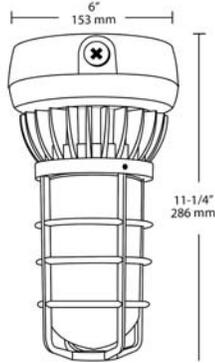


ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 10 foot mounting height.

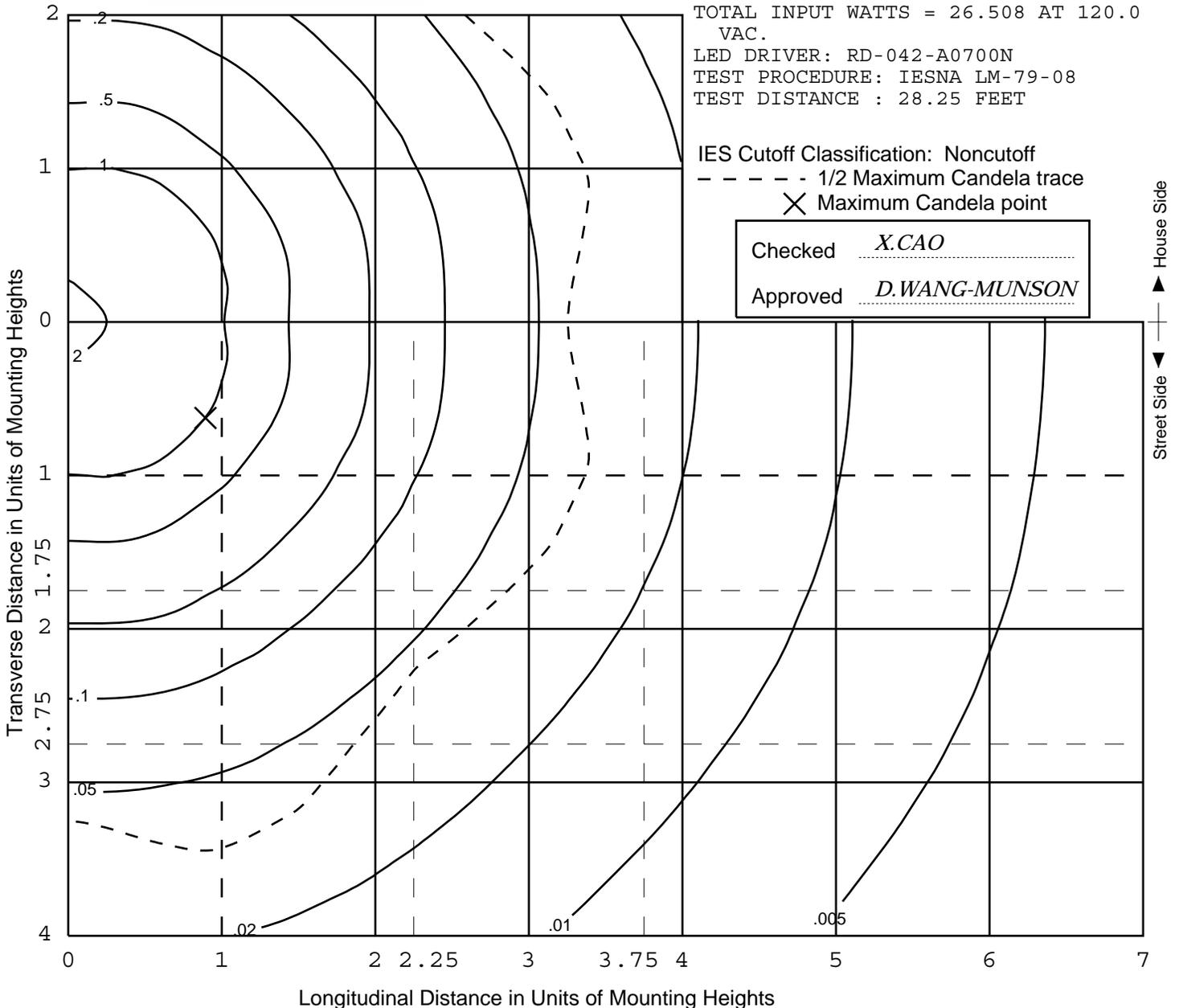


REPORT NUMBER: RAB00701
 ISSUE DATE: 02/04/15 PAGE: 1 OF 8
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: VXLED26NDG /
 VXBRLLED26NDG
 LUMINAIRE: CAST FINNED DIFFUSE METAL HOUSING, 1 CIRCUIT BOARD WITH 144 LEDS, FROSTED GLASS LENS, CAST DIFFUSE METAL GUARD SURROUNDING LENS. LENS FROSTED SIDE IN.
 LAMP: ONE HUNDRED FORTY-FOUR WHITE LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.
 TOTAL INPUT WATTS = 26.508 AT 120.0 VAC.
 LED DRIVER: RD-042-A0700N
 TEST PROCEDURE: IESNA LM-79-08
 TEST DISTANCE : 28.25 FEET

