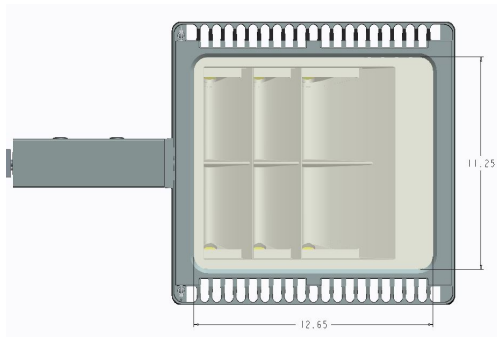
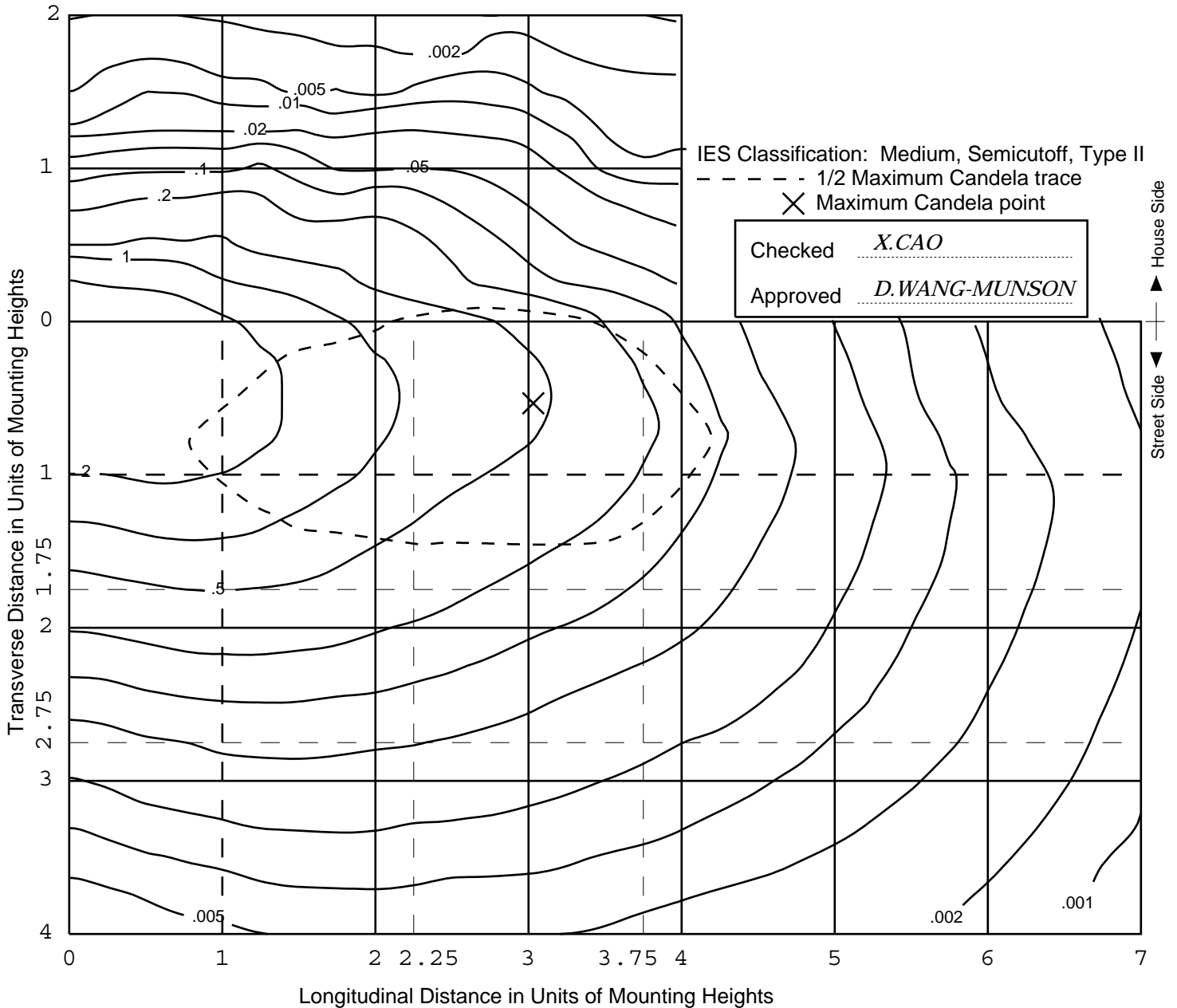


ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 25 foot mounting height.



