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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

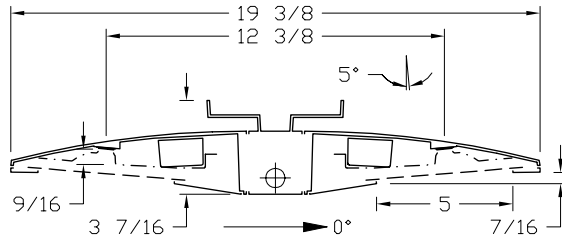
NVLAP
NVLAP LAB CODE: 200925-0

INDEPENDENT TESTING LABORATORIES, INC.
3386 LONGHORN ROAD, BOULDER, CO 80302 USA

PHONE: (303)442-1255 • FAX: (303)449-5274 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

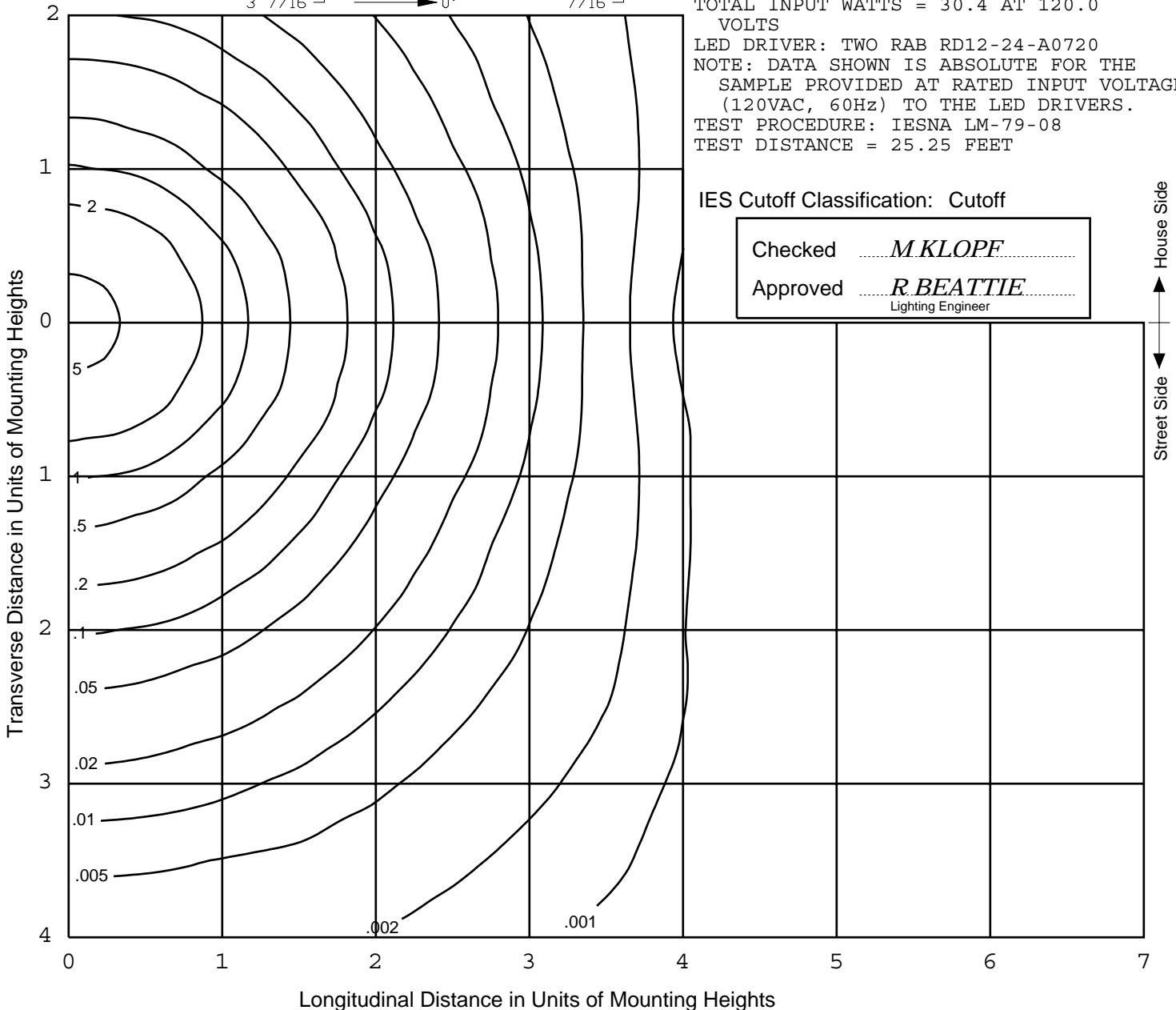
Values based on 12 foot mounting height.