IES Cutoff Classification: Noncutoff

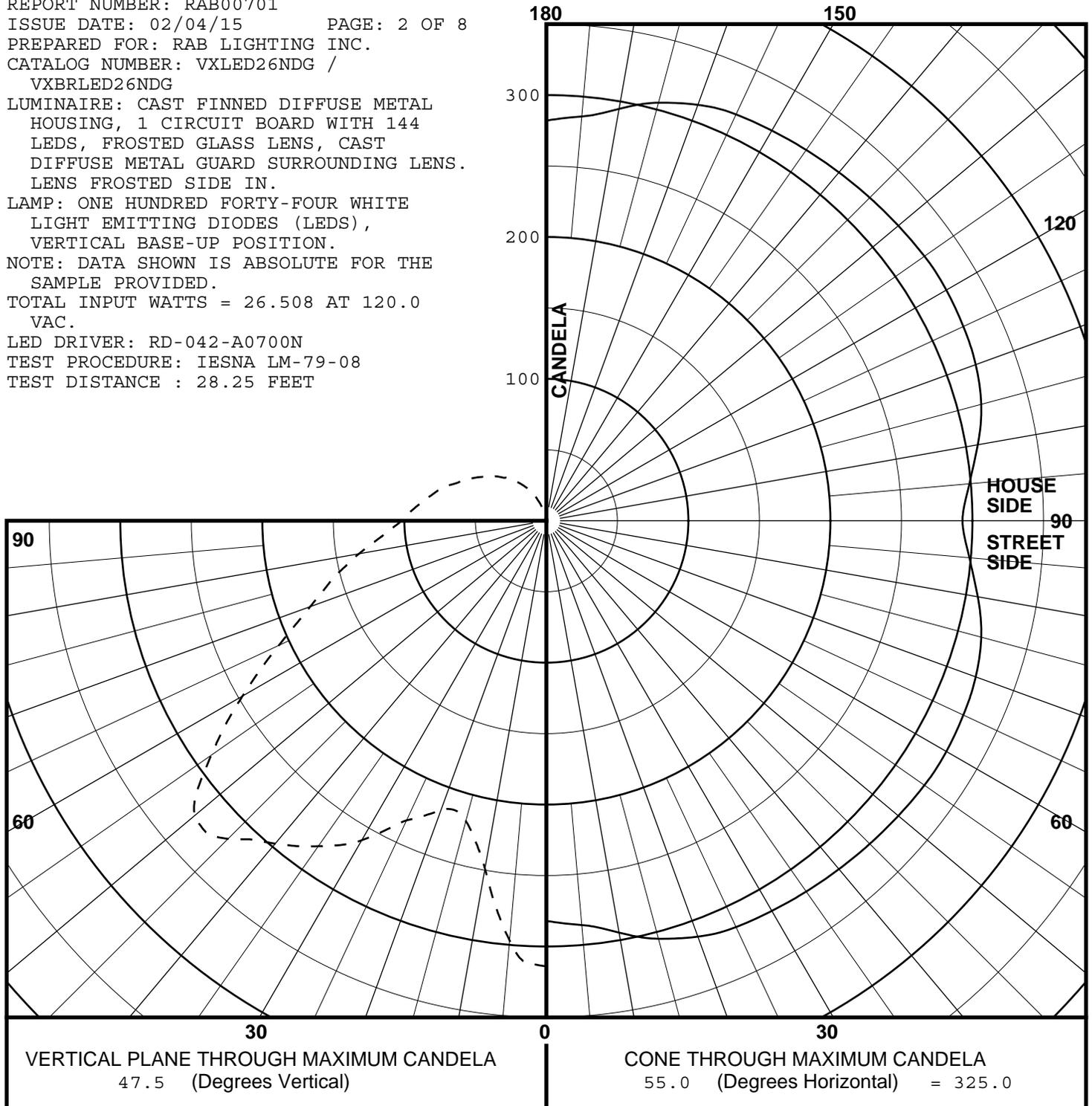
--- 1/2 Maximum Candela trace
 X Maximum Candela point

