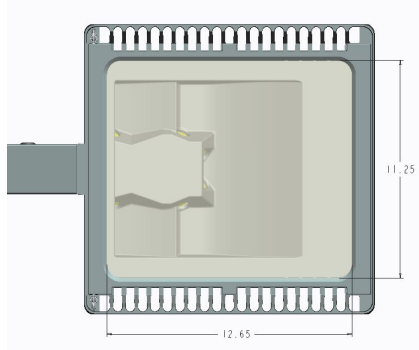
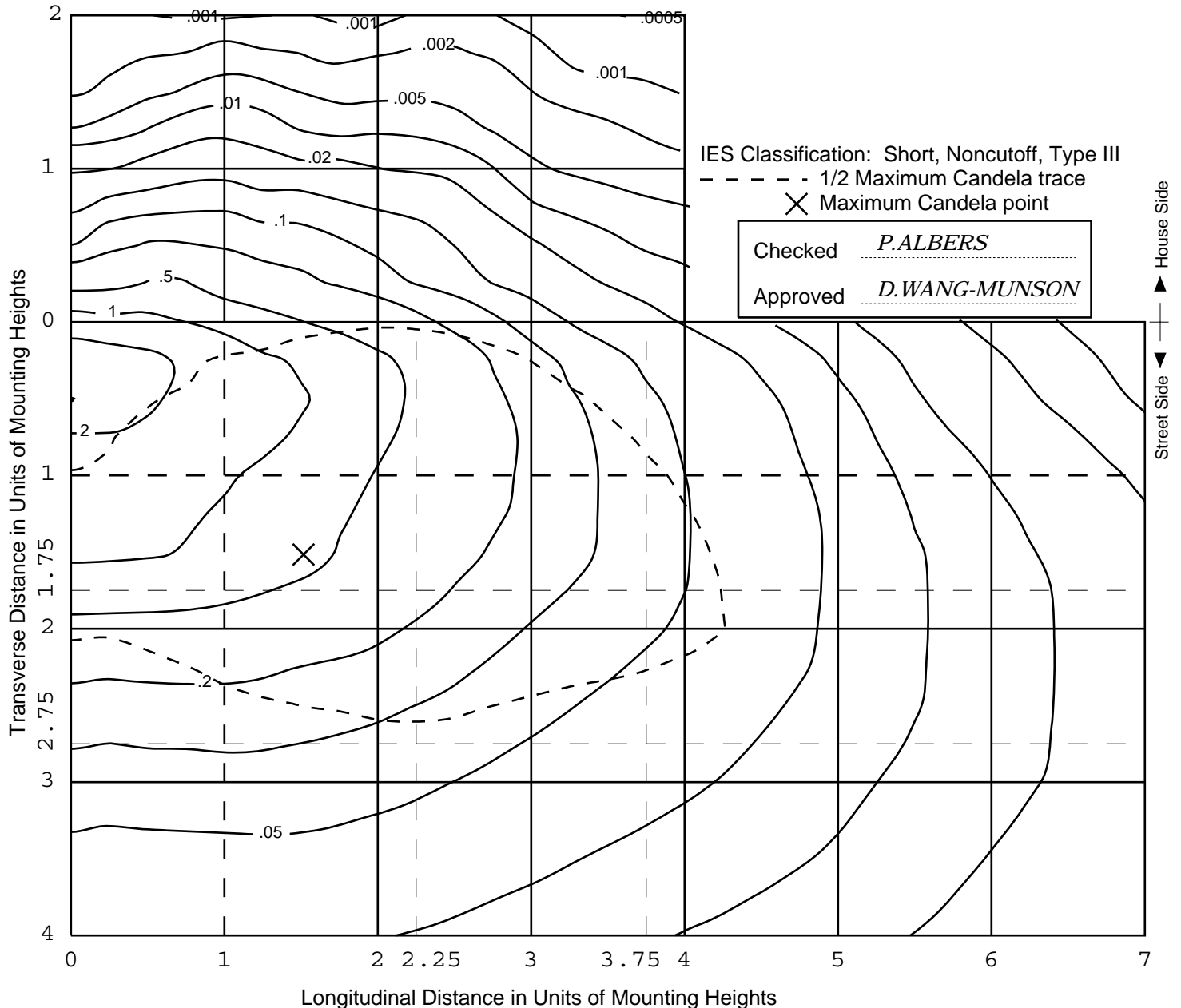


ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 25 foot mounting height.