REPORT NUMBER: ITL69257
ISSUE DATE: 07/05/11 PAGE: 1 OF 6
PREPARED FOR: RAB LIGHTING, INC.
CATALOG NUMBER: CLED2X13 / PLED2X13
LUMINAIRE: ONE LUMINAIRE CONSISTING OF TWO OPPOSING LIGHT HEADS, EACH LIGHT HEAD CONSISTING OF: CAST METAL HOUSING, ONE CIRCUIT BOARD WITH ONE LED, FORMED SEMI-SPECULAR METAL REFLECTOR, CLEAR FLAT GLASS LENS IN CAST BROWN PAINTED METAL LENS FRAME.
LAMPS: TWO WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDs) EACH CONTAINING LEDS ARRANGED IN AN ARRAY OF THREE LINEAR ROWS, TILTED 5-DEGREES FROM VERTICAL BASE-UP POSITION.
TOTAL INPUT WATTS = 30.4 AT 120.0 VOLTS
LED DRIVER: TWO RAB RD12-24-A0720
NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE LED DRIVERS.
TEST PROCEDURE: IESNA LM-79-08
TEST DISTANCE = 25.25 FEET

IES Cutoff Classification: Cutoff

Checked M. KLOPF
Approved R. BEATTIE
Lighting Engineer



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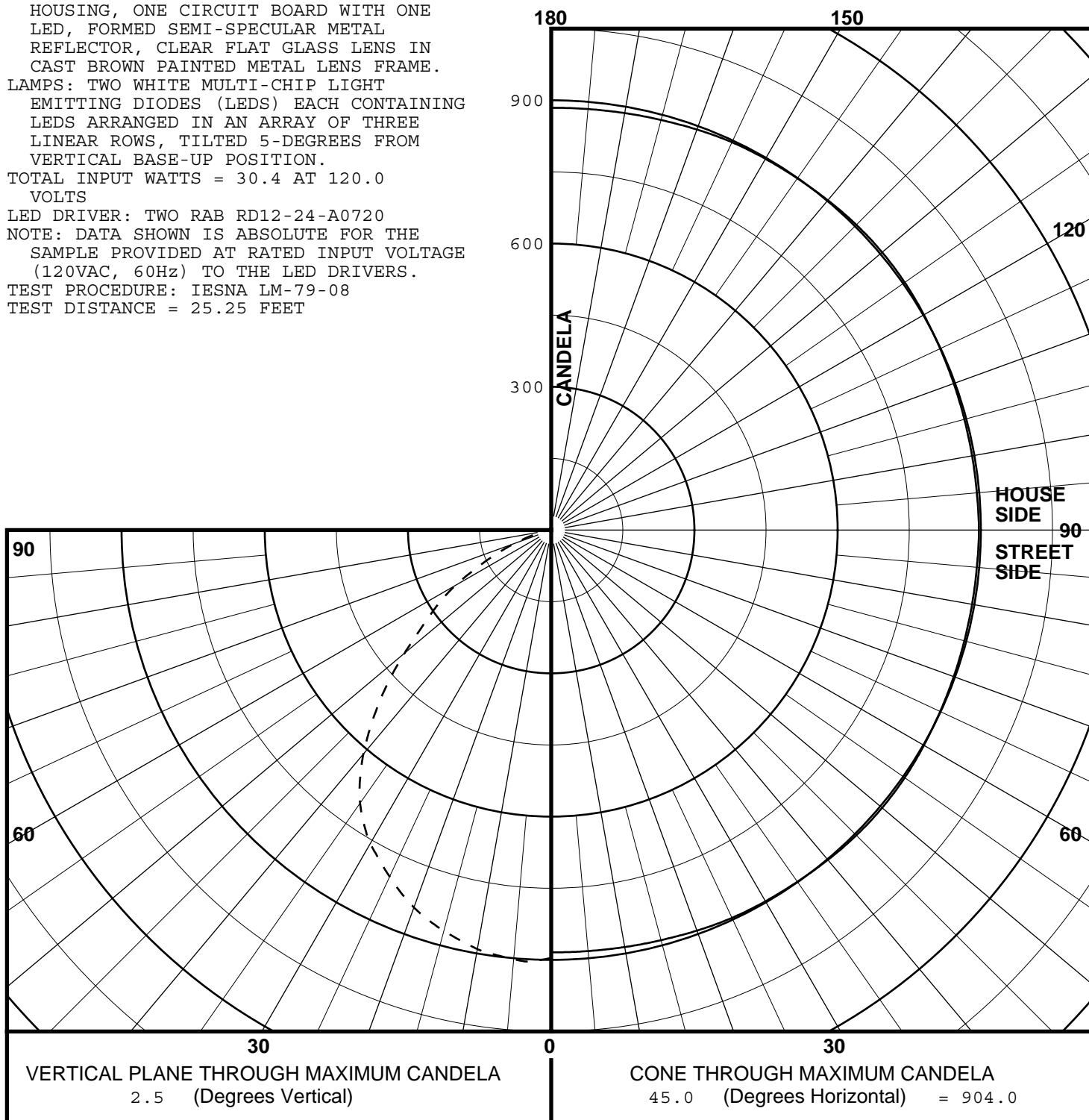
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TEST DISTANCE = 25.25 FEET