Checked	<i>X.CAO</i>
Approved	<i>D.WANG-MUNSON</i>



MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

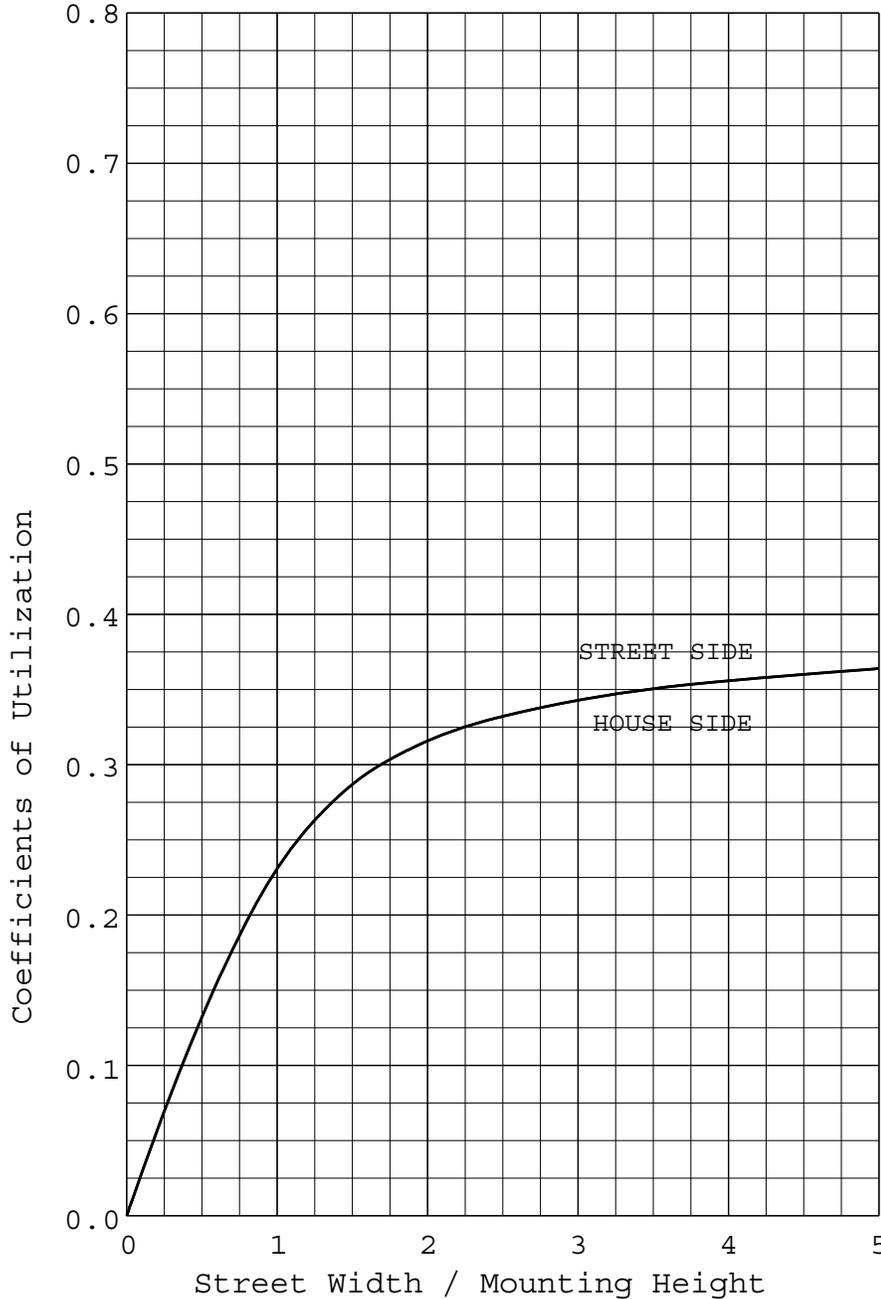
REPORT NUMBER: RAB00701
 ISSUE DATE: 02/04/15 PAGE: 2 OF 8
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: VXLED26NDG /
 VXBRLLED26NDG
 LUMINAIRE: CAST FINNED DIFFUSE METAL
 HOUSING, 1 CIRCUIT BOARD WITH 144
 LEDS, FROSTED GLASS LENS, CAST
 DIFFUSE METAL GUARD SURROUNDING LENS.
 LENS FROSTED SIDE IN.
 LAMP: ONE HUNDRED FORTY-FOUR WHITE
 LIGHT EMITTING DIODES (LEDS),
 VERTICAL BASE-UP POSITION.
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE
 SAMPLE PROVIDED.
 TOTAL INPUT WATTS = 26.508 AT 120.0
 VAC.
 LED DRIVER: RD-042-A0700N
 TEST PROCEDURE: IESNA LM-79-08
 TEST DISTANCE : 28.25 FEET



REPORT NUMBER: RAB00701
 ISSUE DATE: 02/04/15
 PREPARED FOR: RAB LIGHTING INC.

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COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	679.	39.1
DOWNWARD HOUSE SIDE	679.	39.1
DOWNWARD TOTAL	1358.	78.3
UPWARD STREET SIDE	189.	10.9
UPWARD HOUSE SIDE	189.	10.9
UPWARD TOTAL	377.	21.7
TOTAL FLUX	1735.	100.0
TOTAL INPUT WATTS = 26.5		
EFFICACY = 65.5 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.

THIS REPORT IS BASED ON PUBLISHED INDUSTRY PROCEDURES. FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE.

REPORT NUMBER: RAB00701
 ISSUE DATE: 02/04/15
 PREPARED FOR: RAB LIGHTING INC.