REPORT NUMBER: RAB02266
 ISSUE DATE: 08/02/16 PAGE: 1 OF 9
 DATE SAMPLE TESTED: 08/02/16
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED2T105 - RWLED2T105
 - RWLED2T105SF - WPLED2T105 (TYPE II)
 LUMINAIRE: CAST FINNED METAL HOUSING, 6
 CHIP ON BOARD LIGHT EMITTING DIODES,
 MOLDED PLASTIC REFLECTOR WITH
 SPECULAR FINISH, CLEAR GLASS LENS IN
 CAST BRONZE PAINTED METAL FRAME.
 (SEE PAGE 2 FOR MORE INFORMATION)



REPORT NUMBER: RAB02266
ISSUE DATE: 08/02/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 2 OF 9
DATE SAMPLE TESTED: 08/02/16

ADDITIONAL INFORMATION

LAMPS: SIX WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDS), 2 LEDES TILTED 63-DEGREES FROM VERTICAL BASE-UP POSITION AND CANTED 75-DEGREES FROM STRAIGHT AHEAD, 2 LEDES TILTED 67-DEGREES FROM VERTICAL BASE-UP POSITION AND CANTED 68-DEGREES FROM STRAIGHT AHEAD, 2 LEDES TILTED 58-DEGREES FROM VERTICAL BASE-UP POSITION AND CANTED 40-DEGREES FROM STRAIGHT AHEAD.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS = 107.47 W AT 120.0 VAC.

