

REPORT NUMBER: RAB01650
ISSUE DATE: 01/21/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 2 OF 9
DATE SAMPLE TESTED: 01/21/16

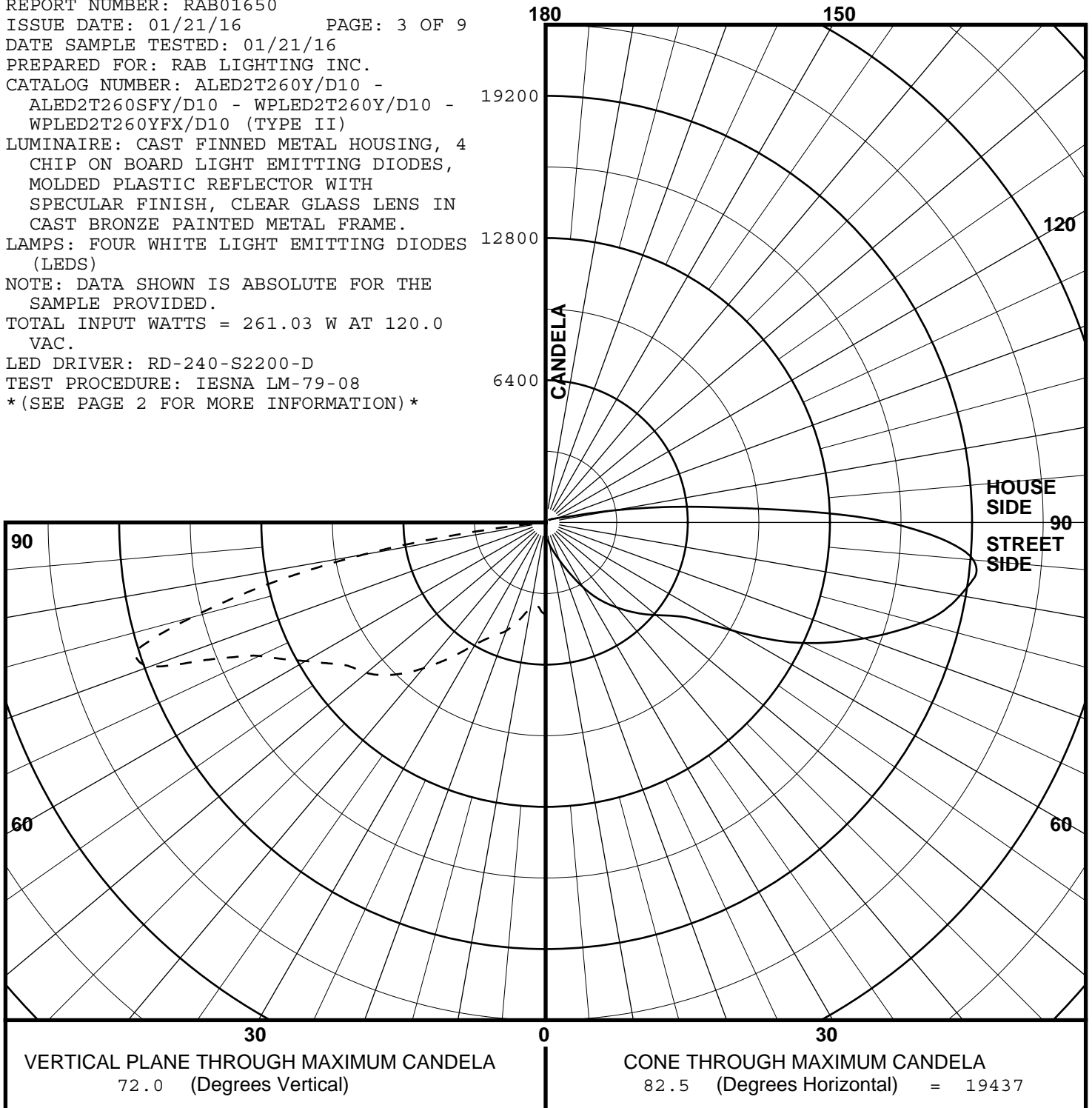
ADDITIONAL INFORMATION

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

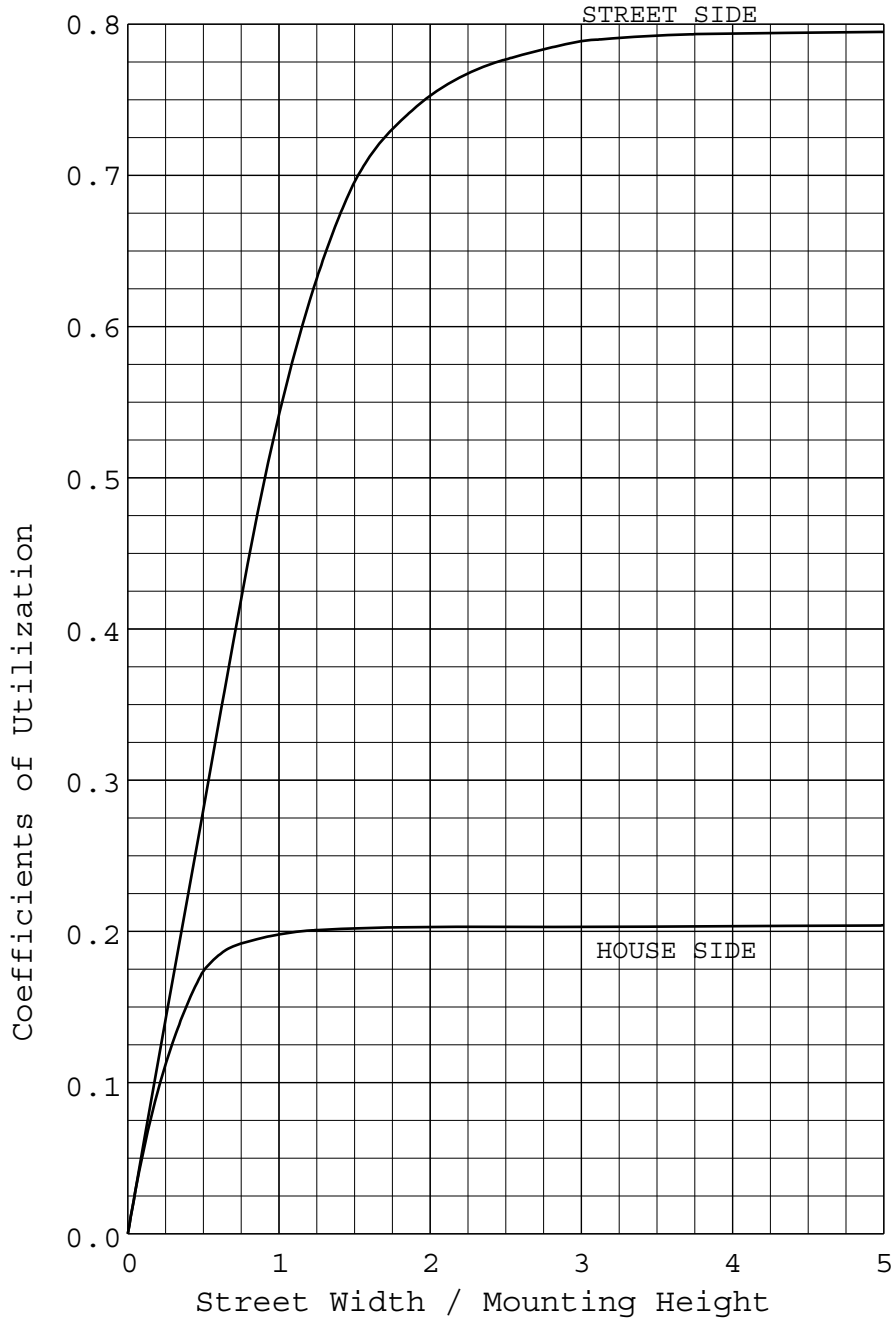
REPORT NUMBER: RAB01650
 ISSUE DATE: 01/21/16 PAGE: 3 OF 9
 DATE SAMPLE TESTED: 01/21/16
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED2T260Y/D10 -
 ALED2T260SFY/D10 - WPLED2T260Y/D10 -
 WPLED2T260YFX/D10 (TYPE II)
 LUMINAIRE: CAST FINNED METAL HOUSING, 4
 CHIP ON BOARD LIGHT EMITTING DIODES,
 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 = 261.03 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: RAB01650
ISSUE DATE: 01/21/16
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PAGE: 4 OF 9
DATE SAMPLE TESTED: 01/21/16