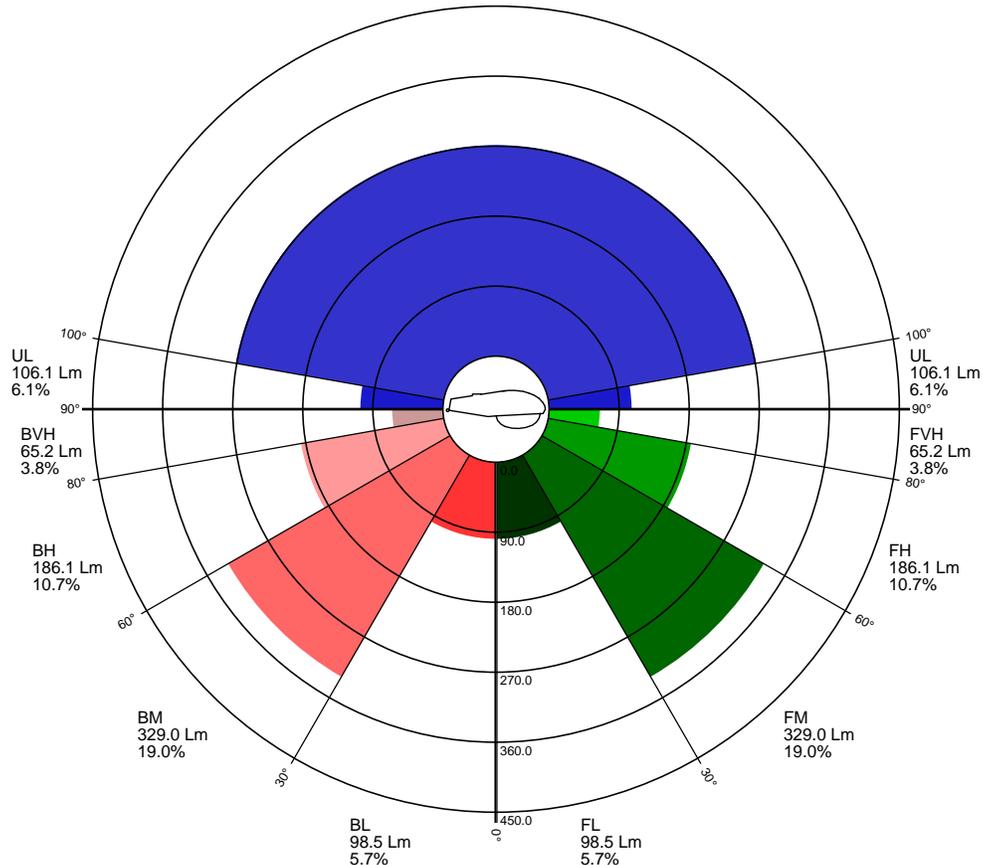
PAGE: 4 OF 8

BUG Rating:			B1	U3	G1
Zonal Summary		Lumens	% of Fixture		
			Zone Ratings		
			B	U	G
Forward		679			
FL	(0° - 30°)	98.5			
FM	(30° - 60°)	329.0			
FH	(60° - 80°)	186.1			G0
FVH	(80° - 90°)	65.2			G1
Backward		679			
BL	(0° - 30°)	98.5	B0		
BM	(30° - 60°)	329.0	B1		
BH	(60° - 80°)	186.1	B1		G0
BVH	(80° - 90°)	65.2			G1
Upward		377			
UL	(90° - 100°)	106.1		U3	
UH	(100° - 180°)	271.3		U3	
Trapped Light		0			
Total Flux		1735			

Zonal Lumen Summary

(Linear scale)

UH
271.3 Lm
15.6%

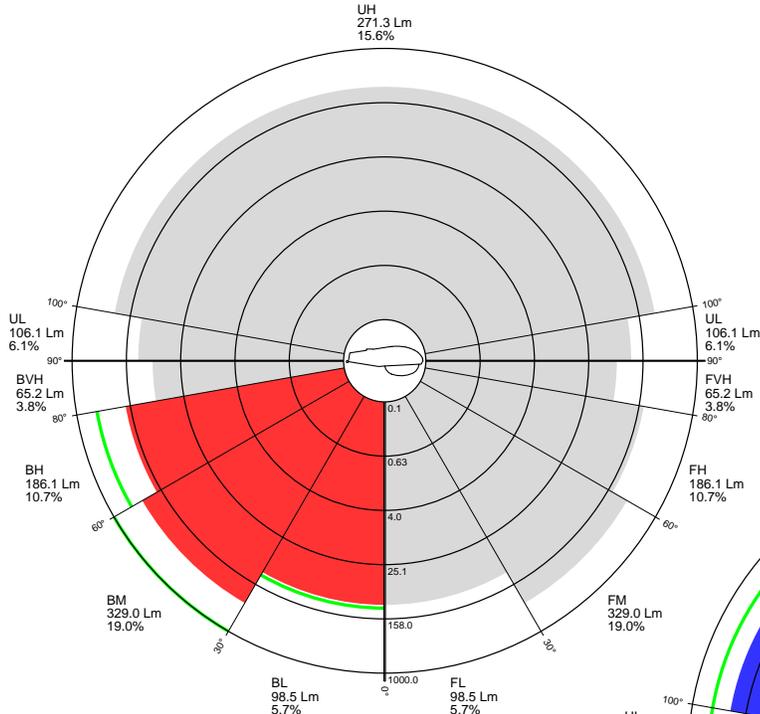


REPORT NUMBER: RAB00701
 ISSUE DATE: 02/04/15
 PREPARED FOR: RAB LIGHTING INC.