REPORT NUMBER: RAB04304
 ISSUE DATE: 04/25/18 PAGE: 1 OF 9
 DATE SAMPLE TESTED: 04/25/18
 PREPARED FOR: RAB LIGHTING INC. RC
 LIGHTING
 CATALOG NUMBER: ALED3T66Y - RWLED3T66Y
 - RWLED3T66SFY - WPLED3T66Y (TYPE
 III) (ALSO APPLIES TO RCL)
 LUMINAIRE: CAST FINNED METAL HOUSING, 6
 CIRCUIT BOARDS EACH WITH 1 LED,
 MOLDED PLASTIC REFLECTOR WITH
 SPECULAR FINISH AND 1 APERTURE PER
 LED, CLEAR FLAT GLASS LENS IN CAST
 BROWN PAINTED METAL LENS FRAME.
 (SEE PAGE 2 FOR MORE INFORMATION)



REPORT NUMBER: RAB04304

PAGE: 2 OF 9

ISSUE DATE: 04/25/18

DATE SAMPLE TESTED: 04/25/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

ADDITIONAL INFORMATION

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

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.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS = 67.896 W AT 120.0 VAC.

LED DRIVER: RDD-U85-A1750

TEST PROCEDURE: IESNA LM-79-08

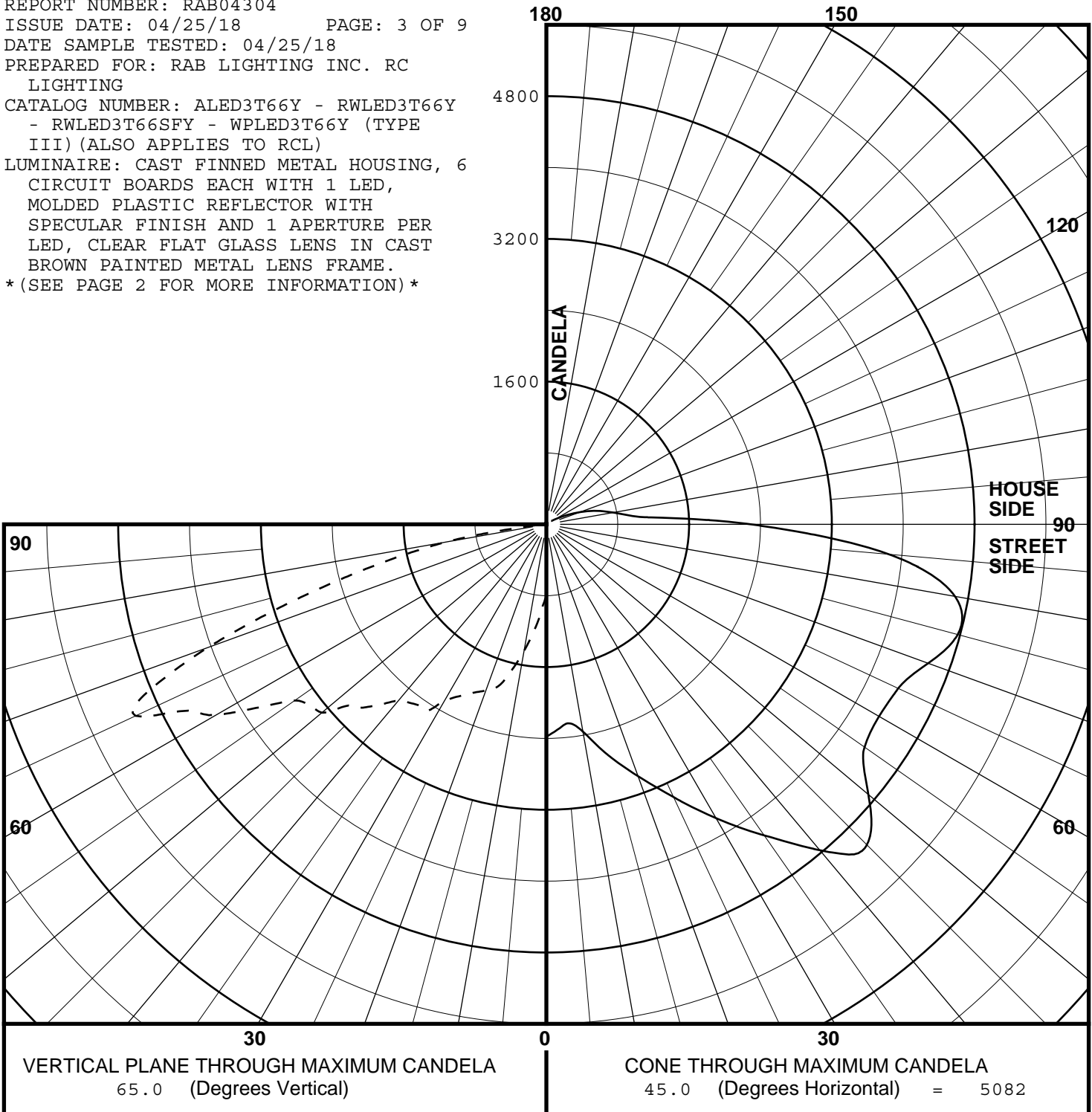
LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE

