

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

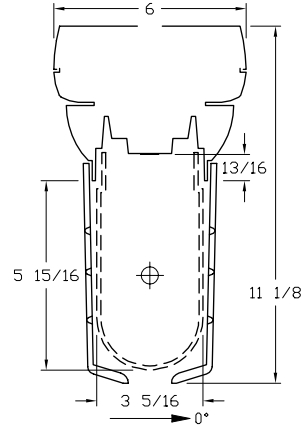
**NVLAP**  
NVLAP LAB CODE: 200925-0

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

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

## ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 10 foot mounting height.



REPORT NUMBER: ITL67391

ISSUE DATE: 02/17/11 PAGE: 1 OF 6

PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: VXLED13YDG -

VXBRLED13YDG

LUMINAIRE: CAST DIFFUSE METAL HOUSING,  
ONE CIRCUIT BOARD WITH ONE LED,  
FROSTED CYLINDRICAL GLASS LENS, CAST  
DIFFUSE METAL GUARD SURROUNDING LENS.

LAMP: ONE 13-WATT WHITE MULTI-CHIP  
LIGHT EMITTING DIODE (LED) WITH LEDS  
ARRANGED IN AN ARRAY OF THREE LINEAR  
ROWS, VERTICAL BASE-UP POSITION.

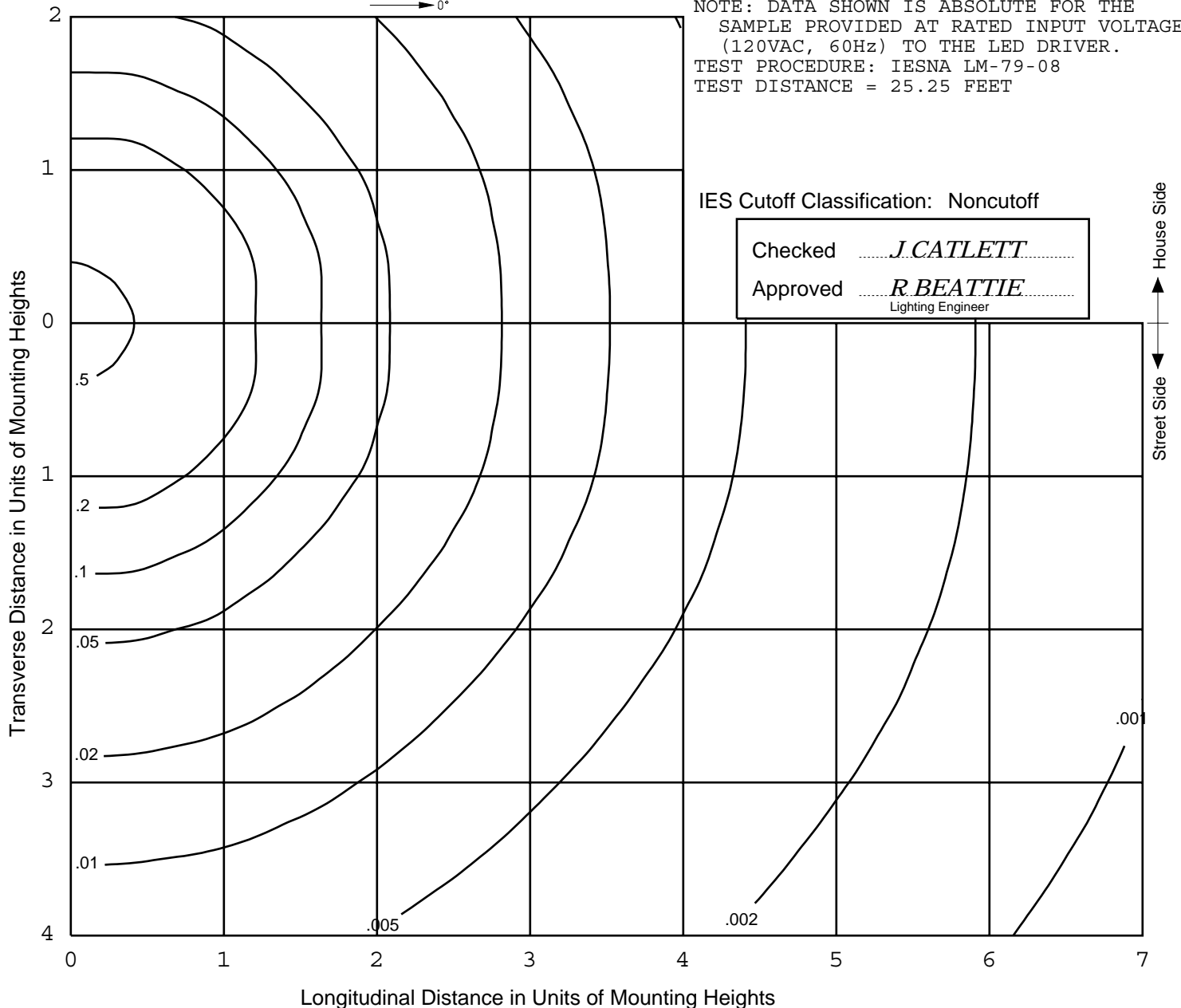
TOTAL INPUT WATTS = 15.3 AT 120.0  
VOLTS

