

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 15 foot mounting height.

REPORT NUMBER: ITL69098

ISSUE DATE: 07/11/11

PAGE: 1 OF 7

PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: WPLED20N / ALED20N

LUMINAIRE: CAST FINNED METAL HOUSING,

TWO CIRCUIT BOARDS EACH WITH ONE LED
CHIP, FORMED SPECULAR METAL REFLECTOR,
CLEAR FLAT GLASS LENS IN CAST BROWN
PAINTED METAL LENS FRAME.

LAMPS: TWO CHIPS EACH WITH A 3X3 ARRAY OF WHITE LIGHT EMITTING DIODES (LEDs) AND A CLEAR HEMISPHERICAL INTEGRAL LENS, TILTED 9-DEGREES FROM VERTICAL BASE UP POSITION AND CANTED 10-DEGREES FROM STRAIGHT AHEAD.

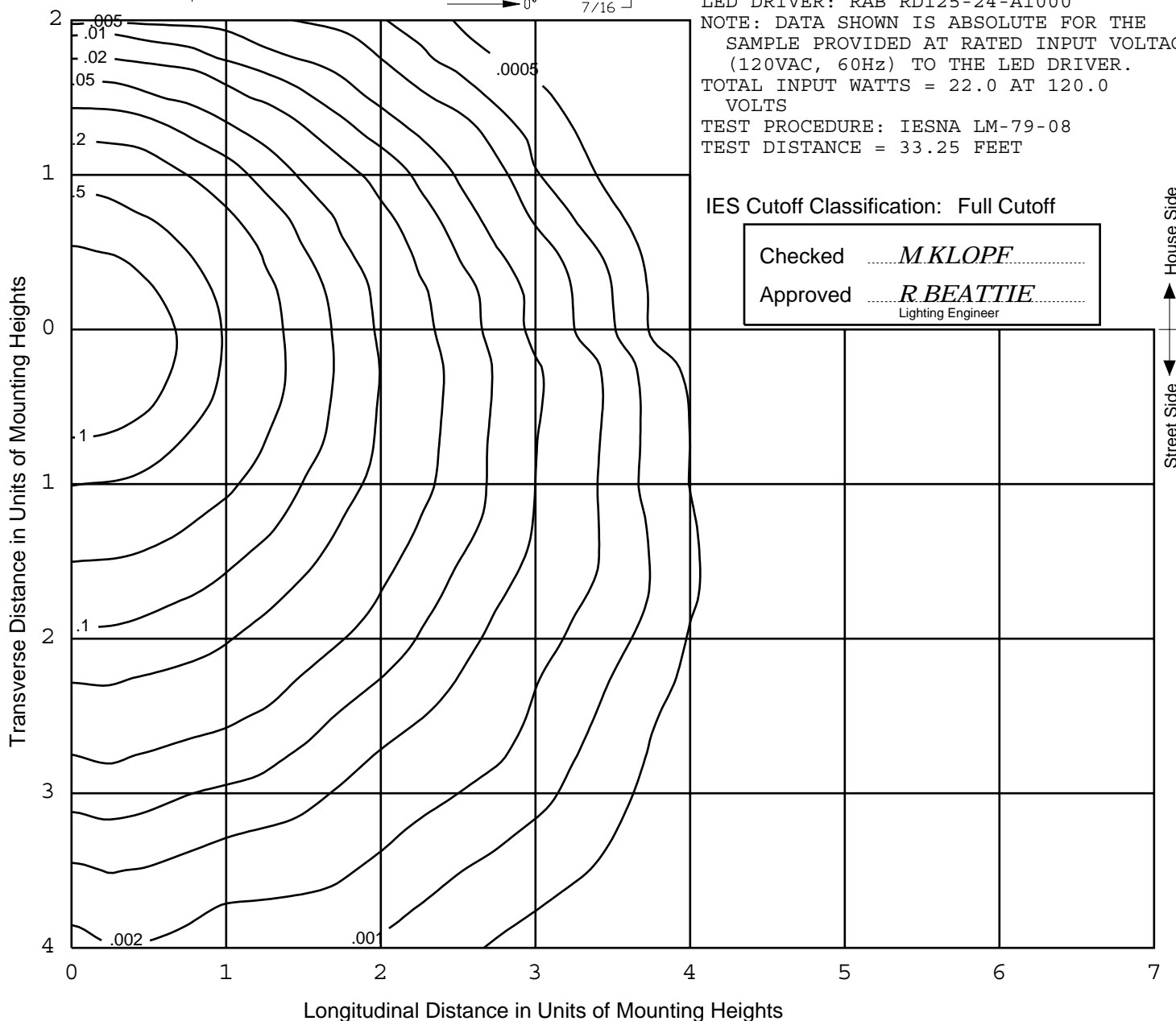
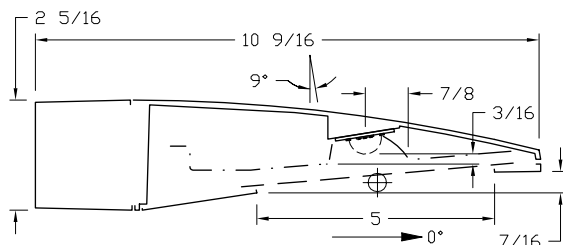
LED DRIVER: RAB RD125-24-A1000