AMBIENT: 24.8

ACCREDITED LABORATORY CODE 201058-0

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

REPORT NUMBER: RAB04304
 ISSUE DATE: 04/25/18 PAGE: 3 OF 9
 DATE SAMPLE TESTED: 04/25/18
 PREPARED FOR: RAB LIGHTING INC. RC
 LIGHTING
 CATALOG NUMBER: ALED3T66Y - RWLED3T66Y
 - RWLED3T66SFY - WPLED3T66Y (TYPE
 III) (ALSO APPLIES TO RCL)
 LUMINAIRE: CAST FINNED METAL HOUSING, 6
 CIRCUIT BOARDS EACH WITH 1 LED,
 MOLDED PLASTIC REFLECTOR WITH
 SPECULAR FINISH AND 1 APERTURE PER
 LED, CLEAR FLAT GLASS LENS IN CAST
 BROWN PAINTED METAL LENS FRAME.
 (SEE PAGE 2 FOR MORE INFORMATION)



REPORT NUMBER: RAB04304

PAGE: 4 OF 9

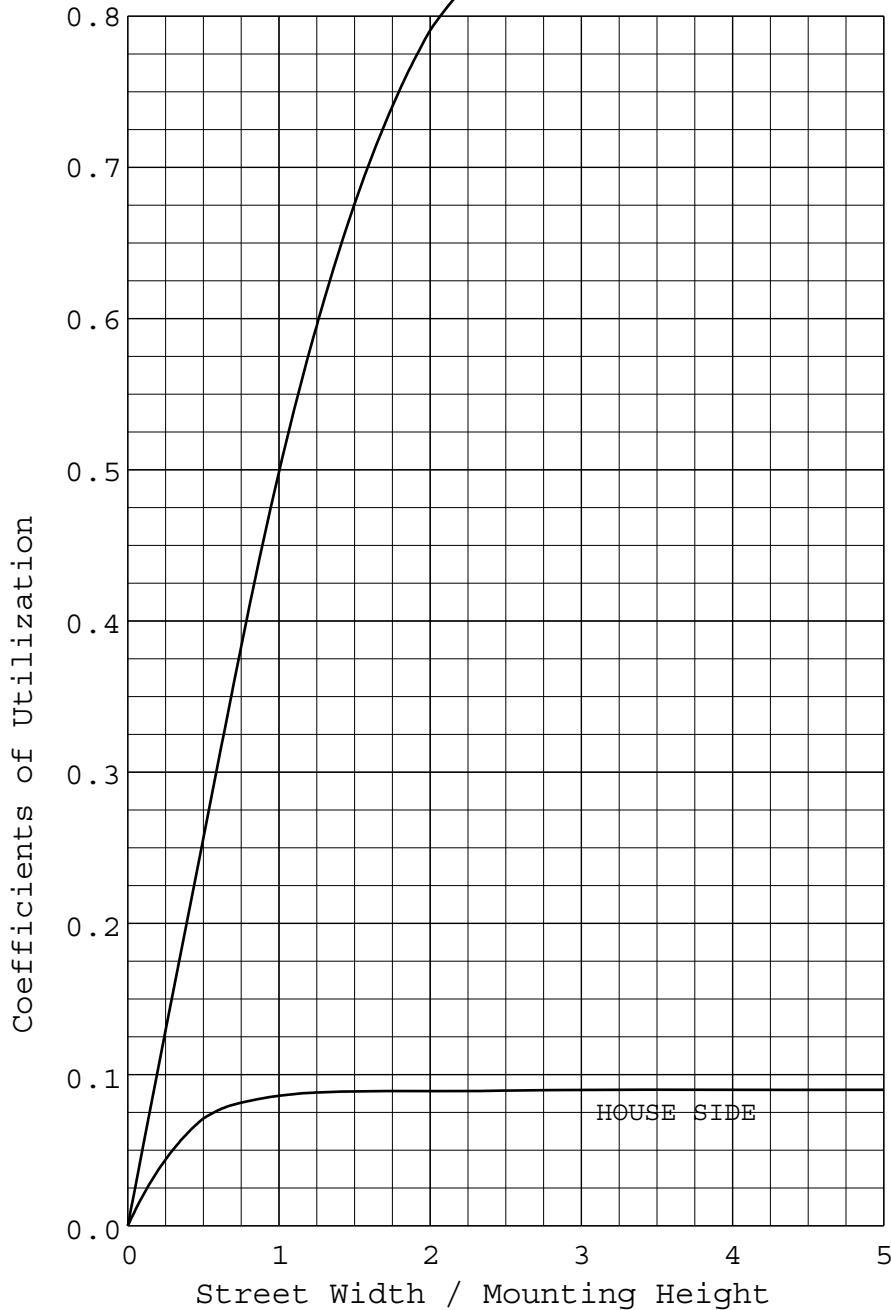
ISSUE DATE: 04/25/18

STREET SIDE

DATE SAMPLE TESTED: 04/25/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	7244.	91.0
DOWNWARD HOUSE SIDE	719.	9.0
DOWNWARD TOTAL	7963.	100.0
