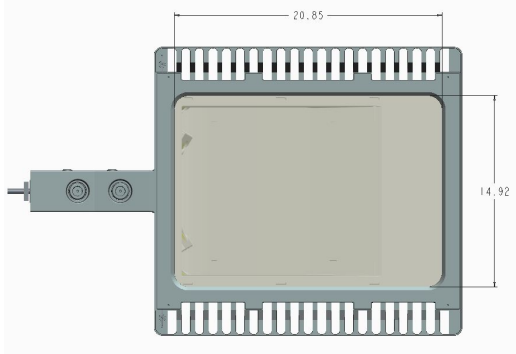


ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 25 foot mounting height.



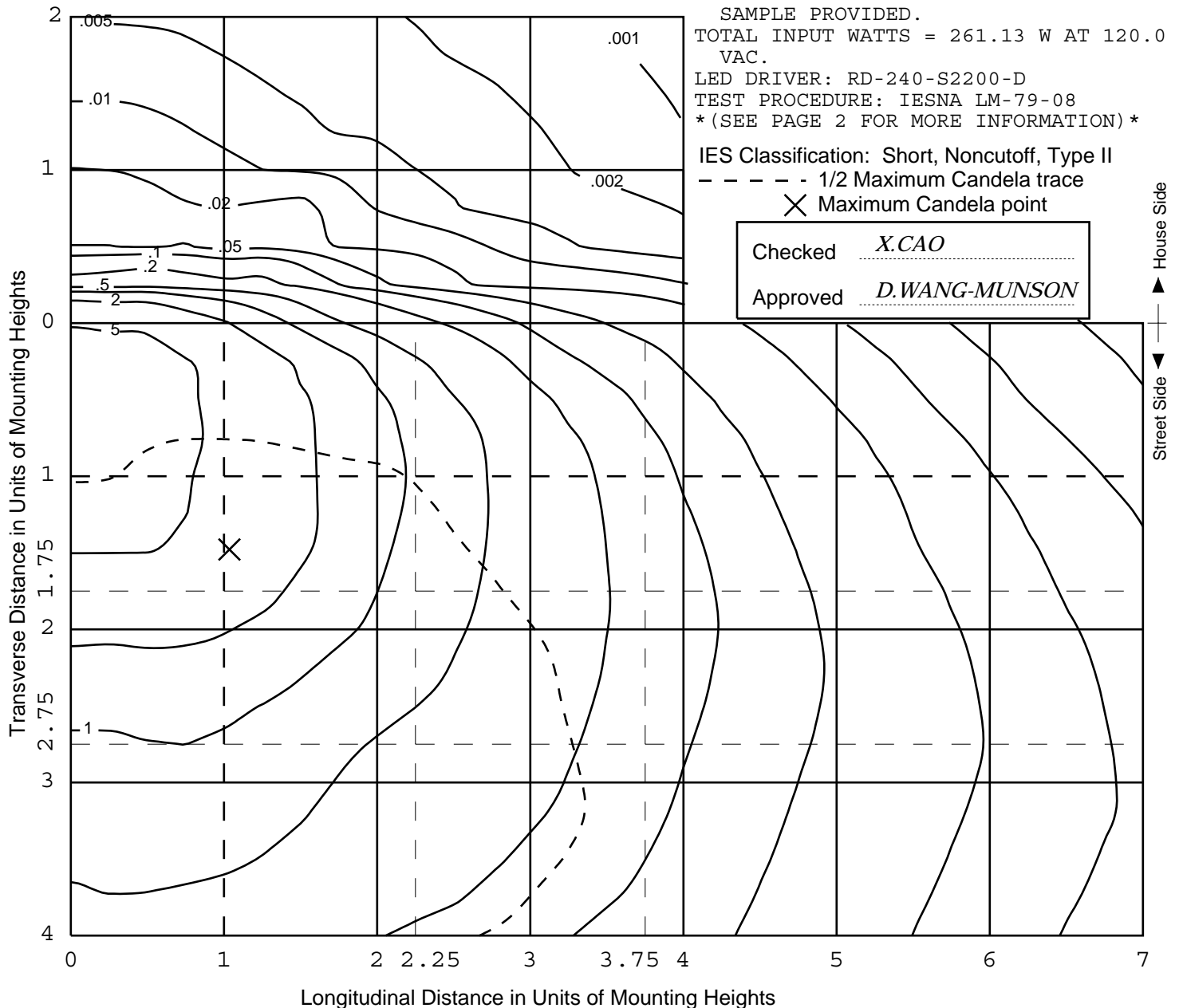
REPORT NUMBER: RAB01658
 ISSUE DATE: 03/31/16 PAGE: 1 OF 9
 DATE SAMPLE TESTED: 03/31/16
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED4T260N/D10 -
 ALED4T260SFN/D10 - WPLED4T260N/D10 -
 WPLED4T260NFX/D10 (TYPE IV)
 LUMINAIRE: CAST FINNED METAL HOUSING, 4
 CHIP ON BOARD LIGHT EMITTING DIODES,
 MOLDED PLASTIC REFLECTOR WITH
 SPECULAR FINISH, CLEAR GLASS LENS IN
 CAST BRONZE PAINTED METAL FRAME.
 LAMPS: FOUR WHITE LIGHT EMITTING DIODES
 (LEDs)