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

TOTAL INPUT WATTS = 22.0 AT 120.0
VOLTS

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 33.25 FEET



IES Cutoff Classification: Full Cutoff

Checked *M KLOPF*

Approved *R BEATTIE*
Lighting Engineer

Lighting Engineer

Street Side House Side

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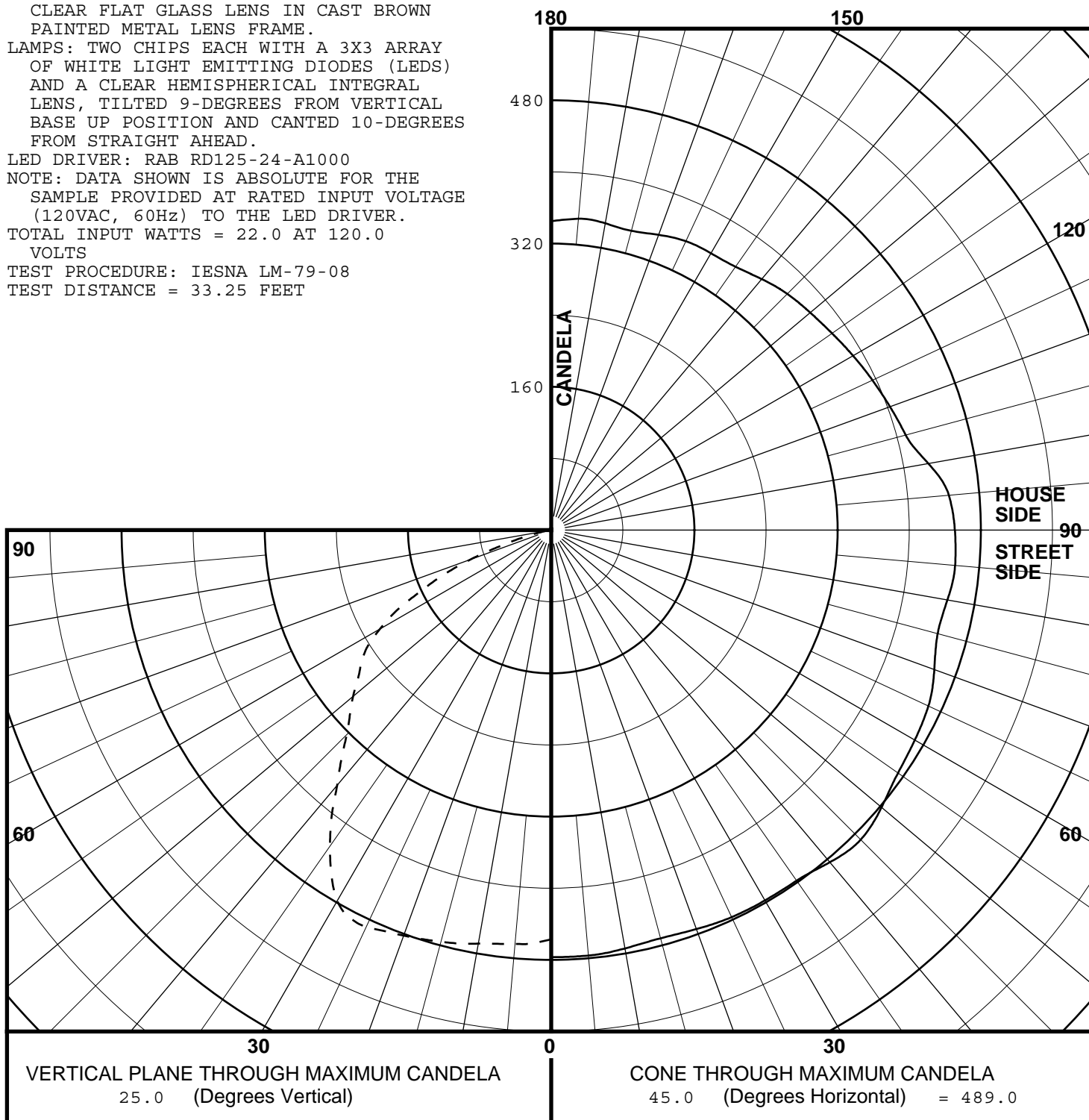
NOTE: DATA SHOWN IS ABSOLUTE FOR THE
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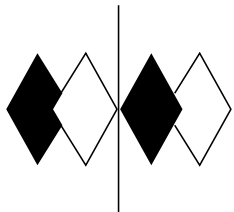
TOTAL INPUT WATTS = 22.0 AT 120.0
VOLTS