UPWARD STREET SIDE	0.	0.0
UPWARD HOUSE SIDE	0.	0.0
UPWARD TOTAL	0.	0.0
TOTAL FLUX	7963.	100.0
TOTAL INPUT WATTS = 67.9		
EFFICACY = 117.3 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.

REPORT NUMBER: RAB04304

ISSUE DATE: 04/25/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

PAGE: 5 OF 9

DATE SAMPLE TESTED: 04/25/18

BUG Rating:

Zonal Summary

Lumens

% of Fixture

B1 U0 G2

Zone Ratings

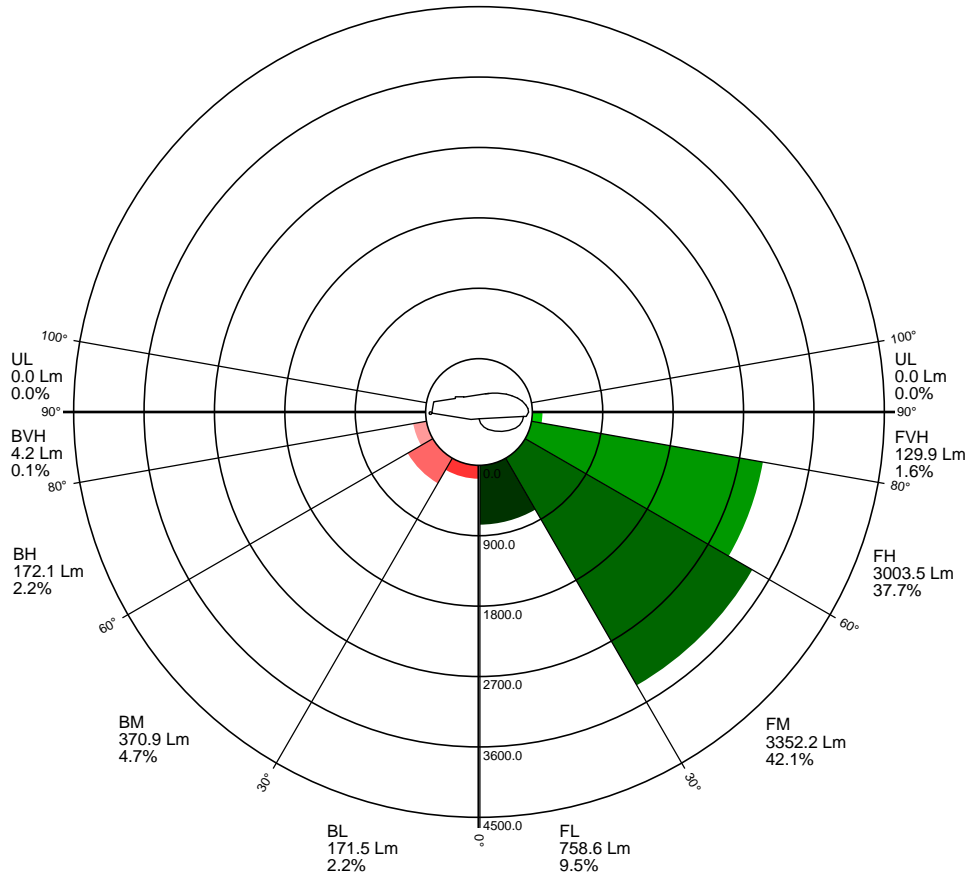
B U G

Forward		7244	91.0			
FL	(0° - 30°)	758.6	9.5			
FM	(30° - 60°)	3352.2	42.1			
FH	(60° - 80°)	3003.5	37.7			G2
FVH	(80° - 90°)	129.9	1.6			G2
Backward		719	9.0			
BL	(0° - 30°)	171.5	2.2	B1		
BM	(30° - 60°)	370.9	4.7	B1		
BH	(60° - 80°)	172.1	2.2	B1		G1
BVH	(80° - 90°)	4.2	0.1			G0
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		7963	100.0			

Zonal Lumen Summary

(Linear scale)

