.731	585	37.621	720	2.894
455	39.323	590	38.373	725	2.476
460	26.047	595	38.819	730	2.120
465	18.877	600	38.875	735	1.809
470	14.237	605	38.438	740	1.548
475	10.609	610	37.494	745	1.333
480	9.326	615	36.067	750	1.152
485	9.817	620	34.258	755	0.992
490	11.340	625	32.126	760	0.856
495	13.899	630	29.777	765	0.734
500	17.233	635	27.450	770	0.635
505	20.613	640	25.117	775	0.549
510	23.737	645	22.808	780	0.476