LED DRIVER: RAB LIGHTING RD12-24-A0720

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

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 25.25 FEET



REPORT NUMBER: ITL67391

ISSUE DATE: 02/17/11 PAGE: 2 OF 6

PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: VXLED13YDG -

VXBRLED13YDG

LUMINAIRE: CAST DIFFUSE METAL HOUSING,  
ONE CIRCUIT BOARD WITH ONE LED,  
FROSTED CYLINDRICAL GLASS LENS, CAST  
DIFFUSE METAL GUARD SURROUNDING LENS.

LAMP: ONE 13-WATT WHITE MULTI-CHIP  
LIGHT EMITTING DIODE (LED) WITH LEDS  
ARRANGED IN AN ARRAY OF THREE LINEAR  
ROWS, VERTICAL BASE-UP POSITION.

TOTAL INPUT WATTS = 15.3 AT 120.0

VOLTS

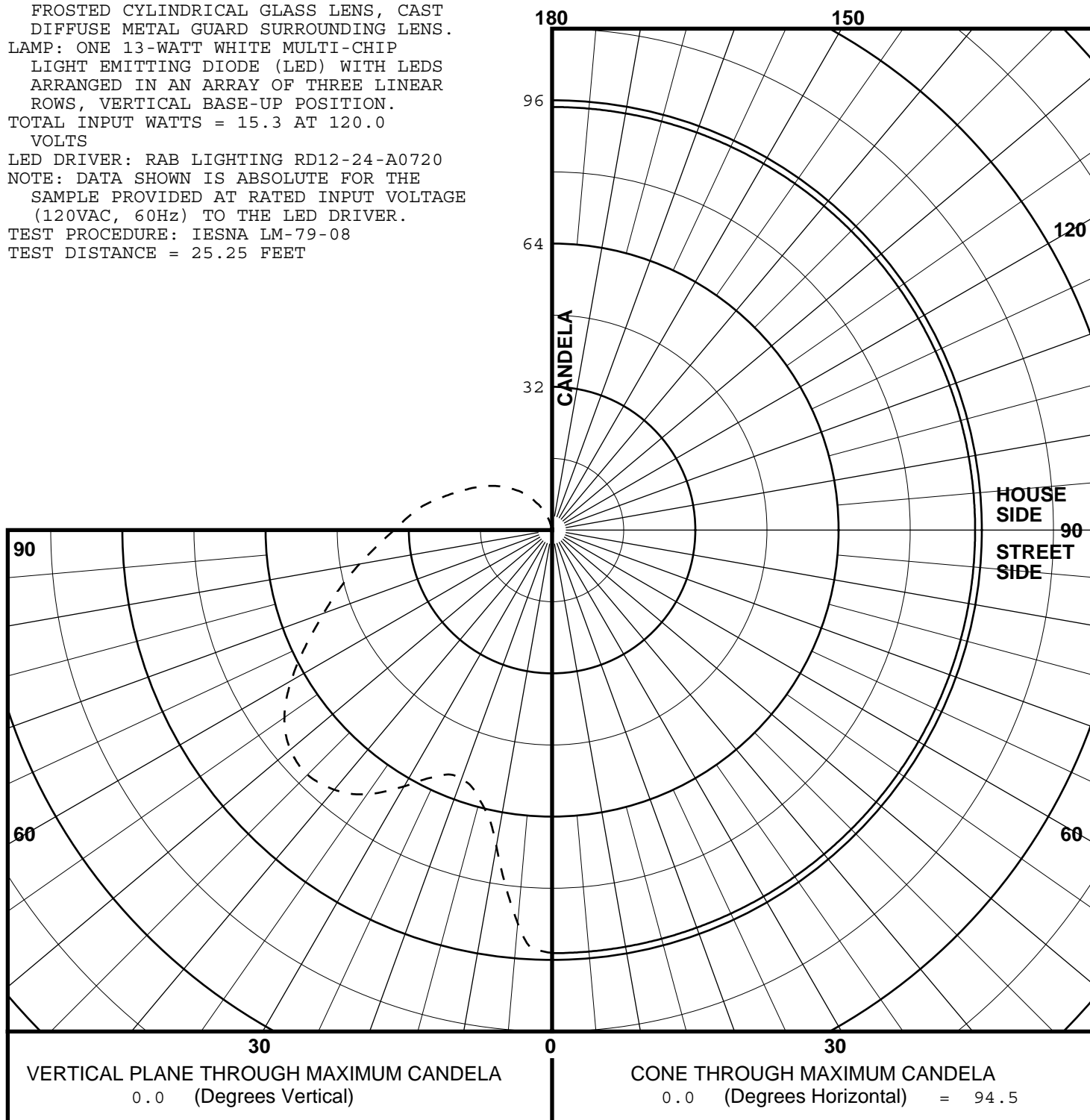
LED DRIVER: RAB LIGHTING RD12-24-A0720

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

