



**itl boulder**  
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

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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 12 foot mounting height.



REPORT NUMBER: ITL79959

ISSUE DATE: 11/21/13

PAGE: 1 OF 7

PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: GLED52 OR GPLED52 (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 AT THE HORIZON.

TOTAL INPUT WATTS = 58.9 AT 120.0 VOLTS

LED DRIVERS: TWO RAB RD26S

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

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 20.0 FEET

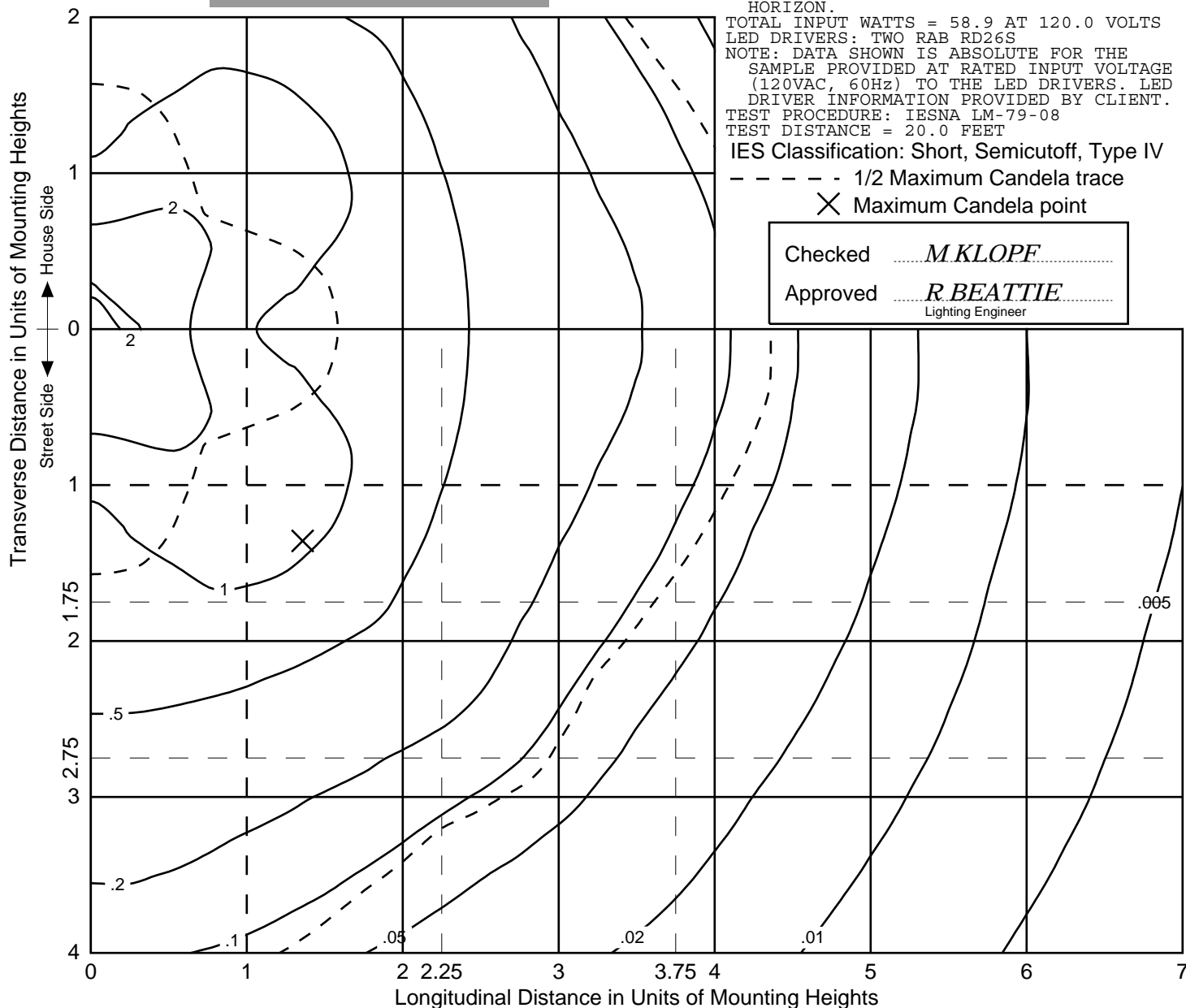
IES Classification: Short, Semicutoff, Type IV