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	21252.	79.6
DOWNWARD HOUSE SIDE	5453.	20.4
DOWNWARD TOTAL	26704.	100.0
UPWARD STREET SIDE	0.	0.0
UPWARD HOUSE SIDE	0.	0.0
UPWARD TOTAL	0.	0.0
TOTAL FLUX	26704.	100.0
TOTAL INPUT WATTS = 261		
EFFICACY = 102.3 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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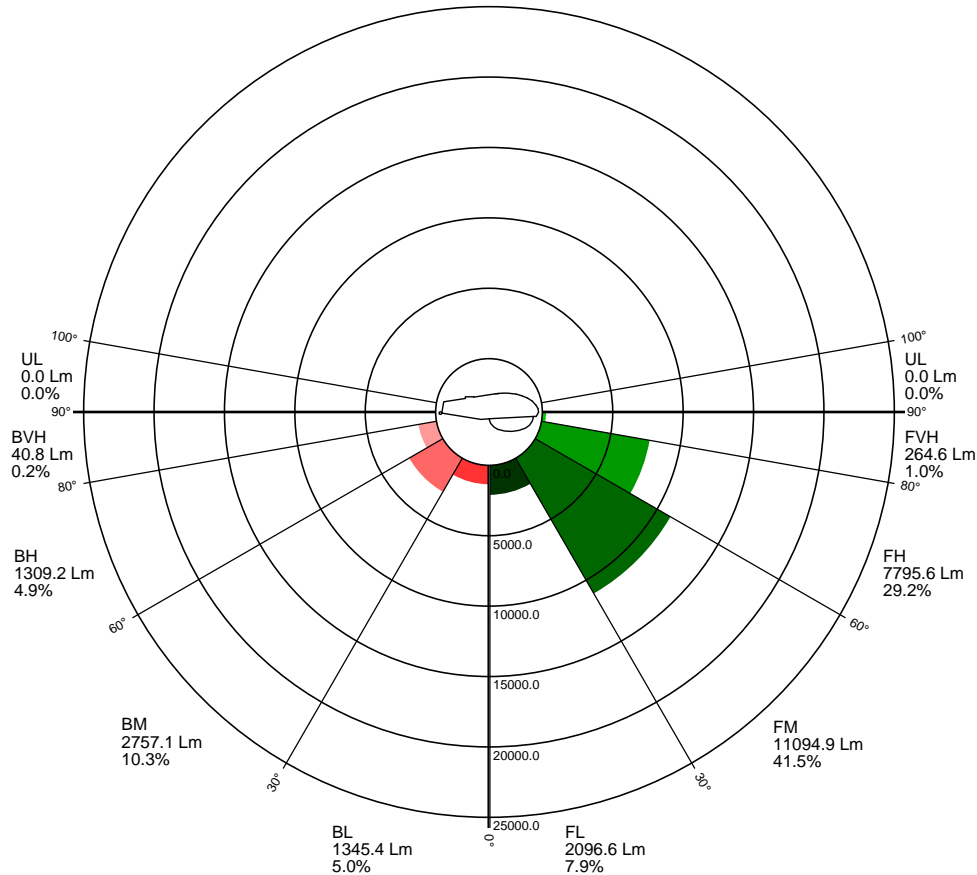
PAGE: 5 OF 9
 DATE SAMPLE TESTED: 01/21/16