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 33.25 FEET

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

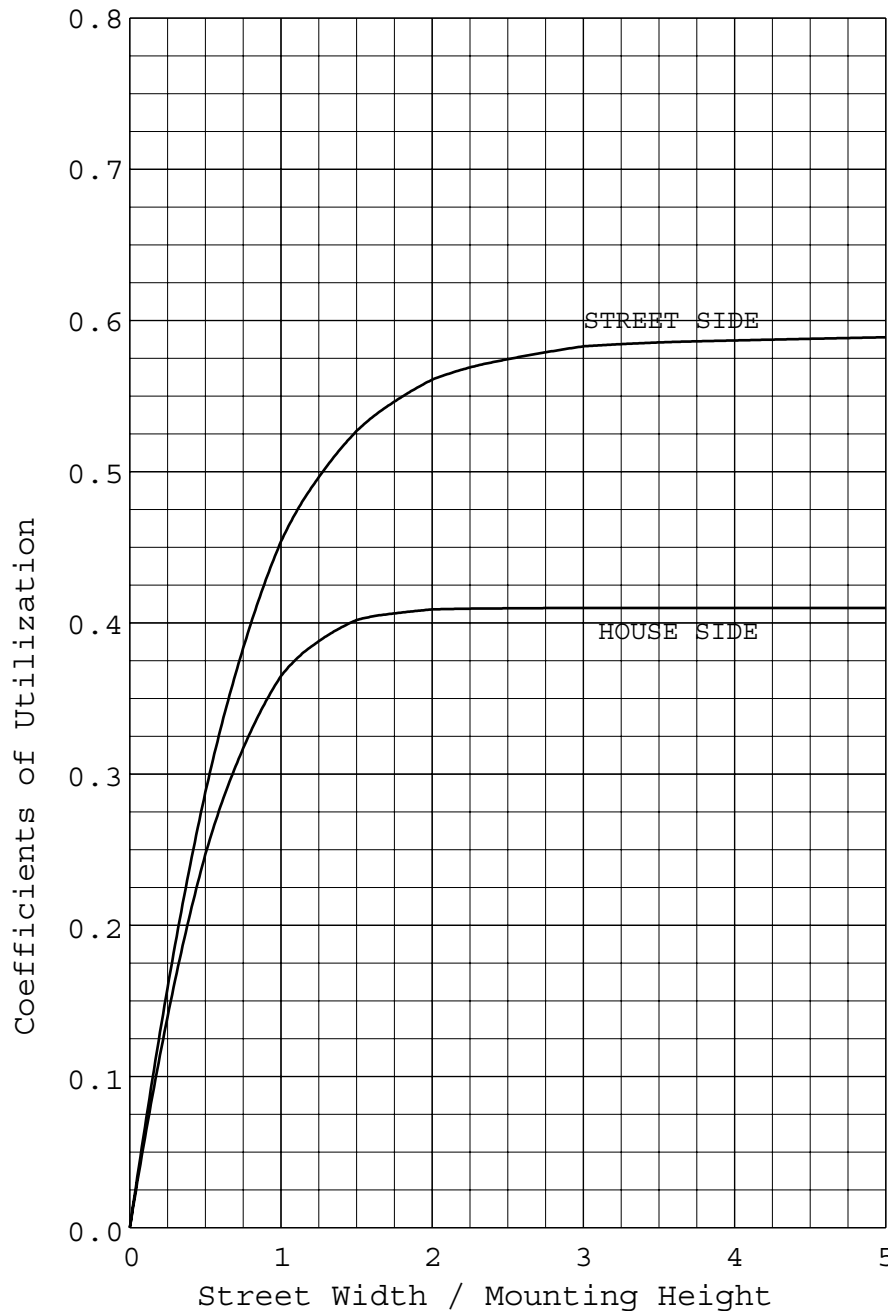




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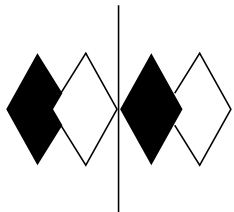
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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	656	59.0
DOWNWARD HOUSE SIDE	455	41.0
DOWNWARD TOTAL	1111	100.0
UPWARD STREET SIDE	0	0.0
UPWARD HOUSE SIDE	0	0.0
UPWARD TOTAL	0	0.0
TOTAL FLUX	1111	100.0
EFFICACY = 50.5 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-15-07, LUMINAIRE CLASSIFICATION
SYSTEM FOR OUTDOOR LUMINAIRES)

	LUMENS	PERCENT OF FIXTURE	BUG ZONE RATINGS
FORWARD LIGHT	656.	59.0	
FL (0- 30)	196.8	17.7	
FM (30- 60)	362.6	32.7	
FH (60- 80)	95.3	8.6	G0
FVH(80- 90)	1.0	0.1	U0 G0
BACK LIGHT	455.	41.0	
BL (0- 30)	167.9	15.1	B1
BM (30- 60)	263.8	23.8	B1
BH (60- 80)	23.0	2.1	B0 G0
BVH(80- 90)	0.1	0.0	U0 G0
UPLIGHT	0.	0.0	
UL (90-100)	0.0	0.0	U0
UH (100-180)	0.0	0.0	U0
TRAPPED LIGHT	0.	0.0	
TOTAL FLUX	1111.	100.0	

BACKLIGHT, UPLIGHT, AND GLARE (BUG) RATINGS
(PER ADDENDUM A FOR IESNA TM-15-07)

BUG RATING: B1 U0 G0



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3386 LONGHORN ROAD, BOULDER, CO 80302 USA