LED DRIVER: RD-060-A1400 x 2

TEST PROCEDURE: IESNA LM-79-08

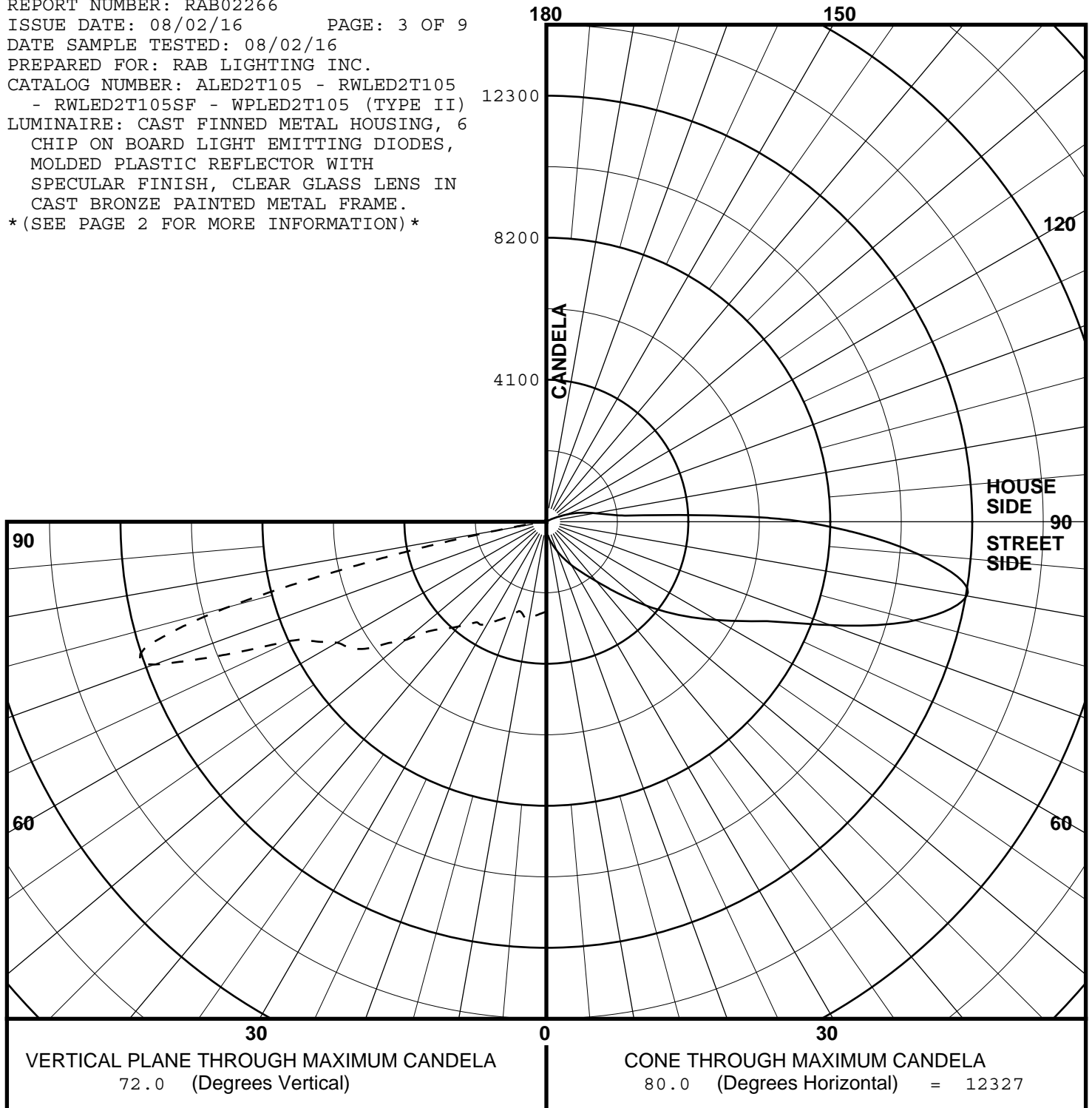
ACCREDITED LABORATORY CODE 201058-0

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

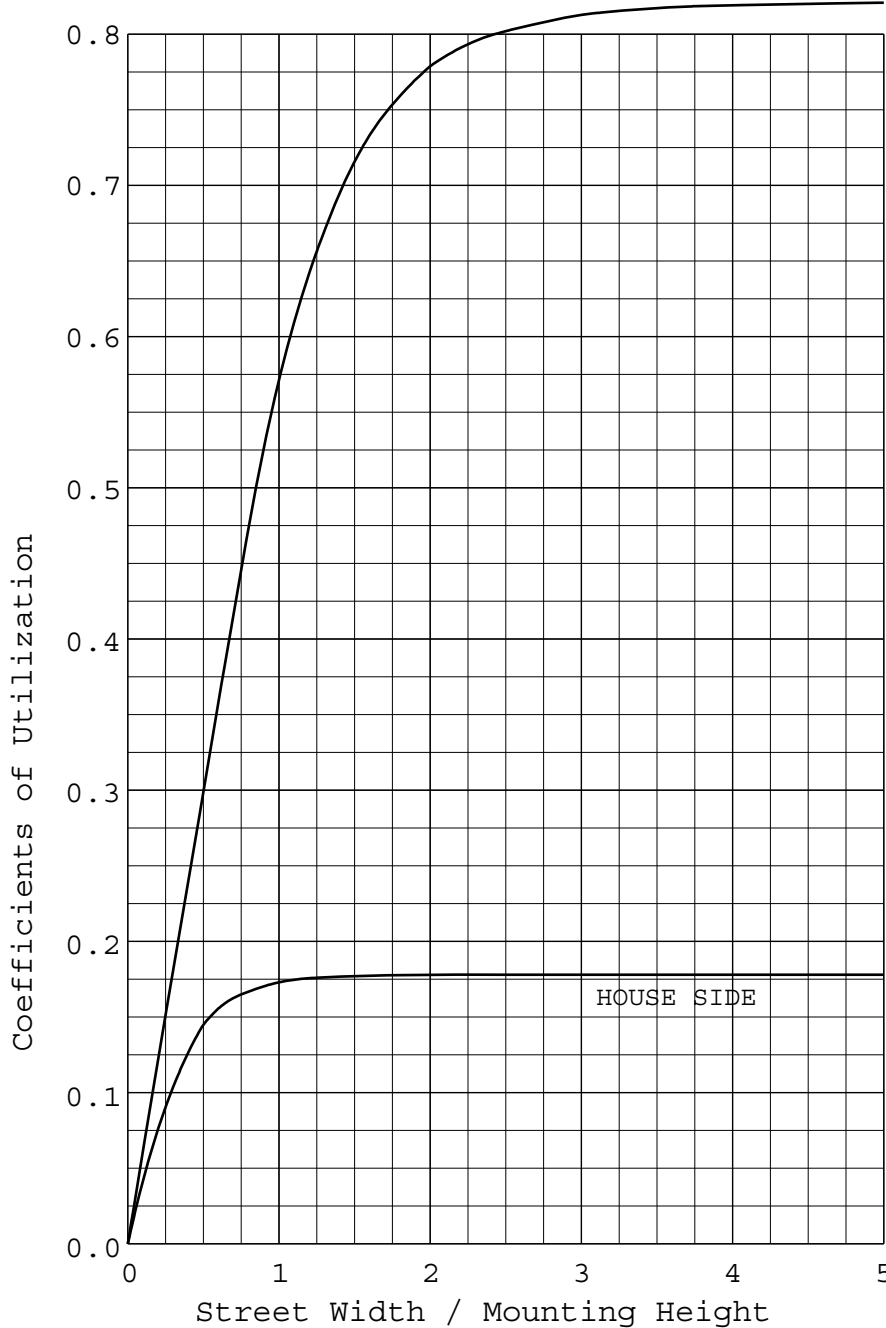
REPORT NUMBER: RAB02266
 ISSUE DATE: 08/02/16 PAGE: 3 OF 9
 DATE SAMPLE TESTED: 08/02/16
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED2T105 - RWLED2T105
 - RWLED2T105SF - WPLED2T105 (TYPE II)
 LUMINAIRE: CAST FINNED METAL HOUSING, 6
 CHIP ON BOARD LIGHT EMITTING DIODES,
 MOLDED PLASTIC REFLECTOR WITH
 SPECULAR FINISH, CLEAR GLASS LENS IN
 CAST BRONZE PAINTED METAL FRAME.
 (SEE PAGE 2 FOR MORE INFORMATION)



REPORT NUMBER: RAB02266
 ISSUE DATE: 08/02/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 4 OF 9
 DATE SAMPLE TESTED: 08/02/16

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION
 STREET SIDE



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	10847.	82.1
DOWNWARD HOUSE SIDE	2366.	17.9
DOWNWARD TOTAL	13213.	100.0
UPWARD STREET SIDE	0.	0.0
UPWARD HOUSE SIDE	0.	0.0
UPWARD TOTAL	0.	0.0
TOTAL FLUX	13213.	100.0
TOTAL INPUT WATTS = 107.5		
EFFICACY = 122.9 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: RAB02266
 ISSUE DATE: 08/02/16
 PREPARED FOR: RAB LIGHTING INC.