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

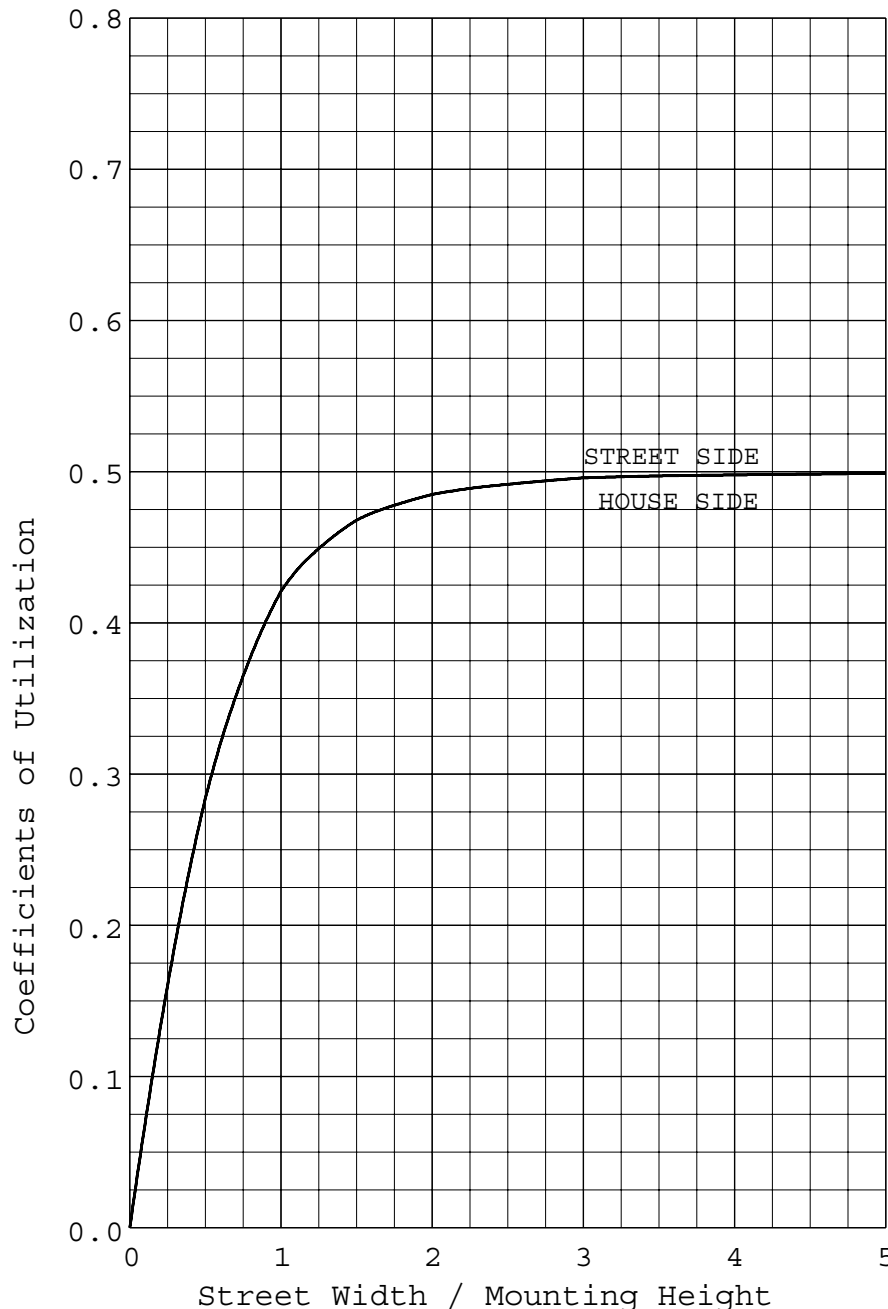




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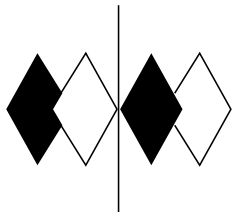
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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	1003	50.0
DOWNWARD HOUSE SIDE	1003	50.0
DOWNWARD TOTAL	2006	100.0
UPWARD STREET SIDE	0	0.0
UPWARD HOUSE SIDE	0	0.0
UPWARD TOTAL	0	0.0
TOTAL FLUX	2006	100.0
EFFICACY = 66.0 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	1003.	50.0	
FL (0- 30)	348.9	17.4	
FM (30- 60)	555.6	27.7	
FH (60- 80)	95.9	4.8	G0
FVH(80- 90)	2.4	0.1	U0 G0
BACK LIGHT	1003.	50.0	
BL (0- 30)	348.9	17.4	B1
BM (30- 60)	555.6	27.7	B1
BH (60- 80)	95.9	4.8	B0 G0
BVH(80- 90)	2.4	0.1	U0 G0
UPLIGHT	0.	0.0	
UL (90-100)	0.1	0.0	U1
UH (100-180)	0.0	0.0	U0
TRAPPED LIGHT	0.	0.0	
TOTAL FLUX	2006.	100.0	

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

BUG RATING: B1 U1 G0



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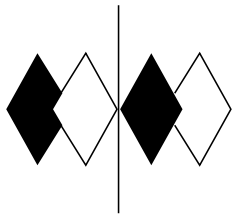
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CANDELA TABULATION