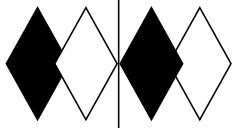
--- 1/2 Maximum Candela trace

X Maximum Candela point

Checked *M.KLOPF*

Approved *R.BEATTIE*  
Lighting Engineer





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CATALOG NUMBER: GLED52 OR GPLED52 (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,  
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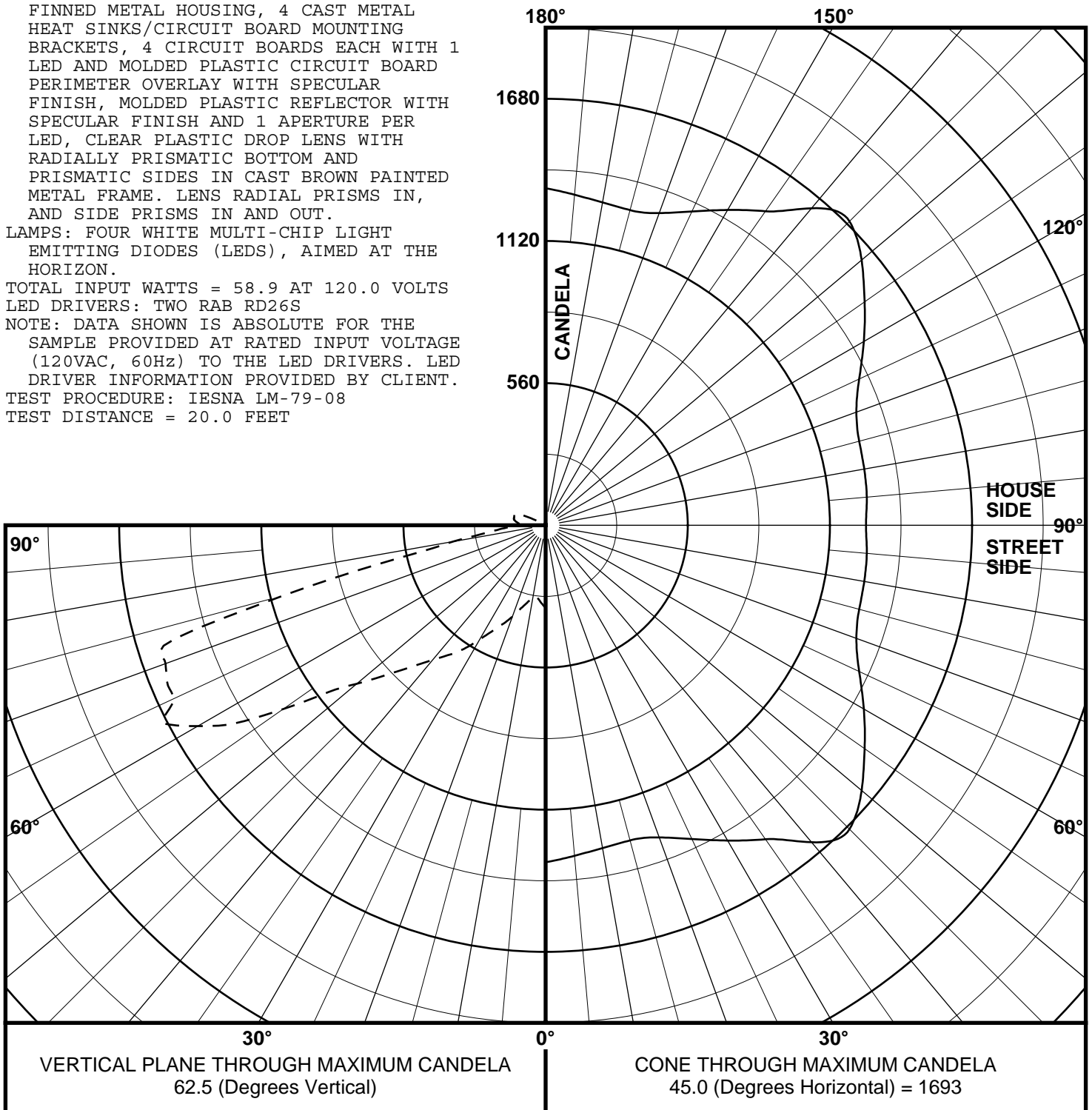
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LED DRIVERS: TWO RAB RD26S