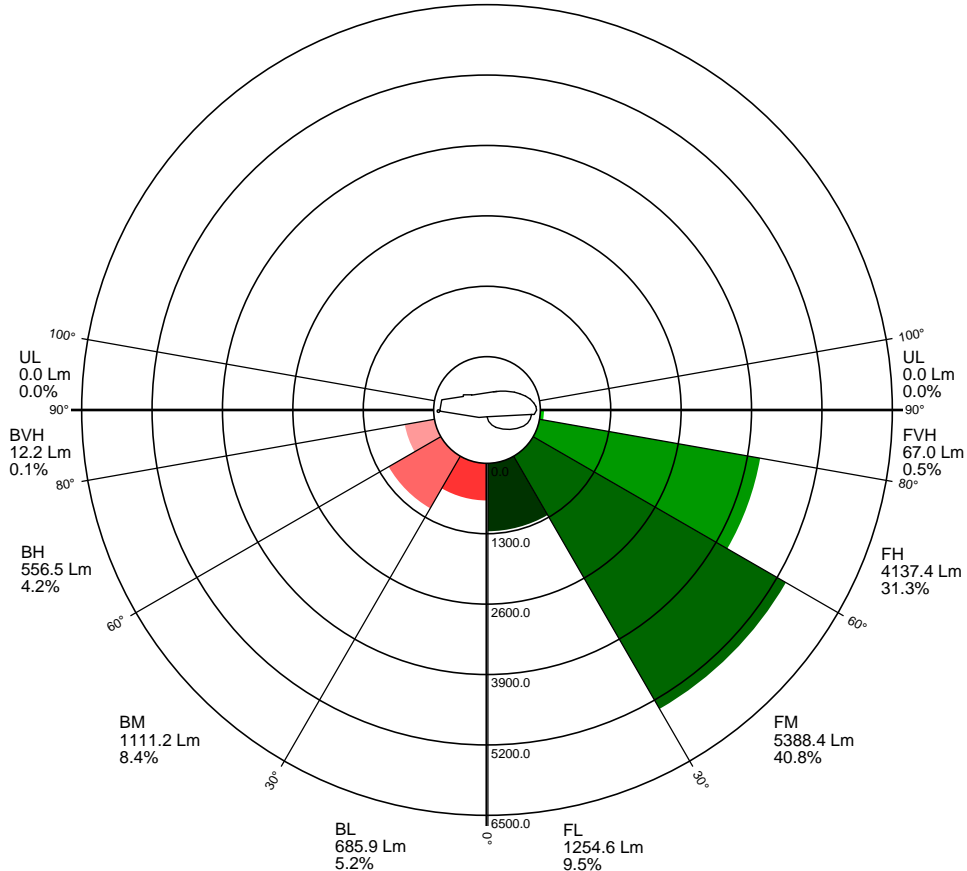
PAGE: 5 OF 9
 DATE SAMPLE TESTED: 08/02/16

BUG Rating:			B2	U0	G2	
Zonal Summary		Lumens	% of Fixture	Zone Ratings		
				B	U	G
Forward		10847	82.1			
FL	(0° - 30°)	1254.6	9.5			
FM	(30° - 60°)	5388.4	40.8			
FH	(60° - 80°)	4137.4	31.3			G2
FVH	(80° - 90°)	67.0	0.5			G1
Backward		2366	17.9			
BL	(0° - 30°)	685.9	5.2	B2		
BM	(30° - 60°)	1111.2	8.4	B2		
BH	(60° - 80°)	556.5	4.2	B2		G2
BVH	(80° - 90°)	12.2	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		13213	100.0			

Zonal Lumen Summary

(Linear scale)

