

itl boulder
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

PHONE: (303) 442-1255

FAX: (970) 535-3114

E-MAIL: itl@itlboulder.com

WEBSITE: www.itlboulder.com

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: ITL81201

ISSUE DATE: 04/09/14 PAGE: 1 OF 7

PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: GLED26Y OR GPLED26Y (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 = 27.9 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

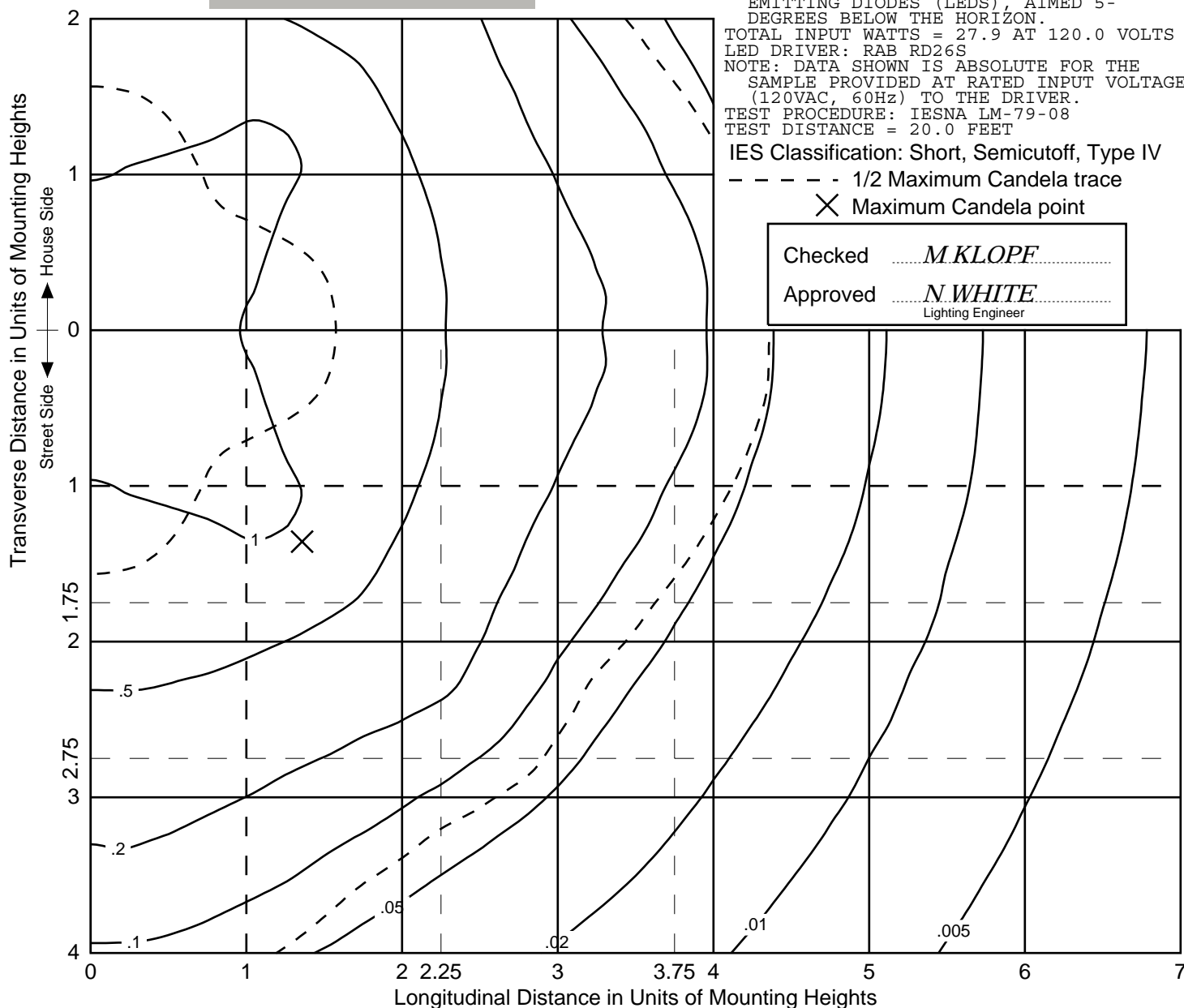
IES Classification: Short, Semicutoff, Type IV