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CANDELA TABULATION

	STREET SIDE										
	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0
	90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	87.5	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
	85.0	2.	2.	2.	2.	2.	1.	1.	0.	0.	0.
	82.5	3.	4.	3.	4.	3.	2.	2.	1.	1.	1.
	80.0	5.	6.	6.	8.	6.	7.	4.	4.	3.	2.
	77.5	9.	12.	13.	18.	16.	17.	12.	9.	5.	4.
	75.0	32.	45.	30.	38.	32.	36.	26.	26.	13.	10.
	72.5	73.	82.	71.	73.	59.	60.	52.	49.	36.	32.
	70.0	113.	127.	110.	116.	96.	96.	78.	78.	58.	53.
	67.5	152.	163.	154.	156.	135.	130.	112.	107.	86.	78.
	65.0	196.	206.	191.	187.	170.	160.	147.	139.	116.	100.
	62.5	229.	234.	221.	215.	199.	195.	175.	171.	148.	141.
	60.0	246.	250.	242.	236.	225.	221.	205.	196.	175.	164.
	57.5	259.	263.	254.	251.	243.	244.	232.	222.	200.	192.
V	55.0	271.	273.	267.	264.	259.	259.	253.	244.	224.	214.
E	52.5	281.	285.	280.	279.	273.	272.	270.	264.	247.	237.
R	50.0	294.	298.	293.	295.	288.	289.	285.	283.	265.	260.
T	47.5	309.	313.	309.	311.	306.	305.	301.	300.	285.	278.
I	45.0	323.	327.	324.	327.	324.	323.	318.	318.	303.	297.
C	42.5	340.	347.	343.	349.	347.	347.	340.	339.	323.	319.
A	40.0	359.	365.	364.	372.	370.	372.	364.	361.	344.	339.
L	37.5	378.	388.	385.	396.	395.	403.	389.	388.	365.	362.
	35.0	403.	410.	410.	420.	424.	431.	419.	410.	390.	384.
A	32.5	424.	431.	429.	438.	446.	457.	442.	428.	408.	404.
N	30.0	445.	452.	447.	455.	462.	478.	458.	443.	424.	424.
G	27.5	465.	466.	463.	467.	473.	488.	468.	455.	438.	440.
L	25.0<<	477.	477.	472.	477.	478.	489.	473.	465.	447.	453.
E	22.5	483.	483.	478.	480.	480.	485.	476.	469.	453.	462.
	20.0	486.	485.	479.	478.	480.	482.	477.	469.	456.	468.
	17.5	484.	482.	477.	475.	477.	479.	476.	468.	459.	469.
	15.0	479.	477.	475.	473.	474.	476.	474.	466.	460.	469.
	12.5	474.	473.	472.	470.	471.	473.	471.	465.	460.	467.
	10.0	469.	468.	469.	466.	467.	469.	467.	463.	458.	467.
	7.5	464.	463.	465.	462.	464.	466.	465.	461.	457.	466.
	5.0	460.	459.	461.	459.	461.	464.	463.	460.	456.	466.
	2.5	456.	456.	457.	456.	459.	462.	462.	459.	456.	467.