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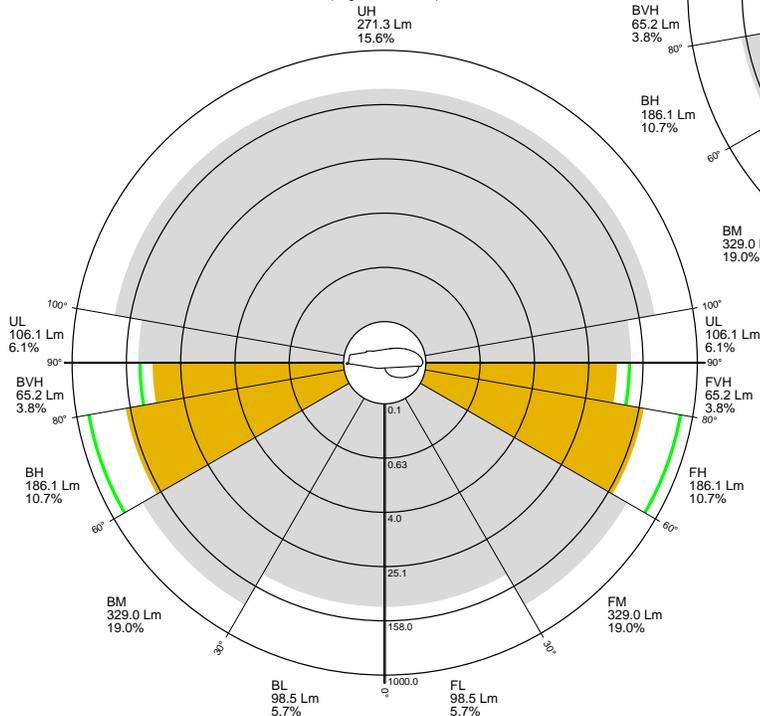
Backlight Rating Details

(Logarithmic scale)



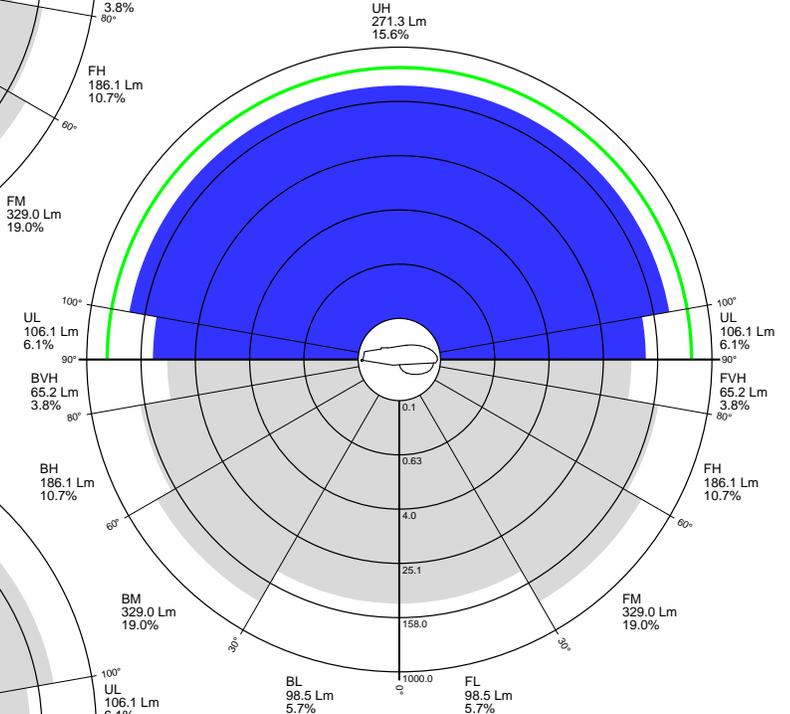
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB00701
 ISSUE DATE: 02/04/15
 PREPARED FOR: RAB LIGHTING INC.