NOTE: DATA SHOWN IS ABSOLUTE FOR THE
 SAMPLE PROVIDED.
 TOTAL INPUT WATTS = 261.13 W AT 120.0
 VAC.

LED DRIVER: RD-240-S2200-D
 TEST PROCEDURE: IESNA LM-79-08
 (SEE PAGE 2 FOR MORE INFORMATION)

IES Classification: Short, Noncutoff, Type II

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



REPORT NUMBER: RAB01658
ISSUE DATE: 03/31/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 2 OF 9
DATE SAMPLE TESTED: 03/31/16

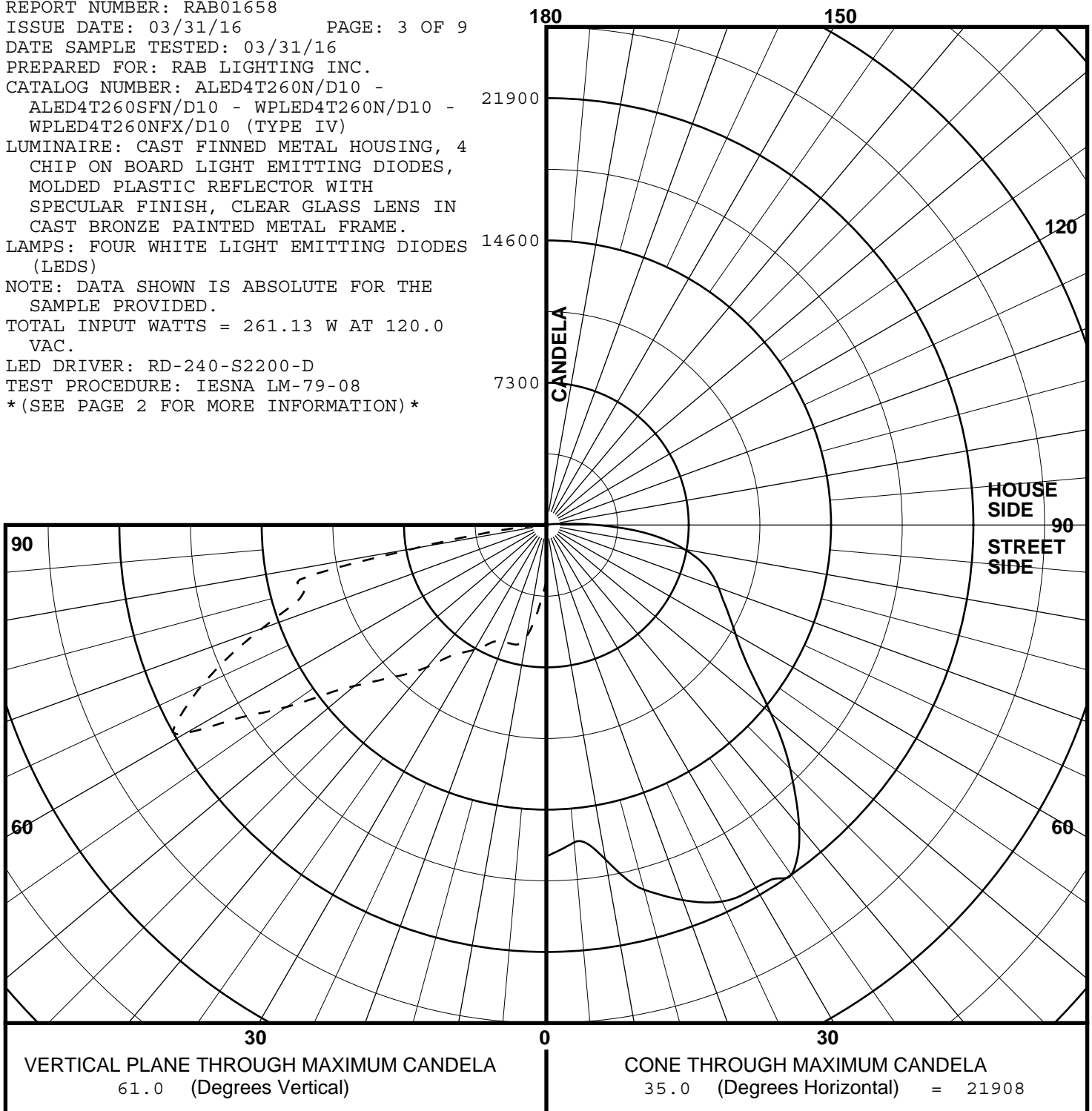
ADDITIONAL INFORMATION

ACCREDITED LABORATORY CODE 201058-0
TEST DISTANCE : 28.25 FEET

NOTE: THIS 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.

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