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 25.25 FEET

# MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

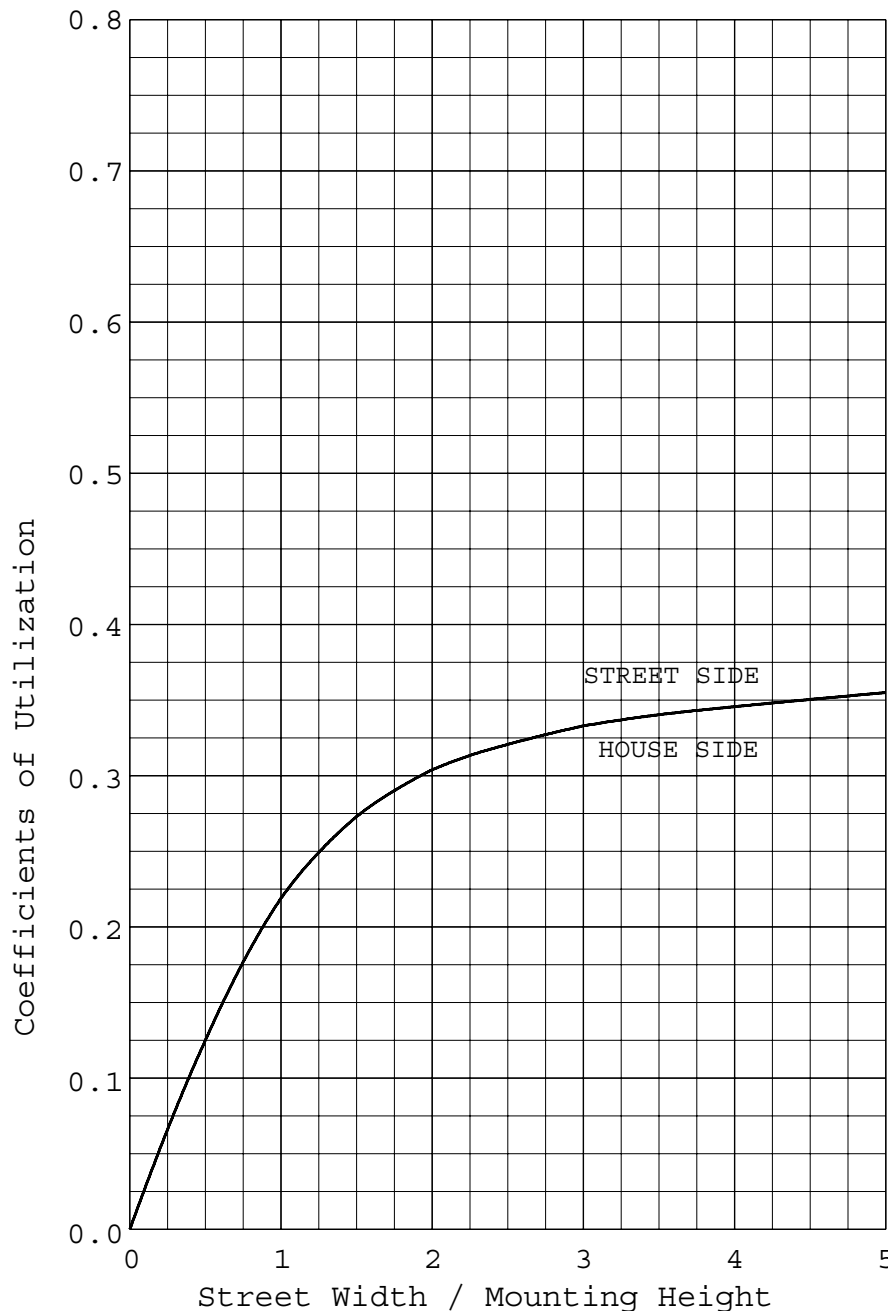




REPORT NUMBER: ITL67391  
ISSUE DATE: 02/17/11  
PREPARED FOR: RAB LIGHTING, INC.

PAGE: 3 OF 6

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	195.4	38.5
DOWNWARD HOUSE SIDE	195.4	38.5
DOWNWARD TOTAL	390.7	77.0
UPWARD STREET SIDE	58.2	11.5
UPWARD HOUSE SIDE	58.2	11.5
UPWARD TOTAL	116.5	23.0
TOTAL FLUX	507.2	100.0
EFFICACY = 33.2 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.



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



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

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

REPORT NUMBER: ITL67391  
ISSUE DATE: 02/17/11  
PREPARED FOR: RAB LIGHTING, INC.

PAGE: 4 OF 6

### 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	195.4	38.5	
FL ( 0- 30)	27.7	5.5	
FM ( 30- 60)	89.4	17.6	
FH ( 60- 80)	57.1	11.2	G0
FVH( 80- 90)	21.2	4.2	U1 G1
BACK LIGHT	195.4	38.5	
BL ( 0- 30)	27.7	5.5	B0
BM ( 30- 60)	89.4	17.6	B0
BH ( 60- 80)	57.1	11.2	B0 G0
BVH( 80- 90)	21.2	4.2	U1 G1
UPLIGHT	116.5	23.0	
UL ( 90-100)	34.7	6.8	U2
UH (100-180)	81.8	16.1	U2
TRAPPED LIGHT	0.0	0.0	
TOTAL FLUX	507.2	100.0	

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

BUG RATING: B0 U2 G1



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

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

REPORT NUMBER: ITL67391  
ISSUE DATE: 02/17/11  
PREPARED FOR: RAB LIGHTING, INC.