BUG Rating:				B3 U0 G4		
Zonal Summary				Zone Ratings		
		Lumens	% of Fixture	B	U	G
Forward		21252	79.6			
FL	(0° - 30°)	2096.6	7.9			
FM	(30° - 60°)	11094.9	41.5			
FH	(60° - 80°)	7795.6	29.2			G4
FVH	(80° - 90°)	264.6	1.0			G3
Backward		5452	20.4			
BL	(0° - 30°)	1345.4	5.0	B3		
BM	(30° - 60°)	2757.1	10.3	B3		
BH	(60° - 80°)	1309.2	4.9	B3		G3
BVH	(80° - 90°)	40.8	0.2			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		26704	100.0			

Zonal Lumen Summary

(Linear scale)

UH
0.0 Lm
0.0%

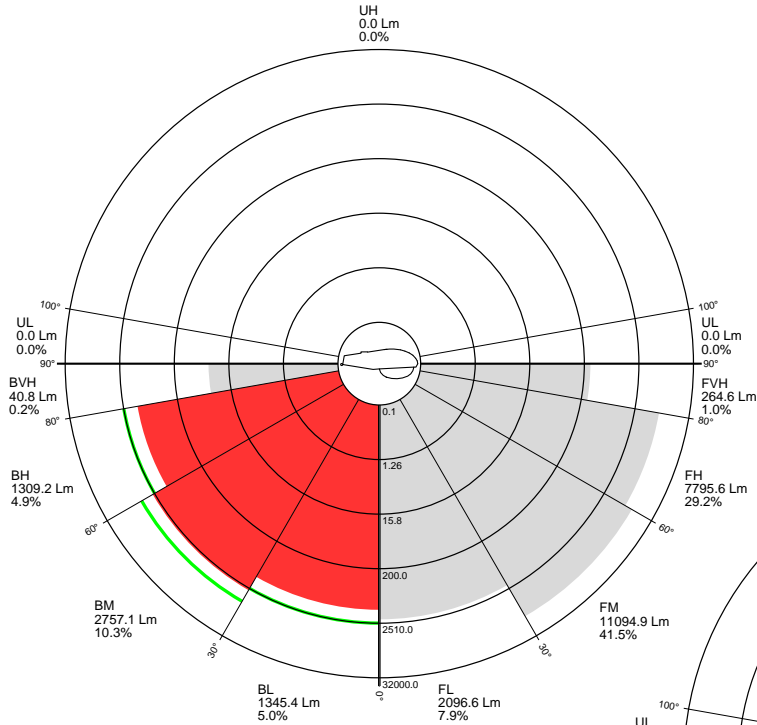


REPORT NUMBER: RAB01650
 ISSUE DATE: 01/21/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 6 OF 9
 DATE SAMPLE TESTED: 01/21/16