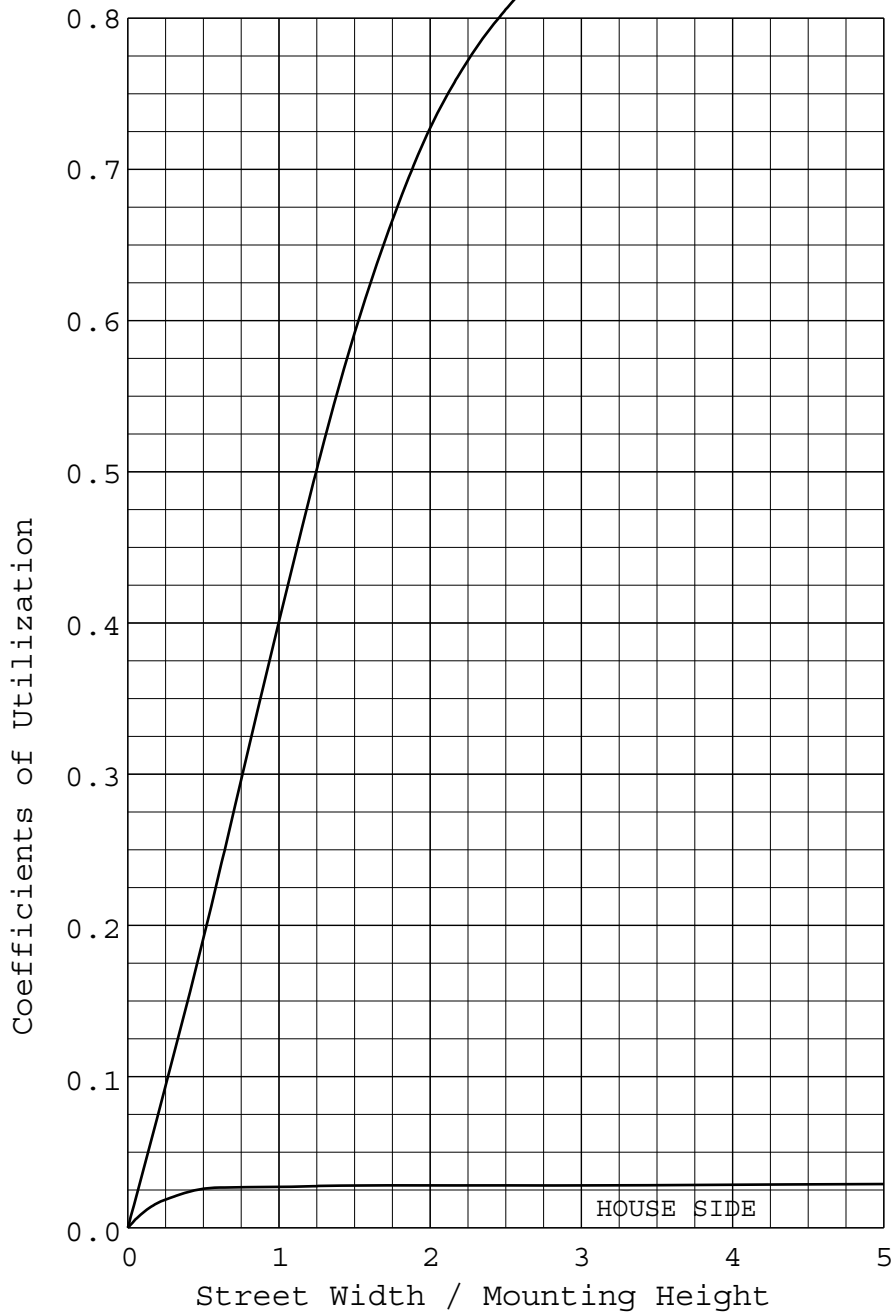
REPORT NUMBER: RAB01658
 ISSUE DATE: 03/31/16 PAGE: 3 OF 9
 DATE SAMPLE TESTED: 03/31/16
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED4T260N/D10 -
 ALED4T260SFN/D10 - WPLED4T260N/D10 -
 WPLED4T260NFX/D10 (TYPE IV)
 LUMINAIRE: CAST FINNED METAL HOUSING, 4
 CHIP ON BOARD LIGHT EMITTING DIODES,
 MOLDED PLASTIC REFLECTOR WITH
 SPECULAR FINISH, CLEAR GLASS LENS IN
 CAST BRONZE PAINTED METAL FRAME.
 LAMPS: FOUR WHITE LIGHT EMITTING DIODES
 (LEDS)
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE
 SAMPLE PROVIDED.
 TOTAL INPUT WATTS = 261.13 W AT 120.0
 VAC.
 LED DRIVER: RD-240-S2200-D
 TEST PROCEDURE: IESNA LM-79-08
 *(SEE PAGE 2 FOR MORE INFORMATION) *