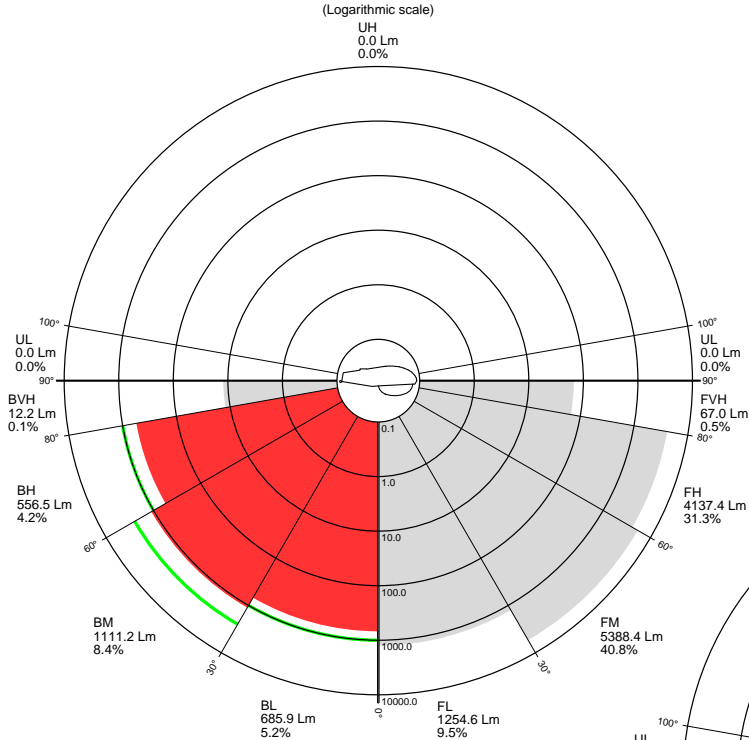
UH
0.0 Lm
0.0%



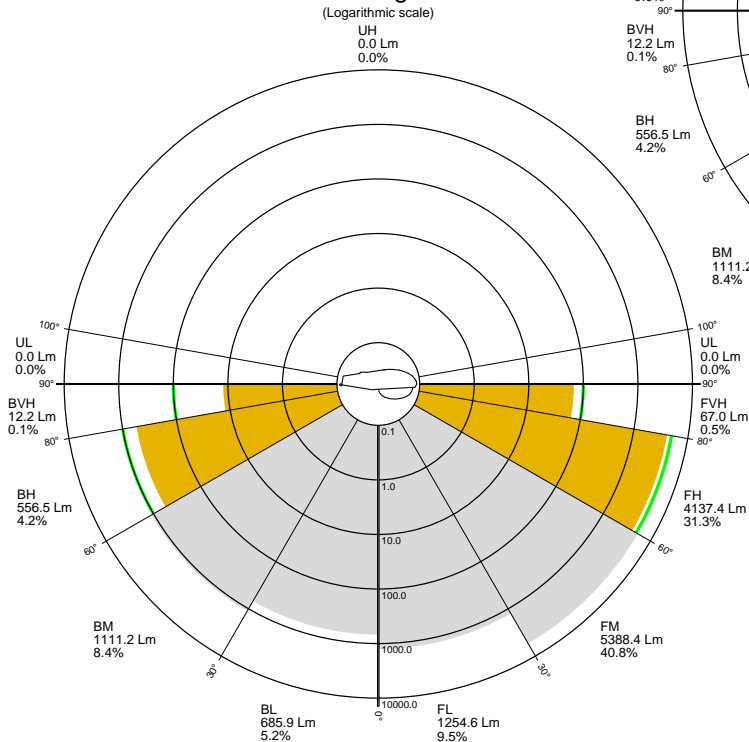
REPORT NUMBER: RAB02266
 ISSUE DATE: 08/02/16
 PREPARED FOR: RAB LIGHTING INC.

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 DATE SAMPLE TESTED: 08/02/16

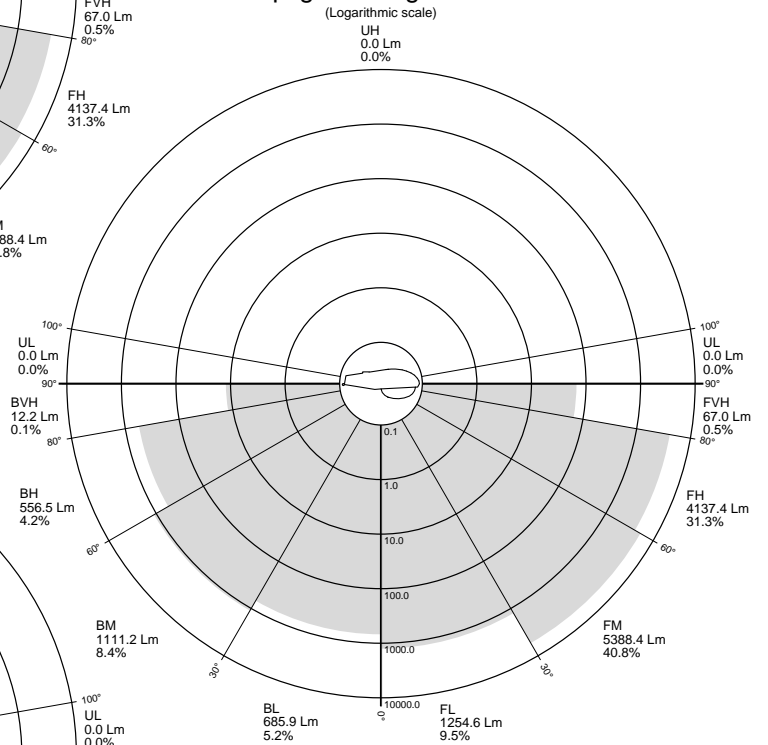
Backlight Rating Details



Glare Rating Details



Uplight Rating Details



REPORT NUMBER: RAB02266
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 PREPARED FOR: RAB LIGHTING INC.