--- 1/2 Maximum Candela trace

X Maximum Candela point

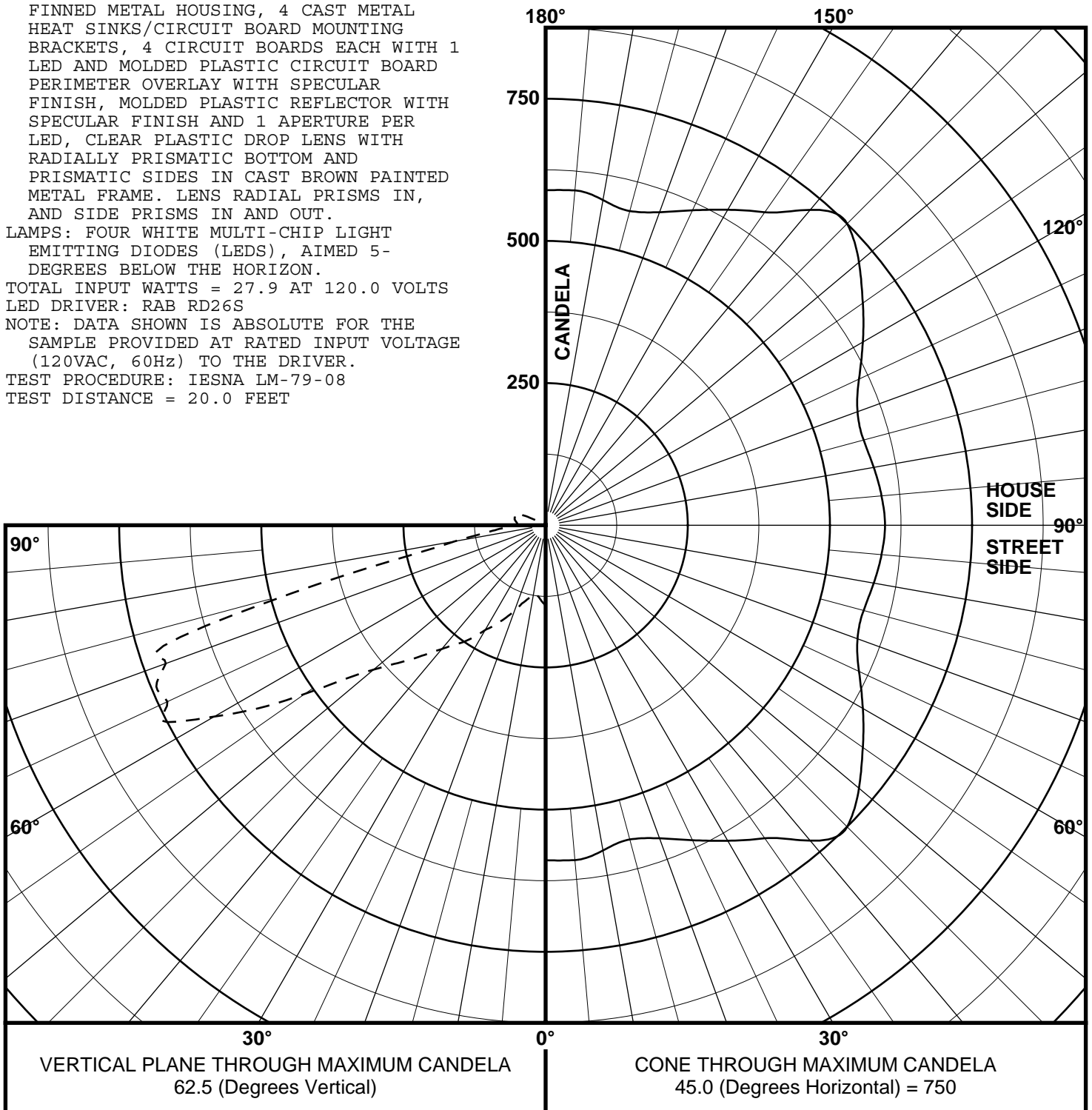
Checked *M. KLOPF*

Approved *N. WHITE*
Lighting Engineer



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

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

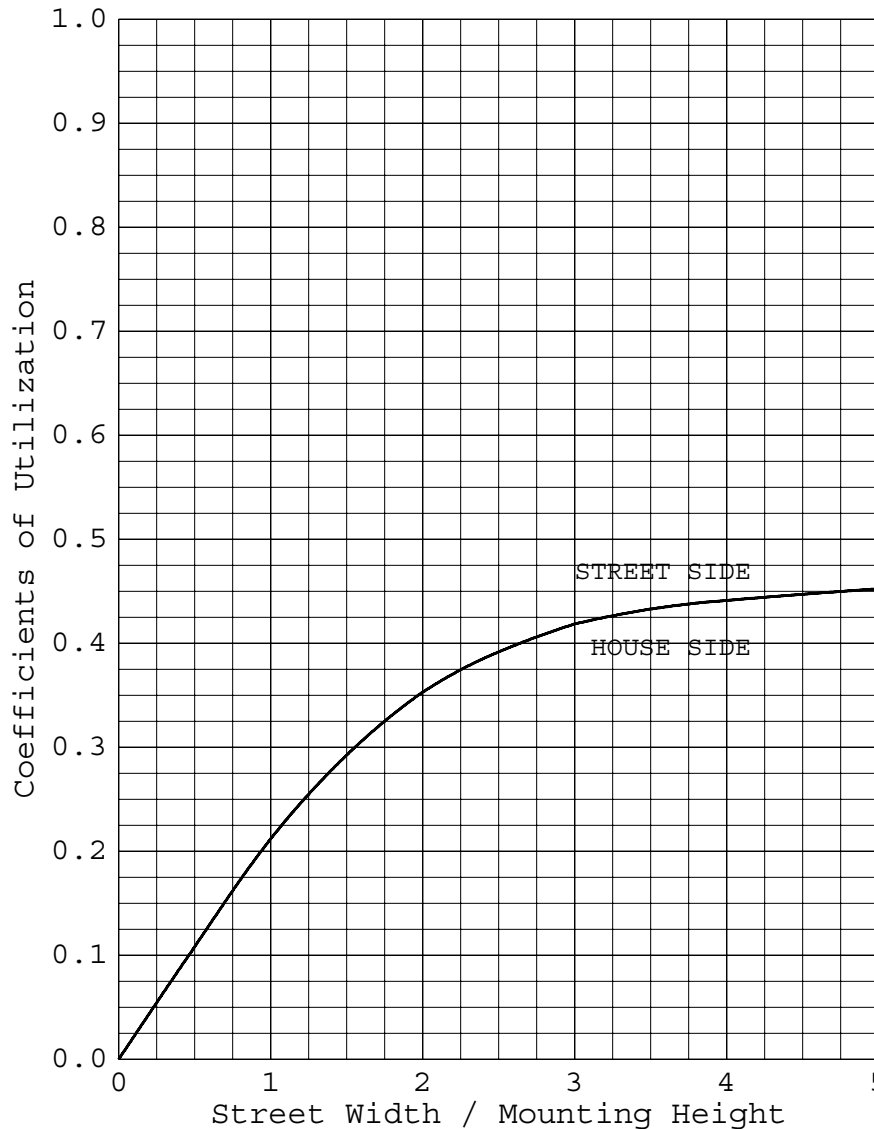




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PAGE: 3 OF 7

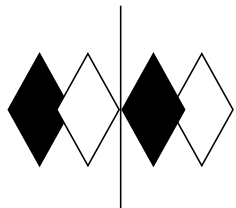
COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	1032	46.9
DOWNWARD HOUSE SIDE	1032	46.9
DOWNWARD TOTAL	2064	93.7
UPWARD STREET SIDE	69	3.1
UPWARD HOUSE SIDE	69	3.1
UPWARD TOTAL	139	6.3
TOTAL FLUX	2202	100.0

EFFICACY = 78.9 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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PAGE: 4 OF 7

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	1032.	46.9	
FL (0- 30)	68.5	3.1	
FM (30- 60)	360.4	16.4	
FH (60- 80)	552.8	25.1	G0
FVH(80- 90)	50.2	2.3	G1
BACK LIGHT	1032.	46.9	
BL (0- 30)	68.5	3.1	B0
BM (30- 60)	360.4	16.4	B1
BH (60- 80)	552.8	25.1	B2 G0
BVH(80- 90)	50.2	2.3	G1
UPLIGHT	139.	6.3	
UL (90-100)	54.2	2.5	U3
UH (100-180)	84.3	3.8	U3
TRAPPED LIGHT	0.	0.0	
TOTAL FLUX	2202.	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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PAGE: 5 OF 7

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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PAGE: 6 OF 7

5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	3
5- 10	9
10- 15	15
15- 20	24
20- 25	36
25- 30	50
30- 35	66
35- 40	82
40- 45	98
45- 50	116
50- 55	148
55- 60	211
60- 65	300
65- 70	334
70- 75	310
75- 80	162
80- 85	63
85- 90	37
90- 95	27
95-100	27
100-105	28
105-110	27
110-115	22
115-120	8
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	12
0- 20	51
0- 30	137
0- 40	285
0- 50	499
0- 60	858
0- 70	1492
0- 80	1963
0- 90	2064
0-100	2118
0-110	2172
0-120	2202
0-130	2202
0-140	2202
0-150	2202
0-160	2202
0-170	2202
0-180	2202



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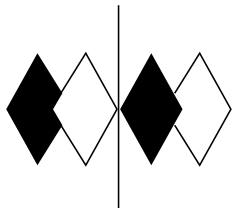
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NORTHVALE, NJ 07647