UH
0.0 Lm
0.0%



REPORT NUMBER: RAB04304

ISSUE DATE: 04/25/18

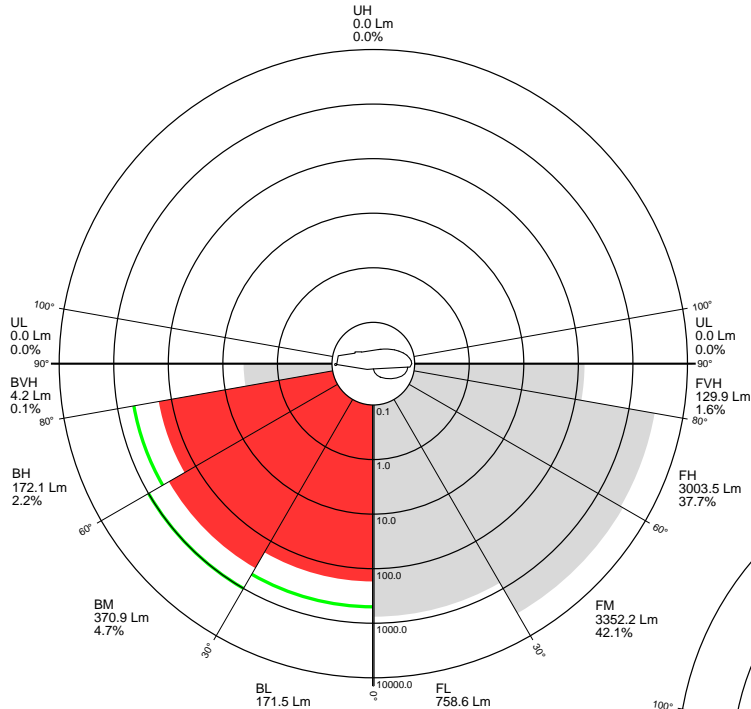
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

PAGE: 6 OF 9

DATE SAMPLE TESTED: 04/25/18

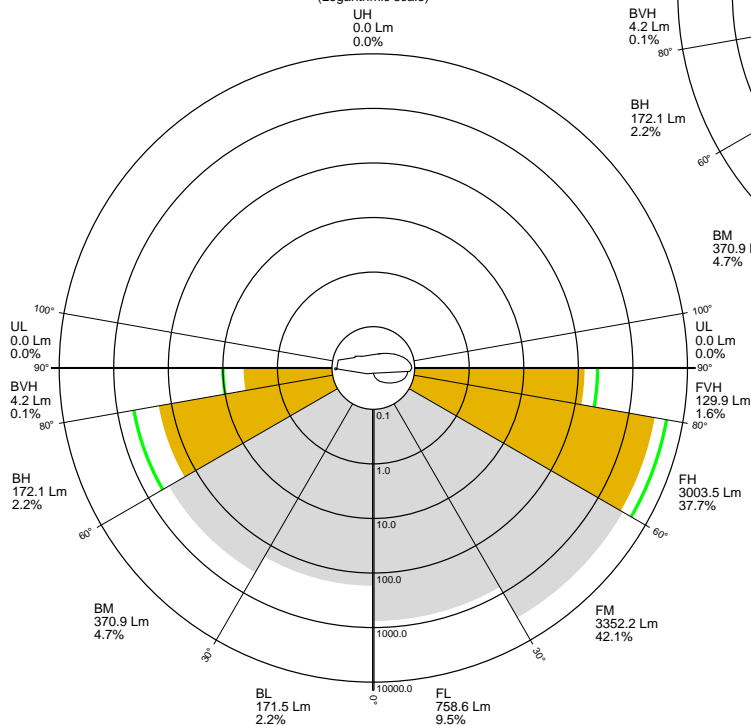
Backlight Rating Details

(Logarithmic scale)



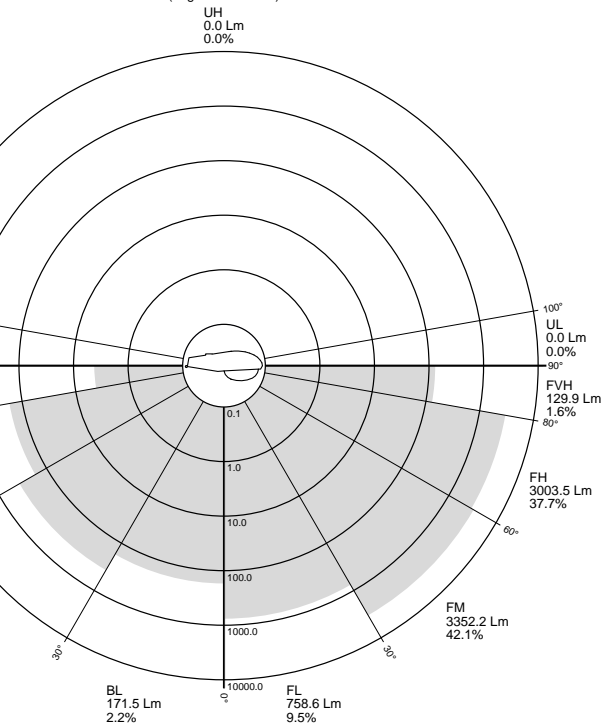
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB04304