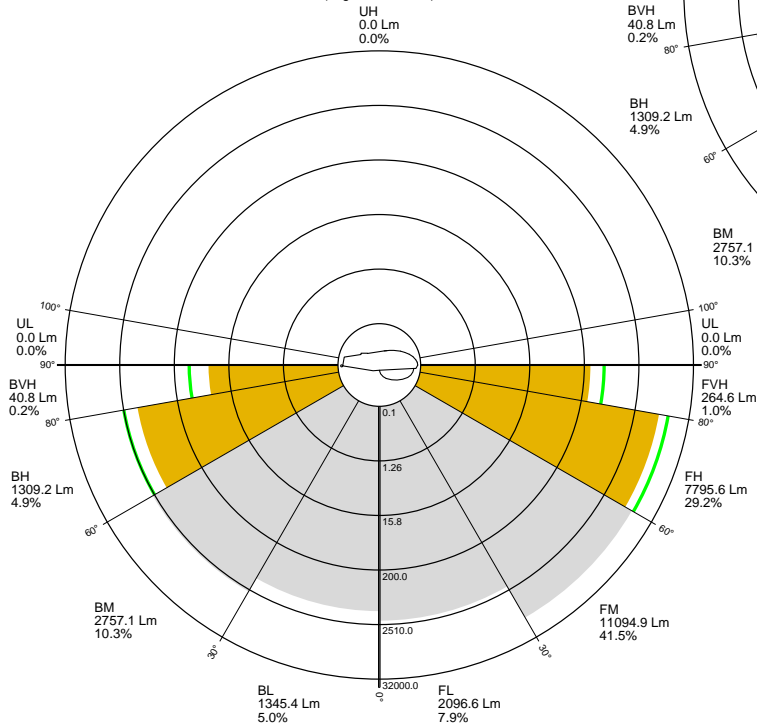
Backlight Rating Details

(Logarithmic scale)



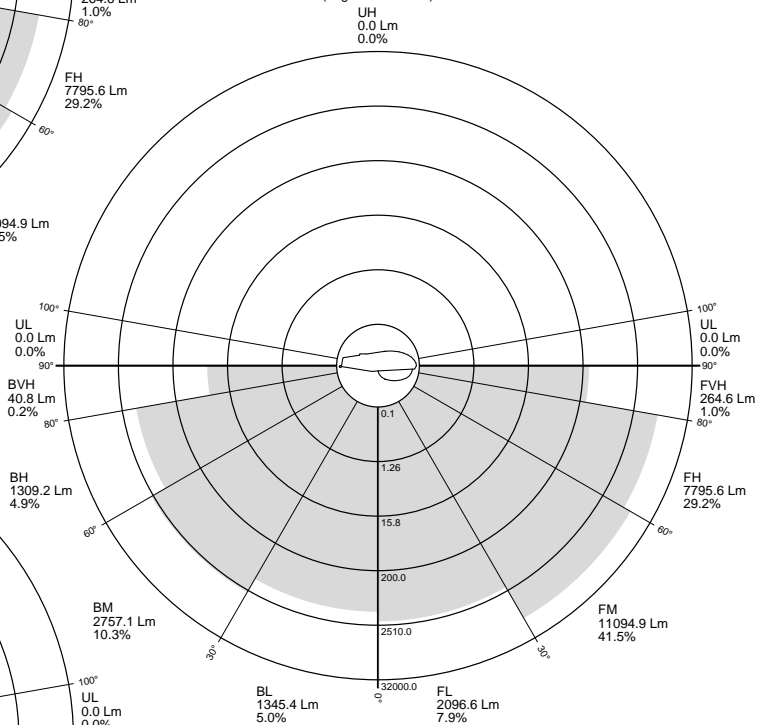
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB01650
 ISSUE DATE: 01/21/16
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PAGE: 7 OF 9
 DATE SAMPLE TESTED: 01/21/16