REPORT NUMBER: RAB01658
ISSUE DATE: 03/31/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 4 OF 9
DATE SAMPLE TESTED: 03/31/16

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	27464.	97.1
DOWNWARD HOUSE SIDE	835.	2.9
DOWNWARD TOTAL	28299.	100.0
UPWARD STREET SIDE	0.	0.0
UPWARD HOUSE SIDE	0.	0.0
UPWARD TOTAL	0.	0.0
TOTAL FLUX	28299.	100.0
TOTAL INPUT WATTS = 261.1		
EFFICACY = 108.4 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.

REPORT NUMBER: RAB01658
 ISSUE DATE: 03/31/16
 PREPARED FOR: RAB LIGHTING INC.

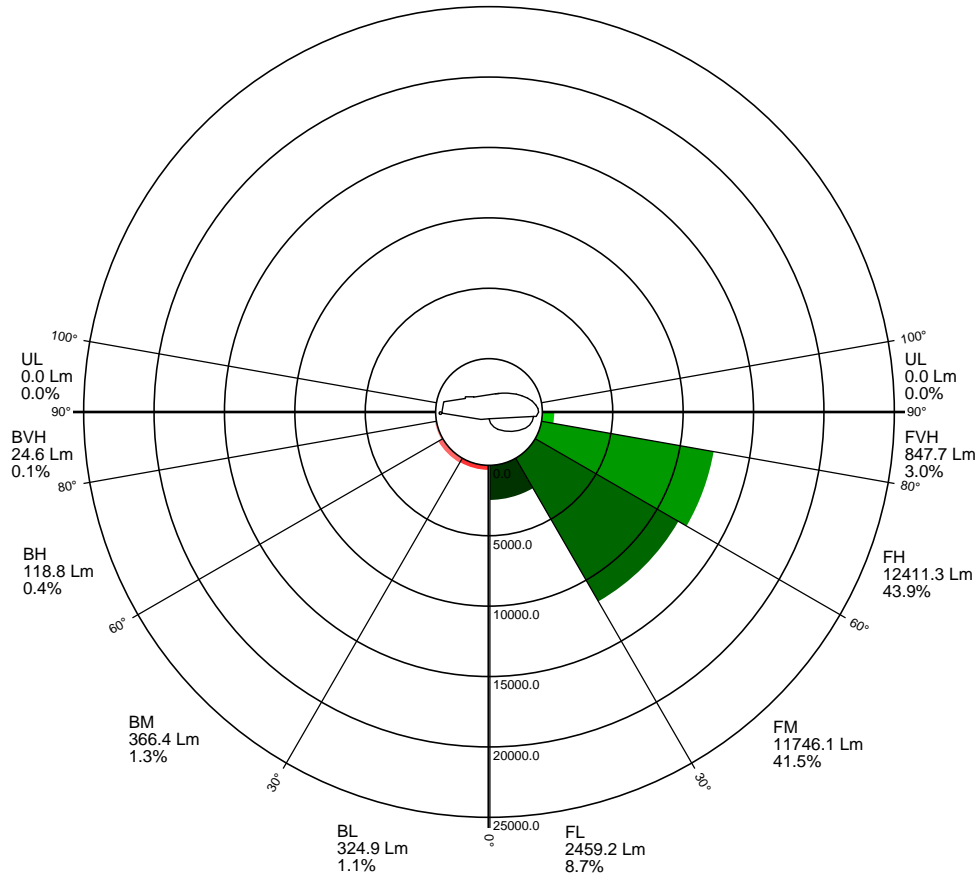
PAGE: 5 OF 9
 DATE SAMPLE TESTED: 03/31/16