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 DATE SAMPLE TESTED: 08/02/16

CANDELA TABULATION
 STREET SIDE

	LATERAL ANGLE										
	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	80.0	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	2.	2.	3.	5.	8.	10.	12.	13.	14.	14.
	85.0	7.	5.	7.	9.	13.	20.	51.	44.	54.	86.
	82.5	15.	11.	13.	17.	38.	128.	243.	303.	314.	365.
V	80.0	27.	23.	38.	91.	183.	386.	841.	1350.	1541.	1498.
E	77.5	61.	61.	126.	282.	507.	1062.	1794.	3505.	4449.	4852.
R	75.0	136.	169.	314.	624.	1074.	1867.	3015.	5554.	8534.	9518.
T	72.5	297.	357.	606.	1071.	1650.	2727.	4420.	6661.	10871.	12167.
I	72.0<<	335.	400.	671.	1151.	1779.	2912.	4700.	6787.	11010.	12327.
C	70.0	513.	584.	925.	1513.	2355.	3777.	5654.	7375.	10819.	12055.
A	67.5	849.	879.	1323.	2054.	3137.	4907.	6208.	8225.	9412.	10027.
L	65.0	1241.	1246.	1729.	2622.	3981.	5699.	6692.	8805.	8760.	8124.
	62.5	1591.	1633.	2145.	3265.	4674.	6010.	6988.	8921.	8056.	7490.
A	60.0	1909.	1968.	2605.	3748.	4946.	6085.	7410.	8449.	7367.	6984.
N	57.5	2208.	2317.	2890.	3984.	4974.	6132.	7641.	7719.	6954.	6758.
G	55.0	2441.	2521.	3024.	4022.	5014.	6358.	7644.	7226.	6757.	6397.
L	52.5	2710.	2783.	3130.	4142.	5163.	6532.	7293.	6668.	6261.	5755.
E	50.0	2973.	3055.	3274.	4298.	5387.	6493.	6841.	6069.	5764.	5307.
	47.5	3263.	3312.	3548.	4453.	5498.	6135.	6072.	5686.	5147.	4718.
	45.0	3503.	3562.	3806.	4539.	5387.	5651.	5404.	5285.	4701.	4397.
	42.5	3637.	3721.	4004.	4448.	5050.	5273.	4832.	4719.	4309.	4167.
	40.0	3661.	3728.	4060.	4213.	4688.	4660.	4438.	4358.	4098.	3950.
	37.5	3574.	3638.	3979.	3934.	4224.	4241.	4220.	4211.	3937.	3740.
	35.0	3460.	3489.	3748.	3556.	3738.	3877.	4023.	4125.	3719.	3548.
	30.0	3160.	3162.	3339.	3232.	3236.	3388.	3623.	3571.	3433.	3413.
	25.0	2860.	2892.	3044.	3130.	3028.	3117.	3178.	3138.	3159.	3110.
	20.0	2751.	2766.	2867.	3056.	3085.	2961.	2842.	2872.	2866.	2847.
	15.0	2730.	2725.	2781.	2885.	2968.	2998.	2984.	2880.	2789.	2729.
	10.0	2710.	2708.	2714.	2748.	2799.	2819.	2858.	2904.	2861.	2838.
	5.0	2645.	2653.	2672.	2677.	2692.	2684.	2685.	2688.	2687.	2692.
	0.0	2592.	2592.	2592.	2592.	2592.	2592.	2592.	2592.	2592.	2592.

||
 PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB02266
 ISSUE DATE: 08/02/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 8 OF 9
 DATE SAMPLE TESTED: 08/02/16