	0.0	457.	457.	457.	457.	457.	457.	457.	457.	457.	457.
						PLANE OF MAXIMUM CANDELA					
						CONE OF MAXIMUM CANDELA					



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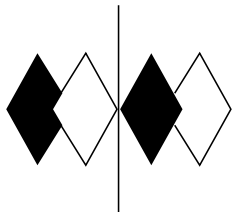
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CANDELA TABULATION

	HOUSE SIDE		LATERAL ANGLE							
	95.0	105.0	115.0	125.0	135.0	145.0	155.0	165.0	175.0	180.0
	90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	87.5	0.	0.	0.	0.	0.	0.	0.	0.	0.
	85.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	82.5	1.	1.	1.	0.	0.	0.	0.	0.	0.
	80.0	2.	1.	1.	1.	1.	1.	0.	0.	0.
	77.5	3.	2.	2.	2.	2.	1.	1.	1.	1.
	75.0	6.	4.	4.	3.	3.	2.	2.	1.	2.
	72.5	19.	9.	7.	4.	4.	3.	3.	2.	3.
	70.0	43.	25.	20.	9.	7.	4.	4.	3.	4.
	67.5	65.	48.	38.	22.	16.	8.	6.	5.	5.
	65.0	88.	72.	61.	40.	30.	18.	13.	7.	6.
	62.5	122.	96.	86.	64.	53.	34.	29.	17.	14.
	60.0	155.	132.	118.	95.	84.	61.	56.	42.	46.
	57.5	178.	158.	150.	125.	121.	96.	93.	79.	83.
V	55.0	204.	188.	178.	158.	150.	135.	132.	117.	123.
E	52.5	226.	210.	202.	186.	180.	168.	166.	151.	152.
R	50.0	252.	234.	229.	213.	210.	197.	199.	185.	194.
T	47.5	270.	255.	249.	239.	232.	224.	225.	218.	222.
I	45.0	290.	273.	266.	257.	249.	241.	242.	238.	241.
C	42.5	309.	291.	282.	273.	265.	255.	257.	255.	259.
A	40.0	328.	306.	296.	287.	278.	268.	269.	268.	271.
L	37.5	348.	322.	312.	301.	292.	282.	283.	279.	282.
	35.0	366.	339.	327.	318.	309.	298.	297.	291.	292.
A	32.5	387.	356.	343.	334.	324.	313.	310.	303.	304.
N	30.0	408.	373.	362.	350.	340.	328.	325.	316.	317.
G	27.5	428.	394.	379.	367.	356.	345.	339.	332.	333.
L	25.0<<	446.	410.	396.	383.	373.	359.	356.	346.	349.
E	22.5	458.	426.	409.	398.	386.	375.	369.	362.	363.
	20.0	465.	434.	418.	409.	399.	388.	384.	376.	377.
	17.5	465.	438.	426.	418.	410.	400.	398.	389.	392.
	15.0	465.	441.	431.	427.	419.	410.	407.	401.	402.
	12.5	464.	443.	436.	433.	426.	419.	417.	412.	413.
	10.0	464.	445.	440.	439.	434.	427.	427.	422.	424.
	7.5	464.	447.	443.	444.	440.	434.	435.	430.	432.
	5.0	465.	450.	447.	448.	446.	442.	443.	439.	441.
	2.5	467.	452.	451.	454.	452.	449.	449.	446.	447.
	0.0	457.	457.	457.	457.	457.	457.	457.	457.	457.