		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	2.	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.
	87.5	3.	3.	3.	3.	3.	2.	1.	1.	1.	0.	0.
	85.0	5.	5.	5.	5.	4.	3.	3.	3.	3.	3.	3.
V	82.5	8.	8.	8.	8.	8.	7.	5.	4.	4.	4.	4.
E	80.0	13.	13.	14.	16.	17.	17.	8.	5.	5.	5.	5.
R	77.5	24.	24.	24.	26.	26.	25.	22.	12.	6.	6.	6.
T	75.0	31.	31.	33.	39.	39.	37.	34.	27.	20.	12.	11.
I	72.5	61.	61.	61.	60.	59.	56.	52.	45.	44.	40.	40.
C	70.0	90.	89.	88.	87.	85.	81.	75.	71.	76.	79.	79.
A	67.5	119.	119.	118.	118.	116.	112.	107.	105.	117.	123.	122.
L	65.0	150.	150.	151.	152.	151.	146.	145.	143.	166.	170.	169.
	62.5	181.	181.	184.	187.	187.	186.	184.	190.	219.	222.	222.
A	60.0	217.	217.	218.	221.	226.	232.	225.	245.	271.	273.	272.
N	57.5	250.	250.	253.	261.	269.	272.	273.	303.	325.	324.	324.
G	55.0	290.	290.	294.	305.	310.	309.	329.	364.	379.	378.	380.
L	52.5	336.	336.	338.	342.	345.	350.	387.	424.	432.	433.	438.
E	50.0	367.	367.	369.	374.	378.	401.	444.	479.	482.	487.	493.
	47.5	397.	396.	397.	405.	422.	456.	500.	529.	530.	539.	545.
	45.0	428.	428.	429.	446.	475.	509.	551.	572.	575.	586.	591.
	42.5	470.	469.	475.	497.	527.	561.	600.	611.	615.	629.	633.
	40.0	521.	521.	530.	550.	579.	612.	642.	647.	653.	666.	668.
	37.5	574.	574.	585.	603.	628.	658.	678.	680.	688.	698.	700.
	35.0	624.	624.	636.	653.	673.	698.	708.	710.	720.	727.	726.
	30.0	719.	719.	725.	741.	753.	758.	758.	765.	774.	776.	772.
	25.0	790.	789.	792.	797.	798.	801.	803.	810.	814.	815.	811.
	20.0	822.	823.	828.	833.	834.	841.	840.	845.	844.	845.	842.
	15.0	851.	850.	853.	861.	864.	869.	869.	872.	867.	869.	866.
	10.0	872.	873.	875.	887.	889.	891.	890.	889.	884.	883.	883.
	5.0	883.	894.	886.	895.	897.	902.	902.	898.	895.	894.	894.
	2.5<<	884.	885.	889.	896.	899.	904.	904.	899.	896.	895.	896.
	0.0	896.	896.	896.	896.	896.	896.	896.	896.	896.	896.	896.

||
PLANE OF MAXIMUM CANDELA

—
CONE OF MAXIMUM CANDELA



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ADDRESS: 170 LUDLOW AVE
NORTHVALE, NJ 07647

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ADDRESS: 170 LUDLOW AVE
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CATALOG NUMBER: CLED2X13 / PLED2X13

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LAMPS: TWO WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDs) EACH CONTAINING LEDS ARRANGED IN AN ARRAY OF THREE LINEAR ROWS, TILTED 5-DEGREES FROM VERTICAL BASE-UP POSITION.

DRIVERS: TWO RAB RD12-24-A0720

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

INSTRUMENTS: Kikusui PCR500L AC Power Source
Yokogawa WT210 Digital Power Meter
Optronic Laboratories OL770 Spectroradiometer
ITL 1.5 Meter Diameter Integrating Sphere, 4 π Geometry

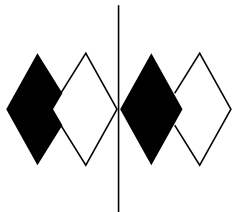
OBJECT OF TEST: Measure the Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Index (CRIa), Chromaticity Coordinates (x,y,u',v'), ANSI C78.377 Duv, and electrical data including Power Factor (PF), Total Harmonic Distortion (THD), and Off-State Power to the luminaire.