NOTE: DATA SHOWN IS ABSOLUTE FOR THE  
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(120VAC, 60Hz) TO THE LED DRIVERS. LED  
DRIVER INFORMATION PROVIDED BY CLIENT.

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 20.0 FEET

#### MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA





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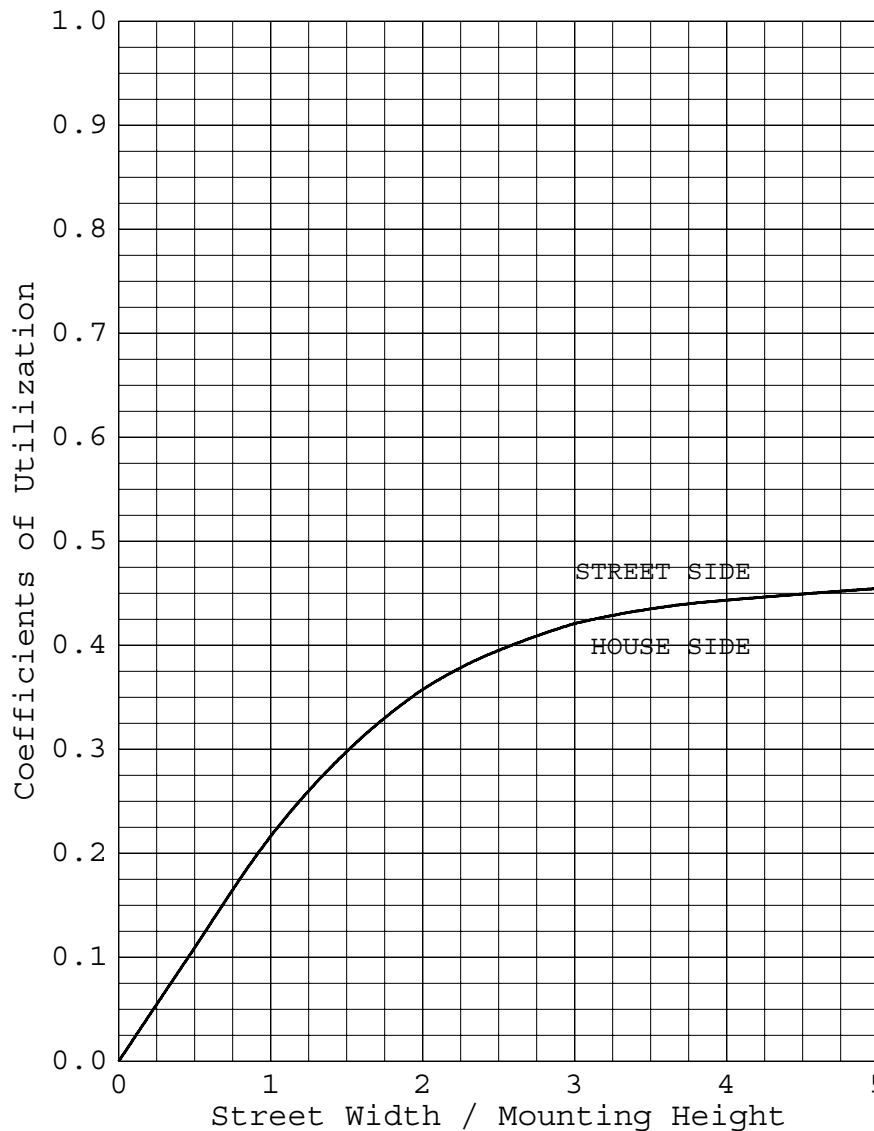
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# COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	2337	47.0
DOWNWARD HOUSE SIDE	2337	47.0
DOWNWARD TOTAL	4674	93.9
UPWARD STREET SIDE	151	3.0
UPWARD HOUSE SIDE	151	3.0
UPWARD TOTAL	301	6.1
TOTAL FLUX	4975	100.0