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	11.	9.	8.	7.	6.	6.	6.	5.	4.	4.	3.
85.0	68.	21.	11.	9.	10.	8.	6.	5.	4.	4.	4.
82.5	177.	82.	52.	27.	22.	11.	9.	10.	8.	8.	8.
V 80.0	757.	446.	155.	48.	28.	15.	15.	12.	11.	11.	10.
E 77.5	2407.	1057.	206.	58.	25.	13.	13.	16.	16.	15.	14.
R 75.0	5020.	1518.	214.	81.	24.	19.	12.	14.	14.	14.	13.
T 72.5	7163.	1955.	823.	225.	31.	19.	12.	13.	13.	12.	11.
I 72.0<<	7421.	2082.	1007.	251.	32.	19.	12.	13.	13.	12.	12.
C 70.0	8105.	2706.	1313.	341.	42.	21.	13.	13.	13.	12.	12.
A 67.5	7286.	3215.	1959.	474.	56.	27.	17.	16.	14.	12.	12.
L 65.0	6205.	3172.	2362.	463.	120.	34.	21.	16.	16.	13.	12.
62.5	5561.	3412.	2122.	482.	222.	58.	28.	21.	18.	15.	14.
A 60.0	5431.	3916.	1816.	695.	466.	93.	39.	41.	27.	17.	15.
N 57.5	5134.	4095.	1475.	810.	723.	134.	50.	53.	36.	19.	17.
G 55.0	4840.	4056.	1357.	884.	814.	256.	71.	68.	36.	21.	20.
L 52.5	4407.	4011.	1478.	1009.	753.	391.	121.	58.	37.	25.	26.
E 50.0	4108.	3830.	1571.	1199.	749.	464.	236.	82.	41.	33.	30.
47.5	4040.	3588.	1708.	1306.	753.	460.	341.	183.	87.	58.	61.
45.0	3887.	3375.	1848.	1270.	747.	443.	381.	287.	180.	133.	118.
42.5	3750.	3252.	1956.	1196.	749.	505.	350.	318.	242.	190.	172.
40.0	3604.	3147.	2166.	1242.	777.	545.	398.	297.	255.	206.	200.
37.5	3447.	3098.	2366.	1334.	827.	591.	462.	310.	239.	199.	200.
35.0	3279.	3064.	2515.	1452.	884.	646.	491.	362.	260.	211.	208.
30.0	3139.	2982.	2575.	1644.	1112.	757.	575.	438.	358.	315.	313.
25.0	2930.	2771.	2453.	1962.	1358.	1001.	729.	569.	503.	480.	487.
20.0	2727.	2630.	2353.	2116.	1672.	1304.	1079.	898.	814.	753.	757.
15.0	2627.	2554.	2405.	2257.	2160.	1927.	1660.	1438.	1367.	1317.	1328.
10.0	2779.	2729.	2610.	2494.	2412.	2312.	2195.	2065.	2014.	1967.	1973.
5.0	2645.	2629.	2590.	2537.	2485.	2418.	2384.	2329.	2322.	2299.	2305.
0.0	2592.	2592.	2592.	2592.	2592.	2592.	2592.	2592.	2592.	2592.	2592.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB02266
ISSUE DATE: 08/02/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 9 OF 9
DATE SAMPLE TESTED: 08/02/16

5-DEGREE
ZONAL LUMEN SUMMARY

0- 5	62
5- 10	183
10- 15	294
15- 20	375
20- 25	461
25- 30	566
30- 35	693
35- 40	842
40- 45	1012
45- 50	1183
50- 55	1328
55- 60	1441
60- 65	1485
65- 70	1460
70- 75	1217
75- 80	532
80- 85	74
85- 90	5
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	244
0- 20	913
0- 30	1941
0- 40	3476
0- 50	5672
0- 60	8440
0- 70	11385
0- 80	13134
0- 90	13213
0-100	13213
0-110	13213
0-120	13213
0-130	13213
0-140	13213
0-150	13213
0-160	13213
0-170	13213
0-180	13213

REPORT NUMBER: RAB02267 Page 1 of 4
DATE: 8/2/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: ALED2T105 - RWLED2T105 - RWLED2T105SF - WPLED2T105 (TYPE II)

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: CAST FINNED METAL HOUSING, 6 CHIP ON BOARD LIGHT EMITTING DIODES, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH, CLEAR GLASS LENS IN CAST BRONZE PAINTED METAL FRAME.

LAMP: SIX WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDS), 2 LEDES TILTED 63-DEGREES FROM VERTICAL BASE-UP POSITION AND CANTED 75-DEGREES FROM STRAIGHT AHEAD, 2 LEDES TILTED 67-DEGREES FROM VERTICAL BASE-UP POSITION AND CANTED 68-DEGREES FROM STRAIGHT AHEAD, 2 LEDES TILTED 58-DEGREES FROM VERTICAL BASE-UP POSITION AND CANTED 40-DEGREES FROM STRAIGHT AHEAD.