PAGE: 7 OF 9

ISSUE DATE: 04/25/18

DATE SAMPLE TESTED: 04/25/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

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.
	175.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	165.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	155.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	145.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	135.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	125.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	115.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	105.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	95.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	90.0	0.	0.	0.	0.	0.	0.	0.	0.	0.
	87.5	3.	3.	4.	5.	10.	11.	12.	14.	12. 7.
	85.0	18.	14.	34.	53.	88.	111.	155.	177.	139. 16.
V	82.5	54.	77.	195.	224.	331.	439.	750.	910.	651. 123.
E	80.0	198.	230.	399.	557.	785.	1146.	1579.	1699.	1285. 497.
R	77.5	663.	641.	840.	1191.	1430.	1730.	2233.	2772.	2181. 1317.
T	75.0	1110.	1060.	1267.	1670.	2001.	2400.	2855.	3668.	2867. 1852.
I	72.5	1375.	1329.	1568.	2017.	2458.	3187.	3748.	4366.	3752. 2339.
C	70.0	1629.	1579.	1856.	2405.	2972.	4038.	4761.	4545.	4415. 3022.
A	67.5	1939.	1873.	2220.	2894.	3603.	4775.	4794.	4504.	4535. 3761.
L	65.0<<	2381.	2258.	2681.	3375.	4256.	5082.	4353.	4352.	4773. 3857.
	62.5	2871.	2830.	3286.	3971.	4790.	4524.	4344.	4172.	4807. 3757.
A	60.0	3637.	3640.	3997.	4625.	4510.	4275.	3999.	4322.	4501. 3525.
N	57.5	4232.	4219.	4352.	4389.	3918.	3820.	3743.	4623.	4130. 3189.
G	55.0	3943.	3944.	3761.	3594.	3501.	3443.	3560.	3990.	3708. 2911.
L	52.5	3236.	3228.	3240.	3251.	3092.	3338.	3539.	3620.	3278. 2493.
E	50.0	2954.	2976.	2952.	2870.	2818.	3286.	3353.	3387.	3034. 2095.
	47.5	2727.	2760.	2726.	2680.	2831.	3007.	3031.	3040.	2887. 1967.
	45.0	2577.	2609.	2543.	2604.	2757.	2907.	2880.	2780.	2751. 1848.
	42.5	2482.	2497.	2548.	2670.	2781.	2736.	2707.	2638.	2534. 1697.
	40.0	2478.	2473.	2456.	2566.	2630.	2578.	2515.	2471.	2408. 1577.
	37.5	2279.	2286.	2407.	2708.	2536.	2521.	2343.	2314.	2215. 1499.
	35.0	2425.	2430.	2497.	2461.	2509.	2478.	2318.	2293.	2022. 1428.
	30.0	2457.	2427.	2387.	2401.	2372.	2283.	2223.	2221.	1960. 1335.
	25.0	2530.	2518.	2317.	2225.	2154.	2102.	2072.	1989.	1586. 1149.
	20.0	2299.	2308.	2196.	2083.	2007.	1983.	1917.	1692.	1369. 1006.
	15.0	2060.	2057.	2051.	1963.	1884.	1804.	1664.	1397.	1124. 891.
	10.0	1816.	1819.	1814.	1706.	1594.	1440.	1300.	1152.	961. 827.
	5.0	1276.	1277.	1257.	1220.	1160.	1095.	1018.	941.	866. 803.
	0.0	796.	796.	796.	796.	796.	796.	796.	796.	796.