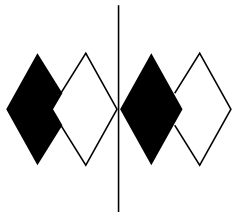
PAGE: 5 OF 6

# 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	0.0	0.0	0.0	0.0	0.0	0.0
	175.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	165.0	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.4	1.5	1.5	1.5
	155.0	5.4	5.4	5.3	5.2	5.2	5.3	5.4	5.5	5.6	5.6	5.7
	145.0	9.3	9.3	9.4	9.2	9.1	9.0	9.2	9.3	9.3	9.3	9.2
	135.0	13.2	13.2	13.2	13.0	12.7	12.5	12.6	12.9	13.1	13.0	13.0
	125.0	17.2	17.2	17.2	16.8	16.2	15.9	16.1	16.6	16.9	17.0	17.0
	115.0	21.3	21.4	21.3	20.8	19.9	19.5	19.8	20.6	21.0	21.0	21.0
	105.0	26.5	26.5	26.5	25.9	24.8	24.3	24.7	25.7	26.2	26.1	26.1
	95.0	32.4	32.5	32.7	32.1	30.8	30.2	30.8	32.1	32.6	32.2	32.1
	92.5	33.8	33.9	34.1	33.5	32.2	31.6	32.2	33.5	34.1	33.6	33.5
	90.0	35.3	35.4	35.7	35.1	33.8	33.1	33.8	35.1	35.7	35.1	35.0
	87.5	37.1	37.2	37.6	37.1	35.7	35.0	35.7	37.1	37.6	37.0	36.9
	85.0	39.1	39.2	39.7	39.2	37.8	37.1	37.8	39.2	39.7	39.0	38.8
V	82.5	41.3	41.5	42.0	41.5	40.2	39.5	40.1	41.5	42.0	41.2	41.0
E	80.0	43.7	43.8	44.4	44.0	42.7	42.1	42.6	44.0	44.4	43.5	43.3
R	77.5	46.2	46.4	47.1	46.7	45.5	44.8	45.3	46.6	46.9	46.0	45.7
T	75.0	48.8	49.0	49.8	49.5	48.3	47.7	48.1	49.3	49.6	48.4	48.1
I	72.5	51.5	51.8	52.8	52.6	51.5	50.8	51.1	52.3	52.4	50.9	50.6
C	70.0	54.3	54.6	56.0	56.1	55.1	54.2	54.6	55.7	55.5	53.8	53.4
A	67.5	57.3	57.7	59.5	59.9	59.1	58.3	58.5	59.5	59.0	56.9	56.5
L	65.0	60.6	61.0	63.3	64.1	63.4	62.6	63.0	63.8	63.0	60.4	59.8
	62.5	64.0	64.5	67.3	68.5	68.0	67.3	67.7	68.4	67.3	64.1	63.5
A	60.0	67.3	68.0	71.2	72.7	72.4	71.8	72.3	73.0	71.6	67.9	67.1
N	57.5	70.4	71.1	74.7	76.4	76.3	75.8	76.3	77.1	75.4	71.3	70.4
G	55.0	73.0	73.8	77.5	79.4	79.3	78.9	79.6	80.3	78.4	74.1	73.1
L	52.5	75.0	75.7	79.4	81.3	81.2	81.1	81.8	82.4	80.4	75.9	75.1
E	50.0	76.3	77.0	80.5	82.3	82.2	82.3	83.1	83.7	81.5	77.1	76.3
	47.5	77.1	77.7	81.0	82.8	82.9	82.9	83.7	84.1	81.8	77.8	77.0
	45.0	77.3	77.9	80.9	82.7	82.9	82.9	83.7	83.9	81.6	77.8	77.1
	42.5	76.7	77.3	80.1	81.8	82.0	82.1	82.9	82.9	80.8	77.2	76.6
	40.0	75.7	76.2	78.7	80.3	80.7	80.8	81.4	81.5	79.4	76.3	75.7
	37.5	74.2	74.6	76.8	78.3	78.7	79.0	79.4	79.3	77.4	74.7	74.2
	35.0	72.0	72.4	74.2	75.5	76.0	76.2	76.6	76.4	74.7	72.4	72.0
	32.5	69.2	69.5	71.0	72.1	72.5	72.9	73.1	72.9	71.5	69.7	69.3
	30.0	66.1	66.3	67.5	68.4	68.9	69.1	69.3	69.1	68.0	66.6	66.4
	25.0	60.7	60.8	61.6	62.3	62.6	62.8	62.9	62.7	62.2	61.5	61.3
	20.0	59.2	59.3	59.7	60.2	60.6	60.8	61.0	61.0	60.7	60.3	60.2
	15.0	62.4	62.4	62.8	63.2	63.8	64.2	64.5	64.5	64.5	64.3	64.3
	10.0	71.7	71.7	72.0	72.3	72.7	73.0	73.4	73.6	73.8	73.8	73.7
	5.0	88.1	88.1	88.2	88.3	88.5	88.6	88.8	88.9	89.0	89.0	89.0
	0.0<<	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5

||  
PLANE OF MAXIMUM CANDELA

|  
CONE OF MAXIMUM CANDELA



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



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

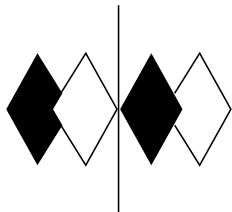
PHONE: (303)442-1255 • FAX: (303)449-5274 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL67391  
ISSUE DATE: 02/17/11  
PREPARED FOR: RAB LIGHTING, INC.