CANDELA TABULATION

	STREET SIDE	LATERAL ANGLE									
		0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	82.5 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	24.	21.	23.	27.	30.	28.	30.	31.	68.	104. 110.
	85.0	33.	25.	27.	32.	43.	45.	48.	216.	291.	475. 350.
	82.5	32.	27.	31.	38.	55.	88.	463.	1238.	1903.	3386. 2458.
V	80.0	35.	29.	33.	45.	201.	718.	1549.	3308.	6152.	8361. 6639.
E	77.5	41.	33.	42.	254.	946.	2093.	3496.	5469.	11398.	12759. 11098.
R	75.0	67.	82.	266.	1070.	2469.	3897.	5330.	8213.	15147.	16473. 14953.
T	72.5	542.	631.	1150.	2264.	3983.	5535.	7047.	12219.	17412.	19394. 19233.
I	72.0<<	706.	791.	1347.	2468.	4246.	5748.	7365.	12846.	17488.	19437. 19330.
C	70.0	1526.	1529.	2187.	3359.	4949.	6687.	9345.	14727.	17286.	18954. 19246.
A	67.5	2814.	2541.	3204.	4133.	5616.	8015.	12290.	15823.	15716.	16010. 16002.
L	65.0	3492.	3079.	3658.	4674.	6493.	10118.	14470.	16060.	14378.	14215. 15102.
	62.5	3844.	3466.	4159.	5472.	8086.	12375.	15426.	15764.	13540.	13321. 14100.
A	60.0	4449.	4043.	5017.	6637.	10063.	13698.	15662.	14982.	12959.	12475. 12693.
N	57.5	5012.	4601.	5990.	8208.	11574.	14379.	15354.	14019.	12337.	11779. 11714.
G	55.0	5914.	5468.	6806.	9615.	12301.	14479.	14605.	13074.	11752.	11157. 11042.
L	52.5	6634.	6230.	7288.	10436.	12631.	14155.	13476.	12124.	11120.	10798. 10722.
E	50.0	7113.	6798.	7570.	10864.	12459.	13187.	12450.	11173.	10643.	10533. 10419.
	47.5	7711.	7349.	7645.	10732.	11999.	12023.	11423.	10452.	10347.	10161. 9996.
	45.0	8036.	7842.	8246.	10387.	11050.	10814.	10444.	10021.	10131.	9688. 9515.
	42.5	7819.	7732.	8472.	10335.	10160.	9934.	9778.	9784.	9717.	9152. 8948.
	40.0	7567.	7458.	8034.	9613.	9513.	9403.	9407.	9483.	9143.	8574. 8356.
	37.5	7090.	7037.	7309.	8402.	8815.	8900.	8988.	9005.	8506.	7981. 7779.
	35.0	6440.	6482.	6554.	7378.	8011.	8274.	8389.	8337.	7859.	7408. 7260.
	30.0	5288.	5307.	5443.	5840.	6625.	6969.	7111.	6987.	6608.	6344. 6258.
	25.0	4675.	4656.	4737.	4802.	5326.	5774.	5969.	5869.	5672.	5658. 5653.
	20.0	4546.	4502.	4323.	4324.	4449.	4886.	4901.	5040.	5120.	5193. 5201.
	15.0	4623.	4568.	4307.	4235.	4224.	4202.	4319.	4401.	4444.	4525. 4503.
	10.0	4636.	4602.	4366.	4199.	4146.	4098.	4059.	4041.	3981.	3937. 3926.
	5.0	4448.	4466.	4374.	4270.	4136.	4026.	3958.	3885.	3861.	3806. 3796.
	0.0	4163.	4163.	4163.	4163.	4163.	4163.	4163.	4163.	4163.	4163. 4163.

PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB01650
 ISSUE DATE: 01/21/16
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PAGE: 8 OF 9
 DATE SAMPLE TESTED: 01/21/16