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CANDELA TABULATION

	LATERAL ANGLE										
	STREET SIDE	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0
	180.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	165.0	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
	155.0	19.	20.	19.	19.	19.	19.	20.	19.	20.	20.
	145.0	32.	32.	32.	32.	32.	32.	32.	33.	33.	33.
	135.0	44.	44.	45.	44.	43.	43.	43.	45.	45.	45.
	125.0	57.	57.	57.	56.	54.	53.	54.	56.	57.	58.
	115.0	69.	69.	70.	68.	66.	65.	66.	69.	70.	70.
	105.0	84.	84.	84.	83.	80.	78.	80.	83.	85.	85.
	95.0	99.	99.	100.	98.	93.	91.	94.	98.	100.	100.
	90.0	108.	108.	109.	107.	102.	100.	102.	107.	109.	108.
	87.5	113.	114.	115.	113.	108.	106.	108.	113.	114.	114.
	85.0	120.	120.	122.	120.	116.	113.	115.	119.	121.	120.
V	82.5	128.	129.	130.	129.	125.	121.	124.	128.	129.	128.
E	80.0	137.	138.	140.	139.	135.	132.	134.	138.	139.	137.
R	77.5	146.	147.	150.	149.	144.	142.	144.	148.	149.	146.
T	75.0	155.	156.	160.	159.	155.	152.	155.	158.	159.	155.
I	72.5	164.	165.	170.	169.	165.	163.	165.	168.	169.	165.
C	70.0	174.	176.	181.	181.	177.	175.	177.	180.	180.	175.
A	67.5	186.	188.	194.	195.	190.	188.	191.	194.	193.	187.
L	65.0	199.	201.	210.	211.	207.	205.	208.	211.	209.	200.
	62.5	214.	218.	229.	230.	228.	225.	227.	229.	227.	216.
A	60.0	231.	234.	247.	251.	248.	245.	247.	250.	247.	234.
N	57.5	246.	250.	266.	271.	268.	266.	268.	271.	266.	251.
G	55.0	259.	263.	281.	288.	286.	285.	288.	290.	285.	267.
L	52.5	270.	276.	296.	304.	303.	305.	309.	310.	305.	284.
E	50.0	278.	284.	305.	315.	317.	319.	323.	323.	317.	296.
	47.5<<	282.	286.	305.	316.	319.	322.	325.	324.	317.	299.
	45.0	280.	284.	300.	310.	313.	315.	317.	316.	309.	293.
	42.5	276.	278.	291.	300.	303.	304.	305.	304.	297.	285.
	40.0	272.	274.	285.	293.	295.	295.	297.	295.	288.	278.
	37.5	268.	269.	279.	285.	288.	288.	289.	287.	281.	272.
	35.0	261.	262.	270.	277.	279.	280.	280.	278.	272.	265.
	30.0	242.	243.	250.	256.	259.	261.	260.	256.	251.	246.
	25.0	219.	220.	227.	233.	237.	237.	233.	230.	226.	221.
	20.0	208.	208.	211.	213.	215.	217.	217.	215.	213.	210.
	15.0	218.	218.	219.	220.	220.	221.	219.	218.	216.	215.
	10.0	250.	250.	251.	251.	251.	251.	249.	249.	248.	247.
	5.0	298.	298.	298.	298.	298.	297.	297.	297.	296.	296.
	0.0	314.	314.	314.	314.	314.	314.	314.	314.	314.	314.

||
 PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB00701
 ISSUE DATE: 02/04/15
 PREPARED FOR: RAB LIGHTING INC.

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CANDELA TABULATION
 HOUSE SIDE