BUG Rating:				B1 U0 G5		
Zonal Summary		Lumens	% of Fixture	Zone Ratings		
				B	U	G
Forward		27464	97.1			
FL	(0° - 30°)	2459.2	8.7			
FM	(30° - 60°)	11746.1	41.5			
FH	(60° - 80°)	12411.3	43.9			G5
FVH	(80° - 90°)	847.7	3.0			G5
Backward		835	2.9			
BL	(0° - 30°)	324.9	1.1	B1		
BM	(30° - 60°)	366.4	1.3	B1		
BH	(60° - 80°)	118.8	0.4	B1		G1
BVH	(80° - 90°)	24.6	0.1			G1
Upward		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		28299	100.0			

Zonal Lumen Summary

(Linear scale)

UH
0.0 Lm
0.0%



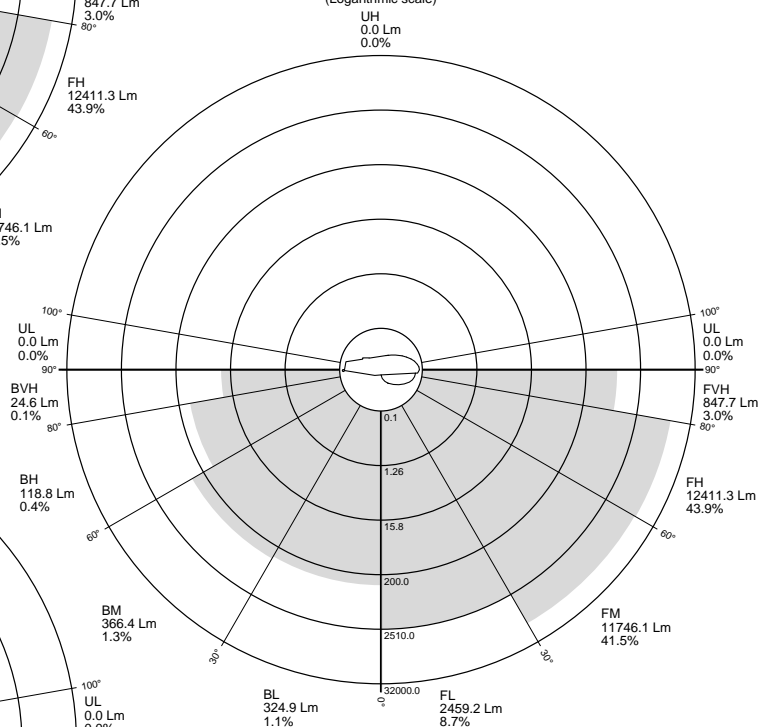
(Logarithmic scale)



(Logarithmic scale)



(Logarithmic scale)



REPORT NUMBER: RAB01658
 ISSUE DATE: 03/31/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 7 OF 9
 DATE SAMPLE TESTED: 03/31/16