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	62.	27.	26.	19.	18.	18.	22.	23.	20.	19.	19.
85.0	202.	68.	84.	20.	17.	17.	20.	22.	20.	18.	18.
82.5	1402.	353.	110.	28.	18.	15.	18.	20.	18.	17.	17.
V 80.0	4308.	1715.	140.	39.	23.	14.	16.	19.	17.	16.	16.
E 77.5	7076.	3467.	244.	173.	62.	19.	15.	17.	16.	15.	15.
R 75.0	10121.	5058.	354.	400.	123.	42.	19.	17.	16.	15.	15.
T 72.5	14903.	7523.	798.	378.	187.	79.	28.	23.	21.	16.	16.
I 72.0	15461.	7813.	922.	383.	200.	87.	31.	25.	23.	16.	17.
C 70.0	16118.	9107.	1643.	434.	254.	120.	48.	32.	28.	19.	19.
A 67.5	14478.	10955.	2039.	508.	294.	155.	68.	43.	36.	24.	23.
L 65.0	15212.	11775.	2104.	478.	206.	177.	91.	56.	49.	31.	35.
62.5	14681.	11094.	2782.	447.	250.	182.	113.	64.	59.	37.	44.
A 60.0	12457.	10755.	3994.	985.	378.	168.	119.	73.	66.	48.	48.
N 57.5	11744.	10559.	5044.	2020.	493.	243.	112.	81.	77.	49.	53.
G 55.0	11013.	10289.	5528.	2674.	611.	352.	268.	88.	71.	49.	57.
L 52.5	10377.	9585.	5673.	2670.	897.	370.	427.	231.	80.	52.	61.
E 50.0	10173.	9542.	6165.	2586.	1171.	383.	410.	429.	168.	72.	75.
47.5	9809.	9563.	6612.	2774.	1328.	646.	268.	536.	391.	224.	123.
45.0	9225.	8955.	6679.	3092.	1493.	856.	359.	347.	315.	235.	127.
42.5	8633.	8305.	6466.	3420.	1647.	966.	532.	548.	193.	205.	89.
40.0	8066.	7834.	6324.	3715.	1845.	1144.	687.	463.	232.	137.	94.
37.5	7540.	7381.	6234.	4022.	2098.	1309.	877.	523.	262.	204.	206.
35.0	7039.	6945.	6155.	4265.	2415.	1473.	1107.	650.	319.	409.	412.
30.0	6281.	6252.	5751.	4548.	3115.	2053.	1385.	853.	509.	726.	777.
25.0	5714.	5642.	5423.	4746.	3756.	2744.	1859.	1138.	679.	802.	855.
20.0	5207.	5196.	4986.	4604.	4004.	3230.	2432.	1683.	1266.	1288.	1286.
15.0	4522.	4514.	4344.	4146.	3819.	3402.	2927.	2516.	2419.	2564.	2657.
10.0	3911.	3881.	3757.	3630.	3528.	3462.	3350.	3354.	3524.	3726.	3800.
5.0	3794.	3744.	3719.	3675.	3642.	3704.	3755.	3848.	3936.	4009.	4046.
0.0	4163.	4163.	4163.	4163.	4163.	4163.	4163.	4163.	4163.	4163.	4163.

CONE OF MAXIMUM CANDELA

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PAGE: 9 OF 9
 DATE SAMPLE TESTED: 01/21/16

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	97
5- 10	279
10- 15	459
15- 20	646
20- 25	854
25- 30	1107
30- 35	1428
35- 40	1810
40- 45	2202
45- 50	2562
50- 55	2856
55- 60	2994
60- 65	2922
65- 70	2755
70- 75	2247
75- 80	1181
80- 85	286
85- 90	19
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	375
0- 20	1481
0- 30	3442
0- 40	6680
0- 50	11444
0- 60	17294
0- 70	22971
0- 80	26399
0- 90	26704
0-100	26704
0-110	26704
0-120	26704
0-130	26704
0-140	26704
0-150	26704
0-160	26704
0-170	26704
0-180	26704

REPORT NUMBER: RAB01653
DATE: 1/21/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: ALED2T260Y/D10 - ALED2T260SFY/D10 - WPLED2T260Y/D10 - WPLED2T260YFX/D10 (TYPE II)
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
3/9/16
1/5/17
1/5/17
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

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 CATALOG NUMBER: ALED2T260Y/D10 - ALED2T260SFY/D10 - WPLED2T260Y/D10 - WPLED2T260YFX/D10 (TYPE II)

Page 2 of 4

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	26704 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4253
Chromaticity Ordinate y	0.4041
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2430
Chromaticity Ordinate v'	0.5197
Correlated Color Temp CCT (K)	3207
ANSI C78.377-2008 Duv	0.002
Total Radiant Flux (milliWatts)	74578 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	2.18
Input Power (Watts)	261.0
Input Power Factor (%)	99.8
Input Current THD (%)	3.6
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	102.3
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.955
Input Power (Watts)	255.8
Input Power Factor (%)	96.6
Input Current THD (%)	5.3
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	70
R1 Light greyish red	66
R2 Dark greyish yellow	79
R3 Strong yellowish green	90
R4 Moderate yellowish green	67
R5 Light bluish green	65
R6 Light blue	70
R7 Light violet	79
R8 Light reddish purple	44
R9 Strong red	-38
R10 Strong yellow	51
R11 Strong green	60
R12 Strong blue	41
R13 Light yellowish pink (skin)	68
R14 Moderate olive green (leaf)	94