PAGE: 6 OF 6

ADDRESS: 170 LUDLOW AVE  
NORTHVALE, NJ 07647

THIS ITL REPORT WITH THE USE OF THE NVLAP LOGO SHALL NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT.



**itl boulder**

THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



INDEPENDENT TESTING LABORATORIES, INC.

3386 LONGHORN ROAD, BOULDER, CO 80302 USA

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

REPORT NUMBER: ITL67392

DATE: 02/17/11

PREPARED FOR: RAB LIGHTING, INC.

Page 1 of 3

ADDRESS: 170 LUDLOW AVE  
NORTHVALE, NJ 07647

CATALOG NUMBER: VXLED13YDG - VXBRL13YDG

LUMINAIRE: CAST DIFFUSE METAL HOUSING, ONE CIRCUIT BOARD WITH ONE LED, FROSTED CYLINDRICAL GLASS LENS, CAST DIFFUSE METAL GUARD SURROUNDING LENS.

LAMPS: ONE 13-WATT WHITE MULTI-CHIP LIGHT EMITTING DIODE (LED) WITH LEDS ARRANGED IN AN ARRAY OF THREE LINEAR ROWS, VERTICAL BASE-UP POSITION.

DRIVER: RAB LIGHTING RD12-24-A0720

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

INSTRUMENTS: Associated Power Technologies APT6040 AC Power Source  
Yokogawa WT210 Digital Power Meter  
Ocean Optics QE65000 Spectroradiometer  
ITL 2.0 Meter Diameter Integrating Sphere,  $4\pi$  Geometry

OBJECT OF TEST: Measure the Spectral Power Distribution (SPD), Total Radiant Flux (mW), Correlated Color Temperature (CCT), Color Rendering Indices (CRI<sub>a</sub>,9), Chromaticity Coordinates (x,y), ANSI C78.377 Duv, and electrical data including Power Factor (PF), Total Harmonic Distortion (THD), and Off-State Power to the luminaire.

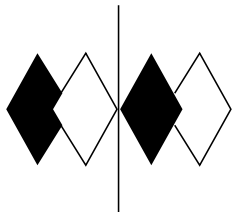
PROCEDURE: The luminaire was provided by the customer and had an unknown number of burn hours. The luminaire was mounted inside the integrating sphere in a horizontal position (LEDs facing down). The luminaire was allowed to stabilize at 120VAC input. After stabilization occurred, Spectral Power Distribution (SPD), Total Radiant Flux (mW), Correlated Color Temperature (CCT), Color Rendering Indices (CRI<sub>a</sub>,9), Chromaticity Coordinates (x,y), ANSI C78.377 Duv, and electrical data including Power Factor (PF) and Total Harmonic Distortion (THD) 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. Off-State Power is reported with no voltage applied to the luminaire.

RESULTS: (continued next page)

THIS ITL REPORT WITH THE USE OF THE NVLAP LOGO SHALL NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL GOVERNMENT.

Checked ..... *N Gully* .....