LATERAL ANGLE

	90.0	95.0	105.0	115.0	125.0	135.0	145.0	155.0	165.0	175.0	180.0
	180.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	165.0	6.	6.	6.	6.	6.	6.	6.	6.	6.	6.
	155.0	20.	20.	20.	19.	20.	19.	19.	19.	20.	19.
	145.0	33.	33.	33.	33.	32.	32.	32.	32.	32.	32.
	135.0	45.	45.	45.	45.	43.	43.	43.	44.	45.	44.
	125.0	57.	58.	57.	56.	54.	53.	54.	56.	57.	57.
	115.0	70.	70.	70.	69.	66.	65.	66.	68.	70.	69.
	105.0	85.	85.	85.	83.	80.	78.	80.	83.	84.	84.
	95.0	99.	100.	100.	98.	94.	91.	93.	98.	100.	99.
	90.0	108.	108.	109.	107.	102.	100.	102.	107.	109.	108.
	87.5	114.	114.	114.	113.	108.	106.	108.	113.	115.	114.
	85.0	120.	120.	121.	119.	115.	113.	116.	120.	122.	120.
V	82.5	128.	128.	129.	128.	124.	121.	125.	129.	130.	129.
E	80.0	137.	137.	139.	138.	134.	132.	135.	139.	140.	138.
R	77.5	145.	146.	149.	148.	144.	142.	144.	149.	150.	147.
T	75.0	155.	155.	159.	158.	155.	152.	155.	159.	160.	156.
I	72.5	164.	165.	169.	168.	165.	163.	165.	169.	170.	165.
C	70.0	174.	175.	180.	180.	177.	175.	177.	181.	181.	176.
A	67.5	185.	187.	193.	194.	191.	188.	190.	195.	194.	188.
L	65.0	198.	200.	209.	211.	208.	205.	207.	211.	210.	201.
	62.5	213.	216.	227.	229.	227.	225.	228.	230.	229.	218.
A	60.0	230.	234.	247.	250.	247.	245.	248.	251.	247.	234.
N	57.5	247.	251.	266.	271.	268.	266.	268.	271.	266.	250.
G	55.0	262.	267.	285.	290.	288.	285.	286.	288.	281.	263.
L	52.5	279.	284.	305.	310.	309.	305.	303.	304.	296.	276.
E	50.0	290.	296.	317.	323.	323.	319.	317.	315.	305.	284.
	47.5<<	293.	299.	317.	324.	325.	322.	319.	316.	305.	286.
	45.0	289.	293.	309.	316.	317.	315.	313.	310.	300.	284.
	42.5	282.	285.	297.	304.	305.	304.	303.	300.	291.	278.
	40.0	276.	278.	288.	295.	297.	295.	295.	293.	285.	274.
	37.5	270.	272.	281.	287.	289.	288.	288.	285.	279.	269.
	35.0	263.	265.	272.	278.	280.	280.	279.	277.	270.	262.
	30.0	244.	246.	251.	256.	260.	261.	259.	256.	250.	243.
	25.0	220.	221.	226.	230.	233.	237.	237.	233.	227.	220.
	20.0	210.	210.	213.	215.	217.	217.	215.	213.	211.	208.
	15.0	214.	215.	216.	218.	219.	221.	220.	220.	219.	218.
	10.0	247.	247.	248.	249.	249.	251.	251.	251.	251.	250.
	5.0	296.	296.	296.	297.	297.	297.	298.	298.	298.	298.
	0.0	314.	314.	314.	314.	314.	314.	314.	314.	314.	314.

CONE OF MAXIMUM CANDELA

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PREPARED FOR: RAB LIGHTING INC.

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5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	7
5- 10	19
10- 15	27
15- 20	35
20- 25	46
25- 30	61
30- 35	78
35- 40	94
40- 45	110
45- 50	125
50- 55	129
55- 60	122
60- 65	110
65- 70	97
70- 75	87
75- 80	78
80- 85	69
85- 90	61
90- 95	55
95-100	51
100-105	46
105-110	41
110-115	36
115-120	32
120-125	27
125-130	23
130-135	19
135-140	15
140-145	12
145-150	9
150-155	6
155-160	3
160-165	2
165-170	0
170-175	0
175-180	0

10-DEGREE
ZONAL LUMEN SUMMARY

0- 10	27
0- 20	90
0- 30	197
0- 40	369
0- 50	604
0- 60	855
0- 70	1062
0- 80	1227
0- 90	1358
0-100	1464
0-110	1551
0-120	1619
0-130	1669
0-140	1703
0-150	1724
0-160	1733
0-170	1735
0-180	1735

REPORT NUMBER: RAB00702
DATE: 2/5/2015
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: VXLED26NDG / VXBRLD26NDG

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: CAST FINNED DIFFUSE METAL HOUSING, 1 CIRCUIT BOARD WITH 144 LEDS, FROSTED GLASS LENS, CAST DIFFUSE METAL GUARD SURROUNDING LENS. LENS FROSTED SIDE IN.

LAMP: ONE HUNDRED FORTY-FOUR WHITE LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

DRIVER: RD-042-A0700N

OBJECT OF TEST: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT THE RATED INPUT VOLTAGES (120.0 AND 277.0 VAC, 60Hz) TO THE TEST SAMPLE.

INSTRUMENTS: CHROMA PROGRAMMABLE AC POWER SOURCE MODEL 6460 Calibration Due: N/A
CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202 3/14/15
OCEAN OPTICS QE65PRO Spectroradiometer 2/5/16
RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry 2/5/16

OBJECT OF TEST: Measure the Absolute Flux in lumens*, Total Radiant Flux*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRIa,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. Measure electrical data including Total Harmonic Distortion (THD) at maximum nominal rated input voltage. Report Off-State Power.

PROCEDURE: The test sample was mounted inside the integrating sphere, energized, 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 60 HZ input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. Electrical data was also recorded at maximum nominal rated input voltage (277.0 VAC). 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)

Checked	<u>X.CAO</u>
Approved	<u>D.WANG-MUNSON</u> Lighting Engineer

REPORT NUMBER: RAB00702
 DATE: 2/5/2015
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: VXLED26NDG / VXBRLD26NDG

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	1735 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3849
Chromaticity Ordinate y	0.3838
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2252
Chromaticity Ordinate v'	0.5053
Correlated Color Temp CCT (K)	3933
ANSI C78.377-2008 Duv	0.002
Total Radiant Flux (milliWatts)	5233 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.222
Input Power (Watts)	26.5
Input Power Factor (%)	99.5
Input Current THD (%)	6.9
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
65.5	
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.107
Input Power (Watts)	27.0
Input Power Factor (%)	91.1
Input Current THD (%)	11.1
Input Voltage THD (%)	0.1
Off-State Power (Watts)	
0.0	