CANDELA TABULATION

	STREET SIDE	LATERAL ANGLE									
		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	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	135.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	125.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	115.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	105.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	95.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	87.5	43.	53.	51.	79.	118.	139.	166.	130.	80.	80.
	85.0	845.	966.	821.	1163.	1195.	1156.	867.	816.	549.	146.
	82.5	3473.	3748.	3357.	3129.	3179.	3555.	2843.	2693.	1458.	347.
V	80.0	5380.	5918.	6622.	5752.	6739.	7646.	5998.	4847.	2522.	1106.
E	77.5	11153.	11776.	12449.	12017.	12949.	11800.	9100.	7156.	4055.	1810.
R	75.0	17046.	18738.	18702.	16177.	12792.	13352.	11334.	8230.	5550.	2647.
T	72.5	16514.	16192.	18126.	16178.	13641.	13906.	11984.	9597.	6930.	2900.
I	70.0	14263.	14342.	17021.	16306.	15523.	15368.	12247.	10469.	8048.	3753.
C	67.5	14020.	14034.	16372.	17627.	17612.	16119.	13136.	11215.	8074.	4440.
A	65.0	15009.	14789.	17484.	19794.	19508.	17326.	12951.	11140.	8491.	4678.
L	62.5	17169.	16489.	18678.	20814.	21149.	18268.	12944.	10413.	8831.	5157.
	61.0<	17000.	16342.	19368.	21311.	21908.	17685.	12641.	10204.	8550.	5300.
A	60.0	17349.	16641.	19379.	21391.	21336.	16968.	12644.	10092.	8396.	5322.
N	57.5	18766.	18273.	20246.	20902.	18228.	15114.	12130.	9787.	8201.	5508.
G	55.0	17981.	17880.	18825.	17357.	16272.	13808.	11346.	9361.	8016.	5608.
L	52.5	15311.	14850.	15898.	14886.	14246.	12546.	10853.	9036.	7555.	5605.
E	50.0	12700.	12601.	13133.	13423.	12842.	11535.	10268.	8722.	7319.	5590.
	47.5	10911.	10919.	11290.	12429.	11838.	11097.	9711.	8291.	7114.	5606.
	45.0	10367.	10085.	10350.	11158.	11006.	10388.	9191.	7972.	7021.	5608.
	42.5	10104.	9635.	9713.	10162.	10292.	9356.	8528.	7581.	6835.	5392.
	40.0	9520.	9272.	9289.	9745.	9512.	8792.	8011.	7323.	6604.	5075.
	37.5	9450.	9262.	9115.	9147.	8674.	8271.	7639.	7133.	6454.	5060.
	35.0	9061.	8932.	8763.	8459.	8111.	7884.	7606.	6958.	6236.	4755.
	30.0	7772.	7759.	7713.	7329.	7386.	7349.	7265.	7010.	6156.	4627.
	25.0	7131.	7123.	7086.	6851.	6643.	6716.	6630.	6413.	5692.	4362.
	20.0	6794.	6804.	6793.	6681.	6424.	6060.	5878.	5576.	4651.	3532.
	15.0	6412.	6428.	6482.	6476.	6341.	5992.	5511.	4926.	4105.	3224.
	10.0	5948.	5944.	5950.	5905.	5777.	5330.	4880.	4310.	3700.	3120.
	5.0	4482.	4422.	4421.	4297.	4208.	3994.	3790.	3563.	3357.	3095.
	0.0	2816.	2816.	2816.	2816.	2816.	2816.	2816.	2816.	2816.	2816.
						PLANE OF MAXIMUM CANDELA					
						CONE OF MAXIMUM CANDELA					

REPORT NUMBER: RAB01658
 ISSUE DATE: 03/31/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 8 OF 9
 DATE SAMPLE TESTED: 03/31/16