*NOTE:

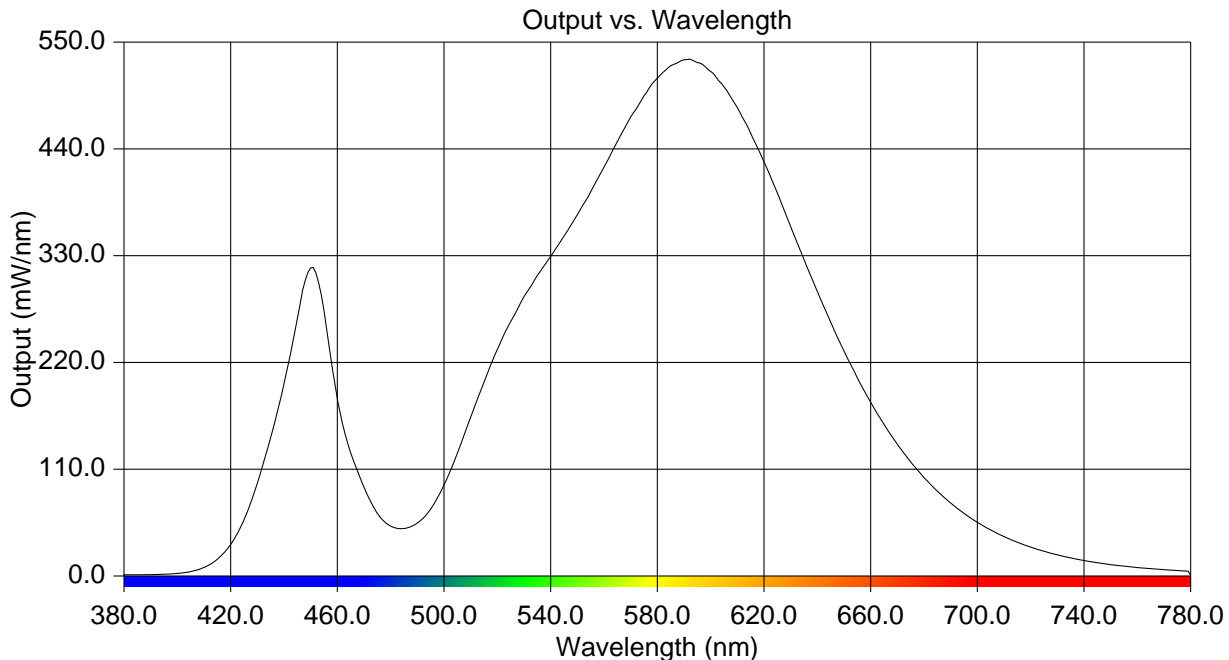
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even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

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 (TYPE II)

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	1.118	515	199.847	650	231.829
385	1.206	520	233.567	655	204.348
390	1.382	525	262.199	660	179.164
395	1.795	530	288.077	665	156.290
400	2.655	535	309.936	670	135.803
405	4.506	540	329.259	675	117.622
410	8.782	545	350.151	680	101.500
415	17.257	550	372.405	685	87.484
420	32.256	555	396.216	690	75.140
425	57.882	560	421.857	695	64.607
430	95.352	565	447.946	700	55.271
435	142.811	570	473.420	705	47.433
440	197.498	575	495.209	710	40.583
445	266.048	580	513.267	715	34.772
450	317.810	585	526.187	720	29.791
455	273.718	590	532.330	725	25.389
460	182.625	595	529.474	730	21.841
465	127.008	600	520.328	735	18.594
470	91.289	605	504.661	740	15.930
475	64.886	610	483.092	745	13.573
480	51.378	615	456.609	750	11.767
485	49.077	620	426.561	755	10.117
490	54.634	625	395.026	760	8.679
495	68.950	630	360.245	765	7.500
500	93.658	635	326.463	770	6.504
505	126.602	640	293.578	775	5.625
510	163.637	645	261.692	780	0.847



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Page 4 of 4

CIE Chromaticity Diagram