||

PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB04304

PAGE: 8 OF 9

ISSUE DATE: 04/25/18

DATE SAMPLE TESTED: 04/25/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

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
V E R T I C A L	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	7.	7.	7.	7.	6.	5.	5.	3.	3.	3.	3.
	85.0	9.	8.	7.	6.	6.	5.	4.	3.	3.	3.	3.
	82.5	54.	24.	14.	8.	6.	5.	4.	3.	3.	3.	3.
	80.0	276.	107.	21.	20.	6.	5.	4.	3.	3.	4.	3.
	77.5	652.	419.	57.	31.	9.	5.	4.	3.	4.	4.	4.
	75.0	932.	421.	122.	32.	16.	7.	4.	3.	4.	5.	5.
	72.5	1248.	579.	154.	73.	43.	11.	6.	4.	5.	5.	4.
	70.0	1781.	805.	376.	125.	50.	11.	15.	6.	6.	6.	6.
	67.5	2103.	954.	577.	176.	54.	17.	11.	6.	7.	7.	7.
	65.0<<	2294.	1004.	585.	229.	64.	38.	17.	7.	7.	8.	8.
	62.5	2276.	1078.	600.	282.	80.	55.	35.	13.	9.	7.	7.
	60.0	2044.	1115.	700.	365.	104.	77.	46.	19.	10.	6.	6.
	57.5	1920.	1074.	663.	365.	130.	101.	55.	25.	11.	7.	6.
	55.0	1806.	1070.	612.	356.	157.	107.	61.	32.	14.	7.	6.
	52.5	1652.	1066.	553.	381.	218.	115.	67.	39.	19.	8.	7.
	50.0	1497.	1049.	522.	475.	291.	140.	74.	43.	24.	25.	21.
	47.5	1423.	1030.	526.	393.	316.	160.	84.	47.	29.	33.	56.
	45.0	1395.	966.	538.	401.	286.	168.	101.	53.	40.	33.	31.
	42.5	1363.	1028.	529.	398.	300.	180.	108.	97.	46.	25.	21.
	40.0	1287.	1095.	607.	400.	325.	192.	121.	81.	70.	40.	28.
	37.5	1228.	1074.	913.	423.	321.	208.	135.	91.	78.	60.	48.
35.0	1191.	1028.	899.	631.	358.	249.	150.	102.	84.	65.	57.	
30.0	1101.	966.	719.	522.	386.	299.	263.	125.	87.	69.	61.	
25.0	968.	869.	638.	490.	344.	259.	199.	153.	113.	103.	103.	
20.0	882.	805.	633.	519.	377.	274.	201.	159.	151.	155.	159.	
15.0	801.	745.	642.	520.	476.	406.	322.	267.	245.	212.	205.	
10.0	764.	712.	638.	577.	518.	476.	446.	417.	378.	341.	341.	
5.0	774.	745.	690.	653.	620.	594.	572.	542.	522.	519.	511.	
0.0	796.	796.	796.	796.	796.	796.	796.	796.	796.	796.	796.	

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB04304

PAGE: 9 OF 9

ISSUE DATE: 04/25/18

DATE SAMPLE TESTED: 04/25/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

5-DEGREE

ZONAL LUMEN SUMMARY

0- 5	19
5- 10	64
10- 15	119
15- 20	176
20- 25	240
25- 30	312
30- 35	386
35- 40	449
40- 45	524
45- 50	622
50- 55	768
55- 60	975
60- 65	1039
65- 70	965
70- 75	741
75- 80	431
80- 85	126
85- 90	8
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	84
0- 20	379
0- 30	930
0- 40	1765
0- 50	2911
0- 60	4653
0- 70	6657
0- 80	7829
0- 90	7963
0-100	7963
0-110	7963
0-120	7963
0-130	7963
0-140	7963
0-150	7963
0-160	7963
0-170	7963
0-180	7963

REPORT NUMBER: RAB04305
DATE: 4/24/2018
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
CATALOG NUMBER: ALED3T66Y - RWLED3T66Y - RWLED3T66SFY - WPLED3T66Y (TYPE III) (ALSO APPLIES TO RCL)

Page 1 of 4

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: CAST FINNED METAL HOUSING, 6 CIRCUIT BOARDS EACH WITH 1 LED, MOLDED PLASTIC REFLECTOR WITH SPECULAR FINISH AND 1 APERTURE PER LED, CLEAR FLAT GLASS LENS IN CAST BROWN PAINTED METAL LENS FRAME.

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

DRIVER: RDD-U85-A1750

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	3/08/19
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	04/23/19

OBJECT OF TEST: Measure the Absolute Flux in lumens*, Total Radiant Flux*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRI_a, 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: RAB04305
 DATE: 4/24/2018
 PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
 CATALOG NUMBER: ALED3T66Y - RWLED3T66Y - RWLED3T66SFY - WPLED3T66Y (TYPE III) (ALSO APPLIES TO RCL)

Page 2 of 4

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	7963 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4339
Chromaticity Ordinate y	0.4071
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2473
Chromaticity Ordinate v'	0.5221
Correlated Color Temp CCT (K)	3075
ANSI C78.377-2008 Duv	0.002
Total Radiant Flux (milliWatts)	22065 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.567
Input Power (Watts)	67.9
Input Power Factor (%)	99.8
Input Current THD (%)	6.1
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	117.3
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.252
Input Power (Watts)	66.6
Input Power Factor (%)	95.5
Input Current THD (%)	8.0
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	71
R1 Light greyish red	66
R2 Dark greyish yellow	81
R3 Strong yellowish green	95
R4 Moderate yellowish green	68
R5 Light bluish green	68
R6 Light blue	77
R7 Light violet	75
R8 Light reddish purple	38
R9 Strong red	-47
R10 Strong yellow	61
R11 Strong green	65
R12 Strong blue	59
R13 Light yellowish pink (skin)	69
R14 Moderate olive green (leaf)	97