EFFICACY = 84.5 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	2337.	47.0	
FL ( 0- 30)	163.0	3.3	
FM ( 30- 60)	850.4	17.1	
FH ( 60- 80)	1216.7	24.5	G1
FVH( 80- 90)	106.8	2.1	G2
BACK LIGHT	2337.	47.0	
BL ( 0- 30)	163.0	3.3	B1
BM ( 30- 60)	850.4	17.1	B1
BH ( 60- 80)	1216.7	24.5	B3 G1
BVH( 80- 90)	106.8	2.1	G2
UPLIGHT	301.	6.1	
UL ( 90-100)	116.7	2.3	U3
UH (100-180)	184.7	3.7	U3
TRAPPED LIGHT	0.	0.0	
TOTAL FLUX	4975.	100.0	

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

BUG RATING: B3 U3 G2



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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	7
5- 10	21
10- 15	36
15- 20	57
20- 25	85
25- 30	120
30- 35	160
35- 40	196
40- 45	230
45- 50	273
50- 55	349
55- 60	493
60- 65	670
65- 70	714
70- 75	684
75- 80	365
80- 85	136
85- 90	77
90- 95	57
95-100	60
100-105	62
105-110	59
110-115	49
115-120	15
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	28
0- 20	121
0- 30	326
0- 40	682
0- 50	1185
0- 60	2027
0- 70	3411
0- 80	4460
0- 90	4674
0-100	4790
0-110	4911
0-120	4975
0-130	4975
0-140	4975
0-150	4975
0-160	4975
0-170	4975
0-180	4975



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ADDRESS: 170 LUDLOW AVE  
NORTHVALE, NJ 07647

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DATE: 11/26/13  
PREPARED FOR: RAB LIGHTING, INC.  
CATALOG NUMBER: GLED52 OR GPLED52 (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 RADIALY 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 AT THE HORIZON.

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 LED DRIVERS.

INSTRUMENTS:	Associated Power Technologies APT5040 AC Power Source	Calibration Due: N/A
	Yokogawa WT210 Digital Power Meter #9	02/28/14
	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<sub>a,1-14</sub>), 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	<u>P O'CONNOR</u>
Approved	<u>L GRABA</u> Lighting Engineer