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.	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.
90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
87.5	73.	46.	48.	49.	50.	51.	50.	51.	50.	49.	49.
85.0	94.	50.	48.	49.	49.	49.	48.	48.	47.	47.	47.
82.5	150.	57.	48.	47.	46.	46.	45.	45.	44.	43.	43.
V 80.0	643.	72.	50.	46.	44.	44.	42.	42.	41.	40.	39.
E 77.5	1069.	109.	52.	46.	42.	41.	40.	39.	38.	37.	37.
R 75.0	1414.	149.	54.	46.	41.	39.	38.	38.	37.	35.	35.
T 72.5	1594.	194.	62.	51.	40.	38.	37.	37.	35.	34.	34.
I 70.0	1990.	264.	74.	58.	40.	37.	36.	36.	35.	33.	33.
C 67.5	2236.	345.	77.	57.	40.	37.	35.	35.	34.	33.	33.
A 65.0	2311.	435.	85.	73.	40.	37.	35.	35.	34.	33.	33.
L 62.5	2527.	567.	97.	85.	42.	37.	35.	36.	35.	33.	33.
61.0<<	2638.	684.	106.	108.	43.	37.	35.	36.	35.	33.	33.
A 60.0	2718.	764.	113.	122.	44.	37.	35.	36.	35.	33.	33.
N 57.5	2989.	976.	134.	131.	45.	38.	36.	36.	35.	34.	33.
G 55.0	3177.	1179.	153.	109.	53.	38.	36.	36.	36.	34.	34.
L 52.5	3371.	1362.	195.	80.	56.	39.	36.	36.	36.	34.	34.
E 50.0	3525.	1550.	229.	82.	54.	39.	37.	37.	36.	35.	34.
47.5	3602.	1683.	275.	86.	54.	41.	37.	37.	37.	35.	35.
45.0	3740.	1817.	295.	100.	64.	42.	38.	37.	37.	36.	36.
42.5	3661.	1932.	357.	103.	74.	45.	39.	38.	38.	37.	37.
40.0	3527.	2021.	431.	118.	89.	46.	41.	39.	39.	38.	37.
37.5	3517.	2253.	477.	135.	81.	49.	42.	40.	40.	39.	38.
35.0	3421.	2478.	529.	180.	81.	55.	43.	42.	41.	39.	39.
30.0	3659.	3171.	837.	310.	102.	69.	50.	46.	45.	42.	42.
25.0	3446.	3053.	1088.	390.	194.	87.	69.	54.	50.	46.	45.
20.0	2921.	2447.	1400.	736.	288.	192.	122.	73.	55.	49.	48.
15.0	2828.	2443.	1724.	1029.	627.	376.	268.	212.	176.	142.	139.
10.0	2849.	2595.	2114.	1730.	1211.	875.	661.	524.	447.	399.	409.
5.0	2955.	2813.	2531.	2299.	2105.	1918.	1754.	1584.	1492.	1402.	1436.
0.0	2816.	2816.	2816.	2816.	2816.	2816.	2816.	2816.	2816.	2816.	2816.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB01658
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 PREPARED FOR: RAB LIGHTING INC.

PAGE: 9 OF 9
 DATE SAMPLE TESTED: 03/31/16

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	69
5- 10	216
10- 15	369
15- 20	523
20- 25	698
25- 30	910
30- 35	1129
35- 40	1370
40- 45	1660
45- 50	2045
50- 55	2615
55- 60	3294
60- 65	3567
65- 70	3373
70- 75	3201
75- 80	2389
80- 85	790
85- 90	82
90- 95	0
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
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	285
0- 20	1176
0- 30	2784
0- 40	5283
0- 50	8988
0- 60	14897
0- 70	21837
0- 80	27427
0- 90	28299
0-100	28299
0-110	28299
0-120	28299
0-130	28299
0-140	28299
0-150	28299
0-160	28299
0-170	28299
0-180	28299

REPORT NUMBER: RAB01661
 DATE: 3/31/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED4T260N/D10 - ALED4T260SFN/D10 - WPLED4T260N/D10 - WPLED4T260NFX/D10 (TYPE IV)
 ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647
 LUMINAIRE: CAST FINNED METAL HOUSING, 4 CHIP ON BOARD LIGHT EMITTING DIODES, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH, CLEAR GLASS LENS IN CAST BRONZE PAINTED METAL FRAME.
 LAMP: FOUR WHITE LIGHT EMITTING DIODES (LEDs)
 DRIVER: RD-240-S2200-D
 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: GWINSTEK PROGRAMMABLE AC POWER SOURCE APS-7100
 CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202
 OCEAN OPTICS QE65PRO Spectroradiometer
 RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry
 Calibration Due: N/A
 2/26/17
 3/21/17
 3/21/17
 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 X.CAO

Approved D.WANG-MUNSON
 Lighting Engineer

REPORT NUMBER: RAB01661
 DATE: 3/31/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED4T260N/D10 - ALED4T260SFN/D10 - WPLED4T260N/D10 - WPLED4T260NFX/D10 (TYPE IV)

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RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	28299 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3731
Chromaticity Ordinate y	0.3796
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2192
Chromaticity Ordinate v'	0.5018
Correlated Color Temp CCT (K)	4224
ANSI C78.377-2008 Duv	0.004
Total Radiant Flux (milliWatts)	80909 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	2.18
Input Power (Watts)	261.1
Input Power Factor (%)	99.8
Input Current THD (%)	3.8
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	108.4
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.955
Input Power (Watts)	255.6
Input Power Factor (%)	96.6
Input Current THD (%)	5.8
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	71
R1 Light greyish red	67
R2 Dark greyish yellow	76
R3 Strong yellowish green	84
R4 Moderate yellowish green	71
R5 Light bluish green	68
R6 Light blue	67
R7 Light violet	81
R8 Light reddish purple	52
R9 Strong red	-36
R10 Strong yellow	44
R11 Strong green	66
R12 Strong blue	41
R13 Light yellowish pink (skin)	68
R14 Moderate olive green (leaf)	91