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 (LEDs facing down). The luminaire was allowed to stabilize at 120VAC input. After stabilization occurred, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Index (CRIa), 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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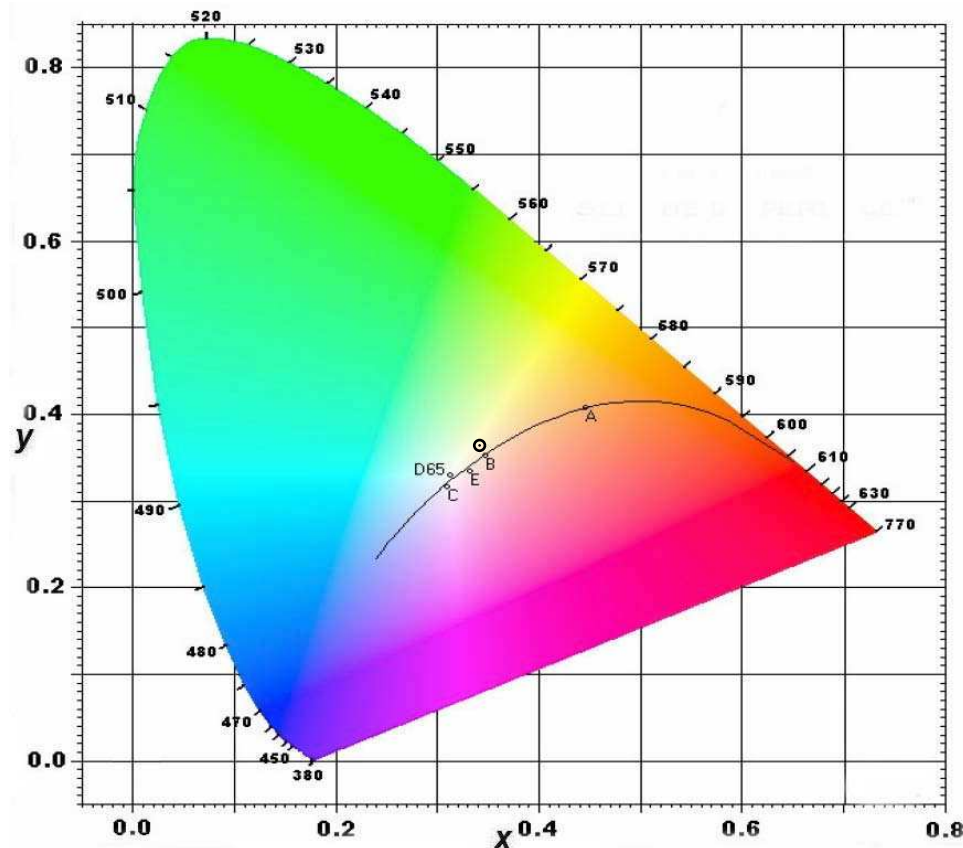
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RESULTS:

CIE Chromaticity Diagram



SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3414
Chromaticity Ordinate y	0.3637
Chromaticity Ordinate u'	0.2044
Chromaticity Ordinate v'	0.4899
Correlated Color Temp CCT (K)	5172
Color Rendering Index (CRI _a)	67
Color Rendering Index 9 (Strong red)	-44
Total Radiant Flux (milliWatts)	5970
ANSI C78.377-2008 Duv	0.007
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (mA AC)	260
Input Power (Watts)	30.4
Input Power Factor (%)	97.4
Input Current THD (%)	21.4
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	0.658	515	21.478	650	11.672
385	0.672	520	25.232	655	10.481
390	0.715	525	28.479	660	9.384
395	0.817	530	30.967	665	8.348
400	0.948	535	32.479	670	7.441
405	1.285	540	33.657	675	6.580
410	1.928	545	34.345	680	5.830
415	3.273	550	34.788	685	5.161
420	6.133	555	34.866	690	4.555
425	10.824	560	34.751	695	4.008
430	17.735	565	34.442	700	3.525
435	26.628	570	33.949	705	3.095
440	37.420	575	33.254	710	2.710
445	47.598	580	32.316	715	2.371
450	46.055	585	31.243	720	2.075
455	32.922	590	30.034	725	1.821
460	20.389	595	28.664	730	1.606
465	13.273	600	27.162	735	1.400
470	8.888	605	25.625	740	1.227
475	6.212	610	23.986	745	1.076
480	4.932	615	22.318	750	0.947
485	4.611	620	20.628	755	0.832
490	5.103	625	18.985	760	0.734
495	6.617	630	17.370	765	0.642
500	9.295	635	15.826	770	0.565
505	12.945	640	14.389	775	0.500
510	17.149	645	12.957	780	0.437