Approved ..... *R. Bergin* .....  
Lighting Engineer



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



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

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

REPORT NUMBER: ITL67392

DATE: 02/17/11

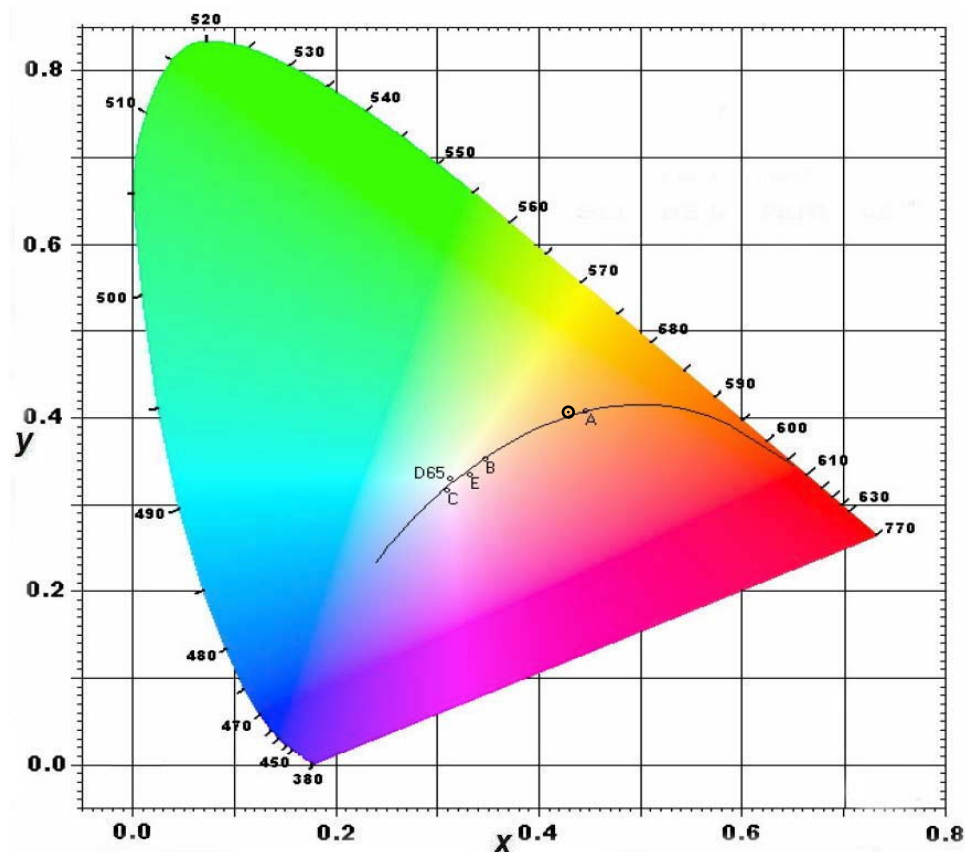
PREPARED FOR: RAB LIGHTING, INC.

CATALOG NUMBER: VXLED13YDG - VXBRLD13YDG

Page 2 of 3

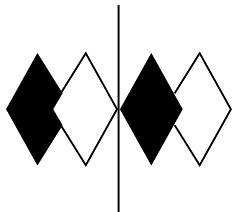
RESULTS:

## CIE Chromaticity Diagram



SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4288
Chromaticity Ordinate y	0.4066
Correlated Color Temp CCT (K)	3161
Color Rendering Index (CRIa)	86
Color Rendering Index 9 (Strong Red)	47
Total Radiant Flux (milliWatts)	1700
ANSI C78.377-2008 Duv	0.002
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (mA AC)	135
Input Power (Watts)	15.2
Input Power Factor (%)	93.8
Input Current THD (%)	23.4
Off-State Power (Watts)	0.0





**itl boulder**  
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](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL67392

DATE: 02/17/11

PREPARED FOR: RAB LIGHTING, INC.

Page 3 of 3

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.000	515	4.671	650	7.907
385	0.000	520	5.164	655	7.511
390	0.000	525	5.623	660	7.075
395	0.000	530	6.020	665	6.590
400	0.000	535	6.317	670	6.140
405	0.024	540	6.635	675	5.617
410	0.072	545	6.912	680	5.150
415	0.228	550	7.160	685	4.657
420	0.428	555	7.369	690	4.183
425	0.802	560	7.573	695	3.759
430	1.388	565	7.752	700	3.339
435	2.235	570	7.890	705	2.967
440	3.434	575	8.037	710	2.615
445	4.847	580	8.178	715	2.281
450	5.310	585	8.317	720	1.989
455	4.393	590	8.485	725	1.739
460	3.216	595	8.658	730	1.495
465	2.489	600	8.795	735	1.283
470	1.941	605	8.954	740	1.107
475	1.579	610	9.045	745	0.954
480	1.515	615	9.130	750	0.801
485	1.641	620	9.144	755	0.690
490	1.898	625	9.121	760	0.596
495	2.341	630	9.015	765	0.494
500	2.916	635	8.853	770	0.416
505	3.510	640	8.597	775	0.341
510	4.101	645	8.265	780	0.296