*NOTE:

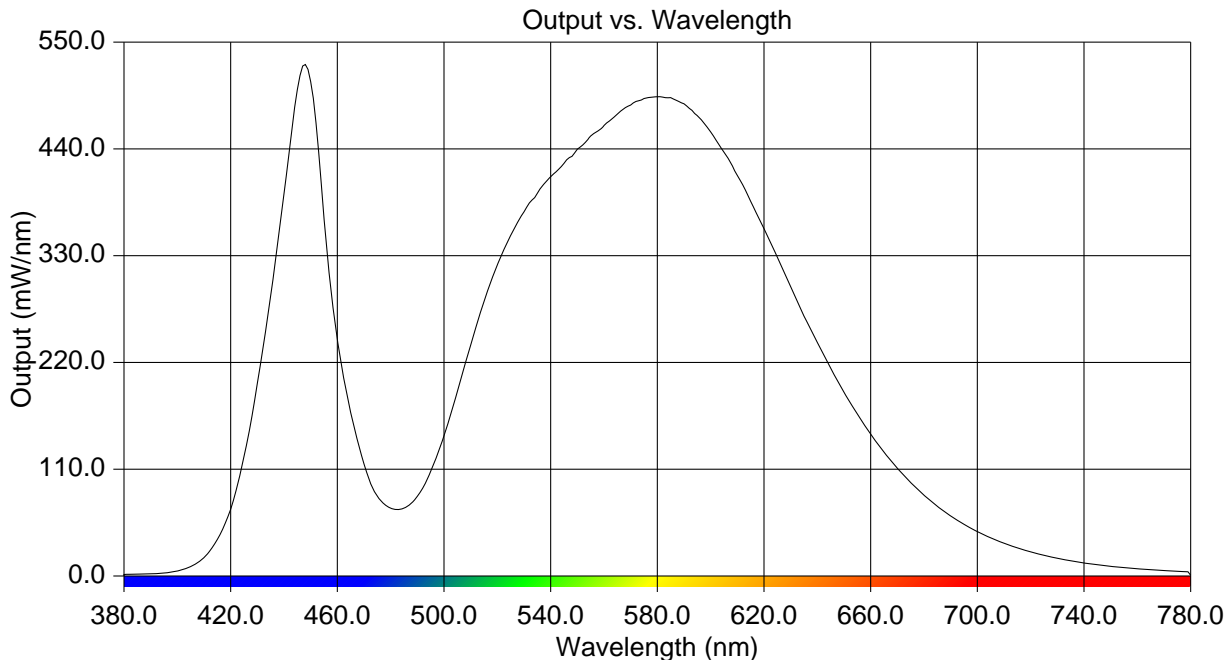
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB01661
 DATE: 3/31/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED4T260N/D10 - ALED4T260SFN/D10 - WPLED4T260N/D10 - WPLED4T260NFX/D10
 (TYPE IV)

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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	1.541	515	282.765	650	189.401
385	1.811	520	321.303	655	167.123
390	2.217	525	351.235	660	146.235
395	3.052	530	375.517	665	127.812
400	5.163	535	394.625	670	111.050
405	9.667	540	412.019	675	96.708
410	19.084	545	425.543	680	83.424
415	37.682	550	440.134	685	71.886
420	68.781	555	453.709	690	61.750
425	123.082	560	464.563	695	53.320
430	198.663	565	476.382	700	45.737
435	289.157	570	485.670	705	39.265
440	394.573	575	492.383	710	33.717
445	501.513	580	494.104	715	29.016
450	509.849	585	493.322	720	24.888
455	371.234	590	486.962	725	21.258
460	242.349	595	474.253	730	18.302
465	169.503	600	457.954	735	15.638
470	115.538	605	437.161	740	13.469
475	82.583	610	413.066	745	11.562
480	69.878	615	386.378	750	10.065
485	70.012	620	358.078	755	8.613
490	82.195	625	329.276	760	7.418
495	107.119	630	298.020	765	6.374
500	144.874	635	267.973	770	5.562
505	189.961	640	240.832	775	4.874
510	238.027	645	214.491	780	0.735



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CIE Chromaticity Diagram