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Page 1 of 4

REPORT NUMBER: ITL81204
DATE: 04/14/14
PREPARED FOR: RAB LIGHTING, INC.
CATALOG NUMBER: GLED26Y OR GPLED26Y (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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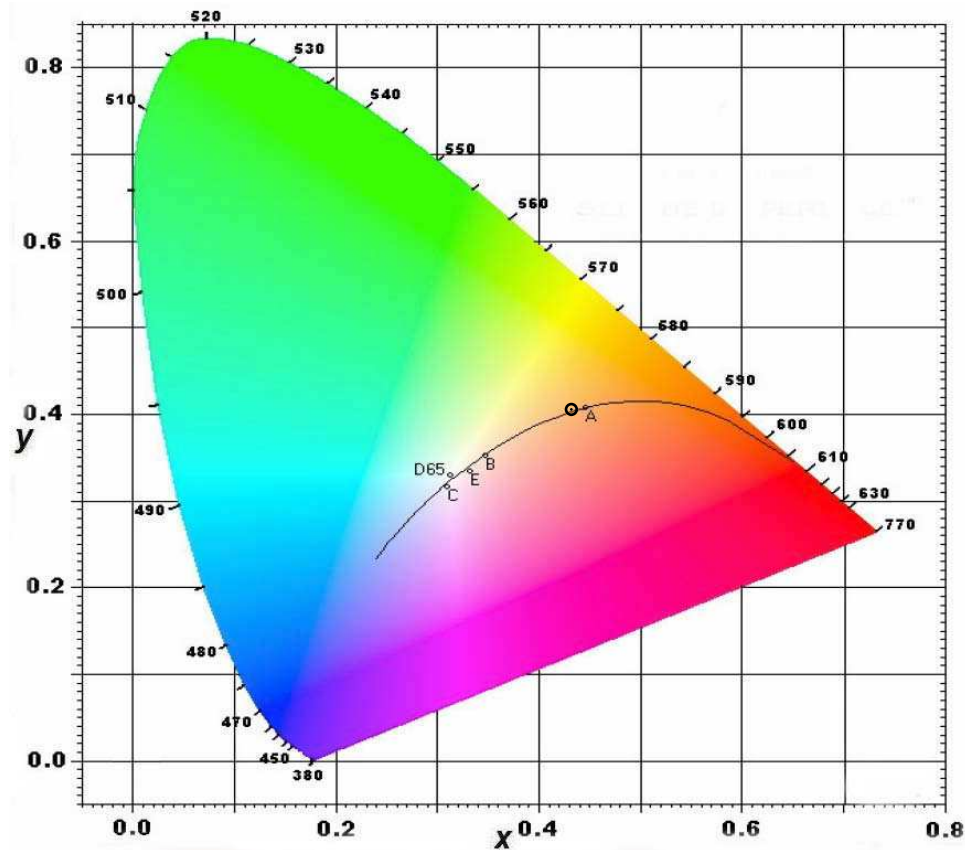
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Page 4 of 4

CIE Chromaticity Diagram





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Page 2 of 4

RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4318
Chromaticity Ordinate y	0.4052
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2468
Chromaticity Ordinate v'	0.5211
Correlated Color Temp CCT (K)	3098
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	6578 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.235
Input Power (Watts)	28.0
Input Power Factor (%)	99.3
Input Current THD (%)	7.2
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)	0.116
Input Power (Watts)	28.0
Input Power Factor (%)	87.1
Input Current THD (%)	10.7
Input Voltage THD (%)	0.1

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	83
R1 Light greyish red	81
R2 Dark greyish yellow	89
R3 Strong yellowish green	96
R4 Moderate yellowish green	83
R5 Light bluish green	81
R6 Light blue	87
R7 Light violet	84
R8 Light reddish purple	60
R9 Strong red	5
R10 Strong yellow	75
R11 Strong green	83
R12 Strong blue	66
R13 Light yellowish pink (skin)	83
R14 Moderate olive green (leaf)	98

*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	0.133	515	21.192	650	24.870
385	0.130	520	22.915	655	22.256
390	0.133	525	24.176	660	19.779
395	0.139	530	25.103	665	17.425
400	0.157	535	25.744	670	15.241
405	0.202	540	26.302	675	13.274
410	0.304	545	26.936	680	11.518
415	0.519	550	27.755	685	9.958
420	0.982	555	28.783	690	8.564
425	1.940	560	30.167	695	7.335
430	3.794	565	31.908	700	6.293
435	6.912	570	33.874	705	5.378
440	12.355	575	35.992	710	4.604
445	21.222	580	38.131	715	3.939
450	26.817	585	40.265	720	3.371
455	21.746	590	42.095	725	2.867
460	14.523	595	43.490	730	2.442
465	10.913	600	44.323	735	2.081
470	8.355	605	44.429	740	1.776
475	6.552	610	43.819	745	1.523
480	6.222	615	42.508	750	1.312
485	6.938	620	40.683	755	1.124
490	8.418	625	38.394	760	0.968
495	10.699	630	35.754	765	0.827
500	13.509	635	33.059	770	0.714
505	16.373	640	30.270	775	0.614
510	19.045	645	27.538	780	0.530