CONE OF MAXIMUM CANDELA



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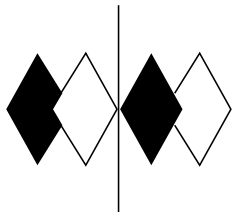
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ADDRESS: 170 LUDLOW AVE
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NORTHVALE, NJ 07647

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LAMPS: TWO CHIPS EACH WITH A 3X3 ARRAY OF WHITE LIGHT EMITTING DIODES (LEDs) AND A CLEAR HEMISPHERICAL INTEGRAL LENS, TILTED 9-DEGREES FROM VERTICAL BASE UP POSITION AND CANTED 10-DEGREES FROM STRAIGHT AHEAD.

DRIVER: RAB RD125-24-A1000

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

INSTRUMENTS:	Kikusui PCR500L AC Power Source	Calibration Due:
	Yokogawa WT210 Digital Power Meter #4	N/A
	Optronic Laboratories OL770 Spectroradiometer	03/04/12
	ITL 1.5 Meter Diameter Integrating Sphere, 4 π Geometry	03/24/12

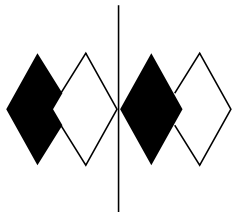
OBJECT OF TEST: Measure the Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Index (CRI_a,9), Chromaticity Coordinates (x,y,u',v'), ANSI C78.377 Duv, and electrical data including Power Factor (PF), Total Harmonic Distortion (THD), and Off-State Power to the luminaire.

PROCEDURE: The luminaire was provided by the customer and had an unknown number of burn hours. The luminaire was mounted inside the integrating sphere in a horizontal position (see luminaire description for LED orientations). The luminaire was allowed to stabilize at 120VAC input. After stabilization occurred, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Index (CRI_a,9), Chromaticity Coordinates (x,y,u',v'), ANSI C78.377 Duv, and electrical data including Power Factor (PF), Total Harmonic Distortion (THD), and Off-State Power were measured with the luminaire operating in the integrating sphere. In order to measure mean performance, multiple data sets were recorded and averaged. Readings were taken with the luminaire operating at 120VAC input 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.

RESULTS: (continued subsequent pages)

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Checked	<u>L Brockman</u>
Approved	<u>N Gully</u> Lighting Engineer