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	82
R1 Light greyish red	80
R2 Dark greyish yellow	88
R3 Strong yellowish green	93
R4 Moderate yellowish green	81
R5 Light bluish green	80
R6 Light blue	83
R7 Light violet	87
R8 Light reddish purple	64
R9 Strong red	7
R10 Strong yellow	70
R11 Strong green	80
R12 Strong blue	58
R13 Light yellowish pink (skin)	82
R14 Moderate olive green (leaf)	96

*NOTE:

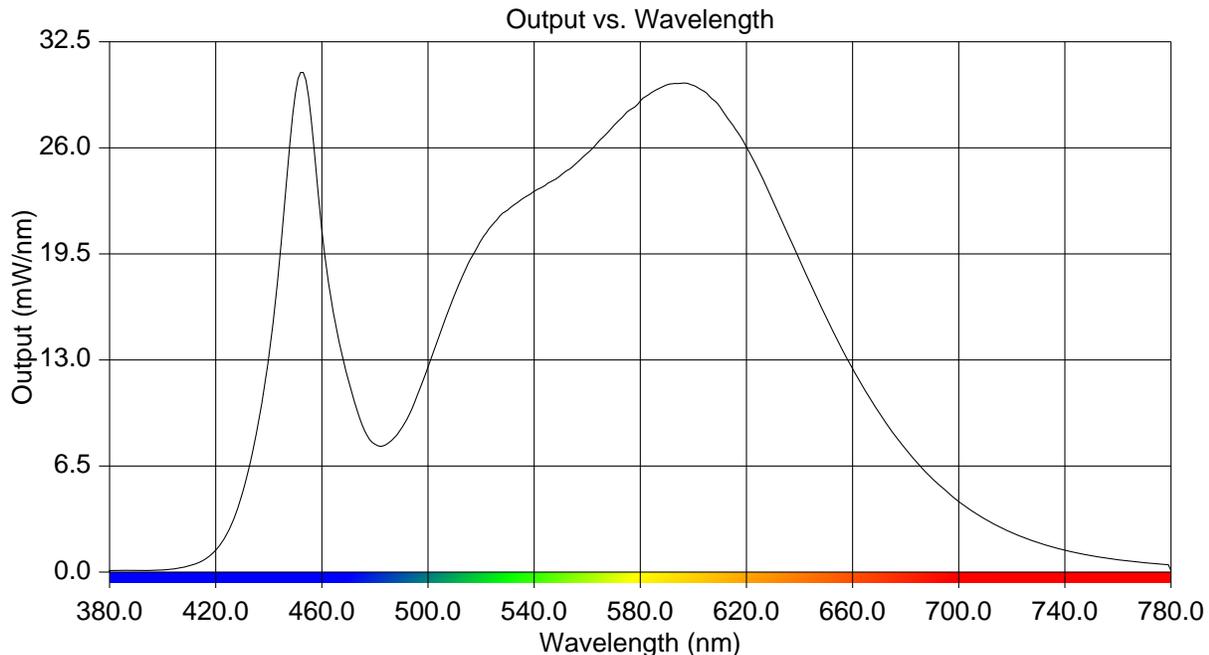
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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.

REPORT NUMBER: RAB00702
 DATE: 2/5/2015
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: VXLED26NDG / VXBRLLED26NDG

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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.091	515	18.859	650	15.628
385	0.094	520	20.341	655	13.990
390	0.096	525	21.426	660	12.475
395	0.105	530	22.185	665	11.066
400	0.140	535	22.810	670	9.778
405	0.213	540	23.340	675	8.577
410	0.368	545	23.819	680	7.537
415	0.692	550	24.299	685	6.579
420	1.338	555	24.924	690	5.731
425	2.579	560	25.674	695	5.015
430	4.808	565	26.515	700	4.326
435	8.255	570	27.370	705	3.738
440	13.205	575	28.200	710	3.237
445	20.816	580	28.869	715	2.810
450	29.306	585	29.463	720	2.418
455	29.136	590	29.877	725	2.079
460	21.042	595	29.949	730	1.799
465	15.282	600	29.829	735	1.551
470	11.751	605	29.355	740	1.336
475	9.095	610	28.519	745	1.162
480	7.836	615	27.362	750	1.003
485	7.902	620	26.039	755	0.871
490	8.822	625	24.489	760	0.760
495	10.426	630	22.763	765	0.654
500	12.582	635	20.925	770	0.572
505	14.821	640	19.130	775	0.504
510	17.017	645	17.363	780	0.077



REPORT NUMBER: RAB00702
DATE: 2/5/2015
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CATALOG NUMBER: VXLED26NDG / VXBRLD26NDG

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CIE Chromaticity Diagram