*NOTE:

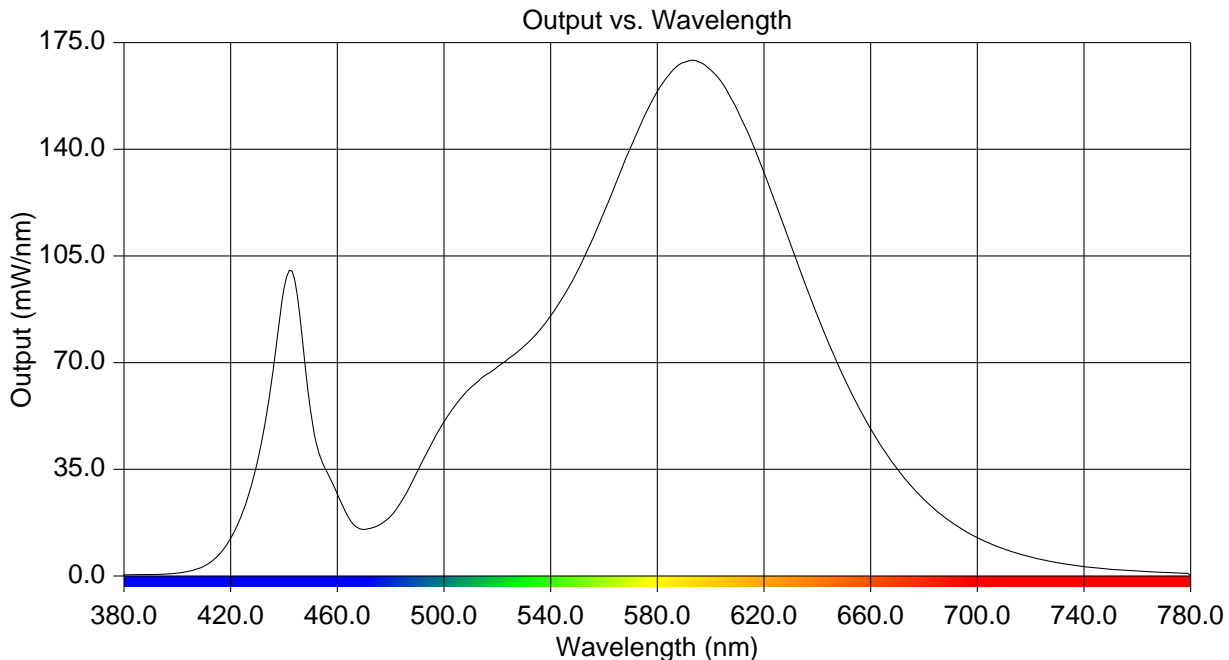
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB04305
 DATE: 4/24/2018
 PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
 CATALOG NUMBER: ALED3T66Y - RWLED3T66Y - RWLED3T66SFY - WPLED3T66Y (TYPE III) (ALSO APPLIES TO RCL)

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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.362	515	65.578	650	65.135
385	0.405	520	68.595	655	56.225
390	0.460	525	71.871	660	48.206
395	0.597	530	75.388	665	41.244
400	0.929	535	79.757	670	35.125
405	1.677	540	85.364	675	29.661
410	3.213	545	91.919	680	25.071
415	6.378	550	99.959	685	21.131
420	12.174	555	109.138	690	17.829
425	22.294	560	119.338	695	14.965
430	37.365	565	130.112	700	12.577
435	61.540	570	140.676	705	10.538
440	94.391	575	150.665	710	8.854
445	92.036	580	158.946	715	7.411
450	53.981	585	165.150	720	6.204
455	36.068	590	168.526	725	5.197
460	26.996	595	168.908	730	4.384
465	18.052	600	165.996	735	3.684
470	15.275	605	160.903	740	3.080
475	16.430	610	152.888	745	2.628
480	19.597	615	143.495	750	2.210
485	25.852	620	132.422	755	1.868
490	34.333	625	120.860	760	1.593
495	42.982	630	108.619	765	1.348
500	50.716	635	96.880	770	1.161
505	56.875	640	85.389	775	0.990
510	61.854	645	74.977	780	0.146



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DATE: 4/24/2018
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
CATALOG NUMBER: ALED3T66Y - RWLED3T66Y - RWLED3T66SFY - WPLED3T66Y (TYPE III) (ALSO APPLIES TO RCL)

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CIE Chromaticity Diagram