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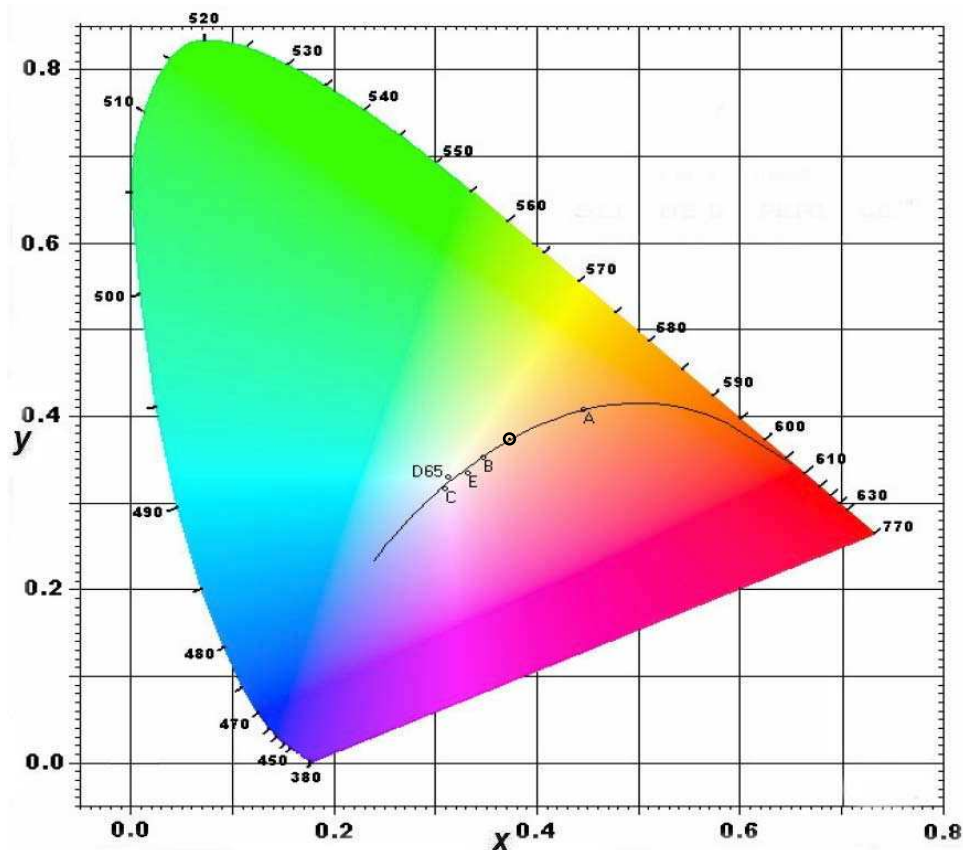
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RESULTS:

CIE Chromaticity Diagram



SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3728
Chromaticity Ordinate y	0.3735
Chromaticity Ordinate u'	0.2214
Chromaticity Ordinate v'	0.4990
Correlated Color Temp CCT (K)	4191
Color Rendering Index (CRIa)	74
Color Rendering Index 9 (Strong red)	-5
Total Radiant Flux (milliWatts)	3372
ANSI C78.377-2008 Duv	0.001
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (mA AC)	185
Input Power (Watts)	22.0
Input Power Factor (%)	99.1
Input Current THD (%)	7.4
Input Voltage THD (%)	0.0
Off State Power (Watts)	0.0

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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.314	515	10.210	650	10.295
385	0.307	520	11.642	655	9.478
390	0.325	525	13.016	660	8.631
395	0.355	530	14.184	665	7.755
400	0.408	535	15.104	670	6.916
405	0.534	540	16.029	675	6.099
410	0.792	545	16.868	680	5.337
415	1.197	550	17.618	685	4.623
420	1.819	555	18.252	690	3.976
425	3.039	560	18.784	695	3.392
430	5.060	565	19.168	700	2.866
435	8.154	570	19.352	705	2.411
440	12.993	575	19.339	710	2.020
445	19.303	580	19.147	715	1.687
450	21.892	585	18.803	720	1.420
455	18.221	590	18.317	725	1.190
460	12.982	595	17.729	730	0.993
465	9.375	600	17.077	735	0.828
470	6.758	605	16.397	740	0.691
475	4.993	610	15.713	745	0.581
480	4.025	615	15.073	750	0.490
485	3.632	620	14.484	755	0.416
490	3.697	625	13.801	760	0.354
495	4.311	630	13.167	765	0.297
500	5.425	635	12.500	770	0.254
505	6.898	640	11.844	775	0.218
510	8.532	645	11.105	780	0.194