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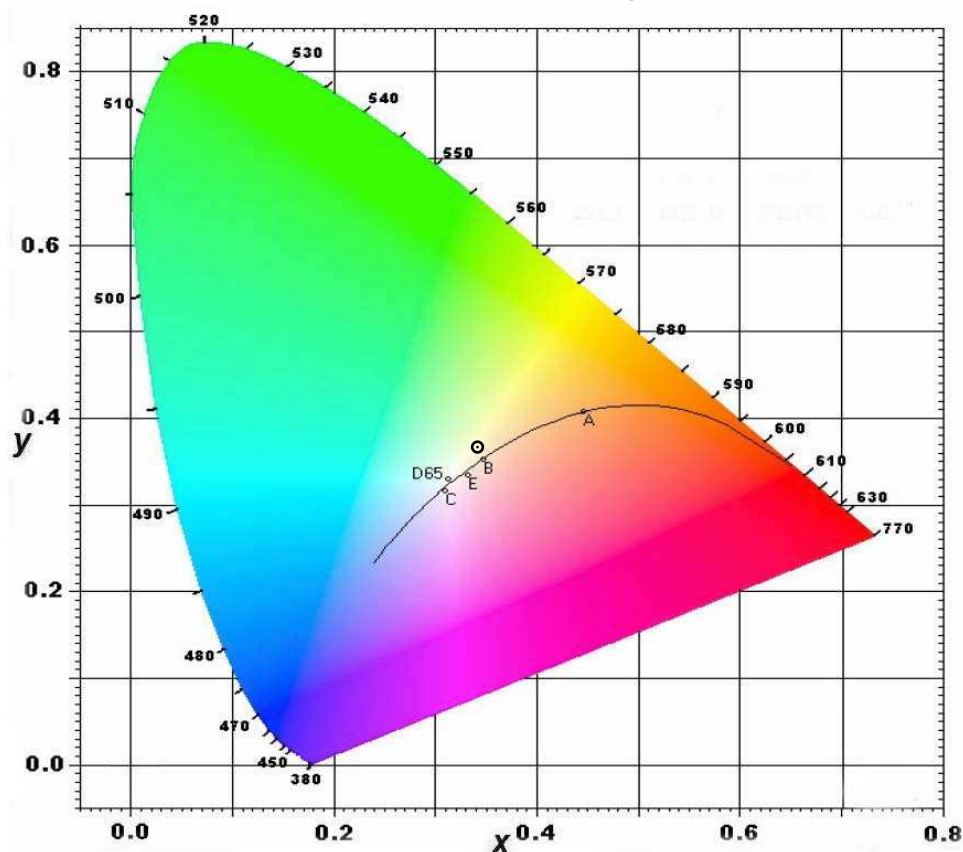
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## CIE Chromaticity Diagram





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# RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3413
Chromaticity Ordinate y	0.3664
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2033
Chromaticity Ordinate v'	0.4912
Correlated Color Temp CCT (K)	5182
ANSI C78.377-2008 Duv	0.009
Total Radiant Flux (milliWatts)	14588 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.493
Input Power (Watts)	58.9
Input Power Factor (%)	99.6
Input Current THD (%)	8.3
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)	58.7
Input Power Factor (%)	90.2
Input Current THD (%)	11.5
Input Voltage THD (%)	0.1

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	68
R1 Light greyish red	65
R2 Dark greyish yellow	72
R3 Strong yellowish green	77
R4 Moderate yellowish green	69
R5 Light bluish green	65
R6 Light blue	62
R7 Light violet	80
R8 Light reddish purple	55
R9 Strong red	-39
R10 Strong yellow	33
R11 Strong green	64
R12 Strong blue	33
R13 Light yellowish pink (skin)	65
R14 Moderate olive green (leaf)	87

## \*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	0.414	515	54.717	650	30.239
385	0.438	520	64.529	655	27.431
390	0.515	525	72.339	660	24.724
395	0.624	530	77.996	665	22.226
400	0.877	535	81.746	670	19.907
405	1.424	540	84.088	675	17.773
410	2.651	545	85.300	680	15.842
415	5.166	550	85.851	685	14.073
420	10.006	555	85.842	690	12.489
425	18.486	560	85.219	695	11.049
430	31.998	565	84.216	700	9.767
435	50.758	570	82.769	705	8.627
440	77.050	575	80.832	710	7.609
445	111.302	580	78.619	715	6.725
450	125.113	585	76.059	720	5.943
455	95.751	590	73.274	725	5.239
460	59.070	595	70.172	730	4.605
465	38.694	600	66.966	735	4.046
470	25.934	605	63.420	740	3.556
475	17.175	610	59.679	745	3.141
480	12.968	615	55.639	750	2.783
485	11.708	620	51.551	755	2.458
490	12.599	625	47.513	760	2.166
495	16.226	630	43.540	765	1.913
500	23.108	635	39.887	770	1.691
505	32.597	640	36.480	775	1.488
510	43.653	645	33.305	780	1.316