DRIVER: RD-060-A1400 x 2

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	Calibration Due:
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	N/A
	OCEAN OPTICS QE65PRO Spectroradiometer	2/26/17
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	7/5/17

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

REPORT NUMBER: RAB02267 Page 2 of 4
 DATE: 8/2/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED2T105 - RWLED2T105 - RWLED2T105SF - WPLED2T105 (TYPE II)

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	13213 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3493
Chromaticity Ordinate y	0.3706
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2071
Chromaticity Ordinate v'	0.4942
Correlated Color Temp CCT (K)	4913
ANSI C78.377-2008 Duv	0.008
Total Radiant Flux (milliWatts)	37956 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.899
Input Power (Watts)	107.5
Input Power Factor (%)	99.6
Input Current THD (%)	5.9
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
122.9	
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.405
Input Power (Watts)	106.0
Input Power Factor (%)	94.4
Input Current THD (%)	11.9
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
0.0	

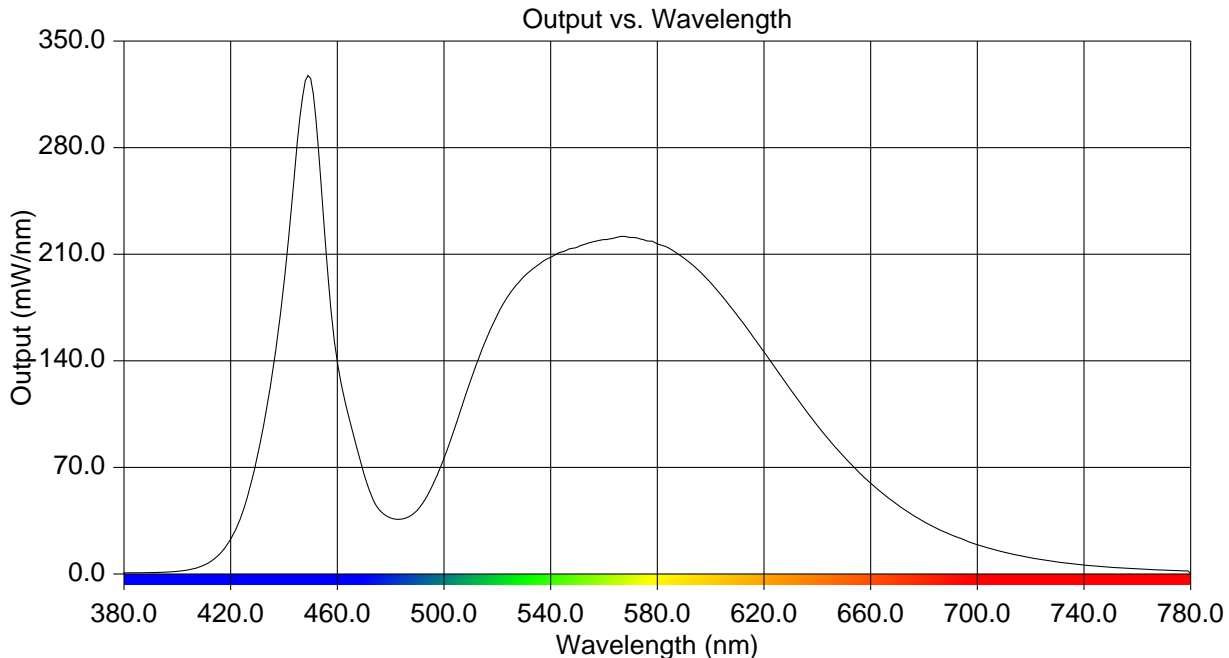
COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	70
R1 Light greyish red	66
R2 Dark greyish yellow	75
R3 Strong yellowish green	82
R4 Moderate yellowish green	70
R5 Light bluish green	67
R6 Light blue	66
R7 Light violet	82
R8 Light reddish purple	54
R9 Strong red	-40
R10 Strong yellow	41
R11 Strong green	66
R12 Strong blue	36
R13 Light yellowish pink (skin)	67
R14 Moderate olive green (leaf)	90

*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: RAB02267 Page 3 of 4
 DATE: 8/2/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED2T105 - RWLED2T105 - RWLED2T105SF - WPLED2T105 (TYPE II)

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.725	515	150.675	650	76.864
385	0.815	520	170.038	655	67.853
390	0.947	525	184.843	660	59.628
395	1.149	530	195.253	665	52.173
400	1.740	535	202.430	670	45.503
405	3.001	540	207.882	675	39.520
410	5.794	545	211.719	680	34.320
415	11.618	550	214.480	685	29.693
420	22.846	555	217.443	690	25.740
425	43.192	560	219.503	695	22.475
430	77.350	565	221.045	700	19.189
435	124.824	570	220.860	705	16.583
440	189.904	575	219.309	710	14.321
445	283.893	580	216.646	715	12.326
450	325.211	585	213.314	720	10.655
455	229.452	590	207.310	725	9.207
460	139.237	595	200.267	730	7.909
465	98.364	600	190.995	735	6.802
470	65.576	605	180.808	740	5.878
475	43.977	610	169.676	745	5.088
480	36.777	615	157.985	750	4.431
485	36.423	620	145.568	755	3.845
490	41.893	625	133.563	760	3.335
495	55.442	630	120.677	765	2.890
500	75.975	635	108.817	770	2.522
505	100.882	640	97.421	775	2.192
510	127.083	645	86.752	780	0.335



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CIE Chromaticity Diagram

