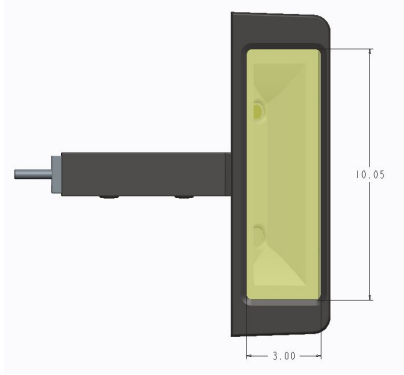


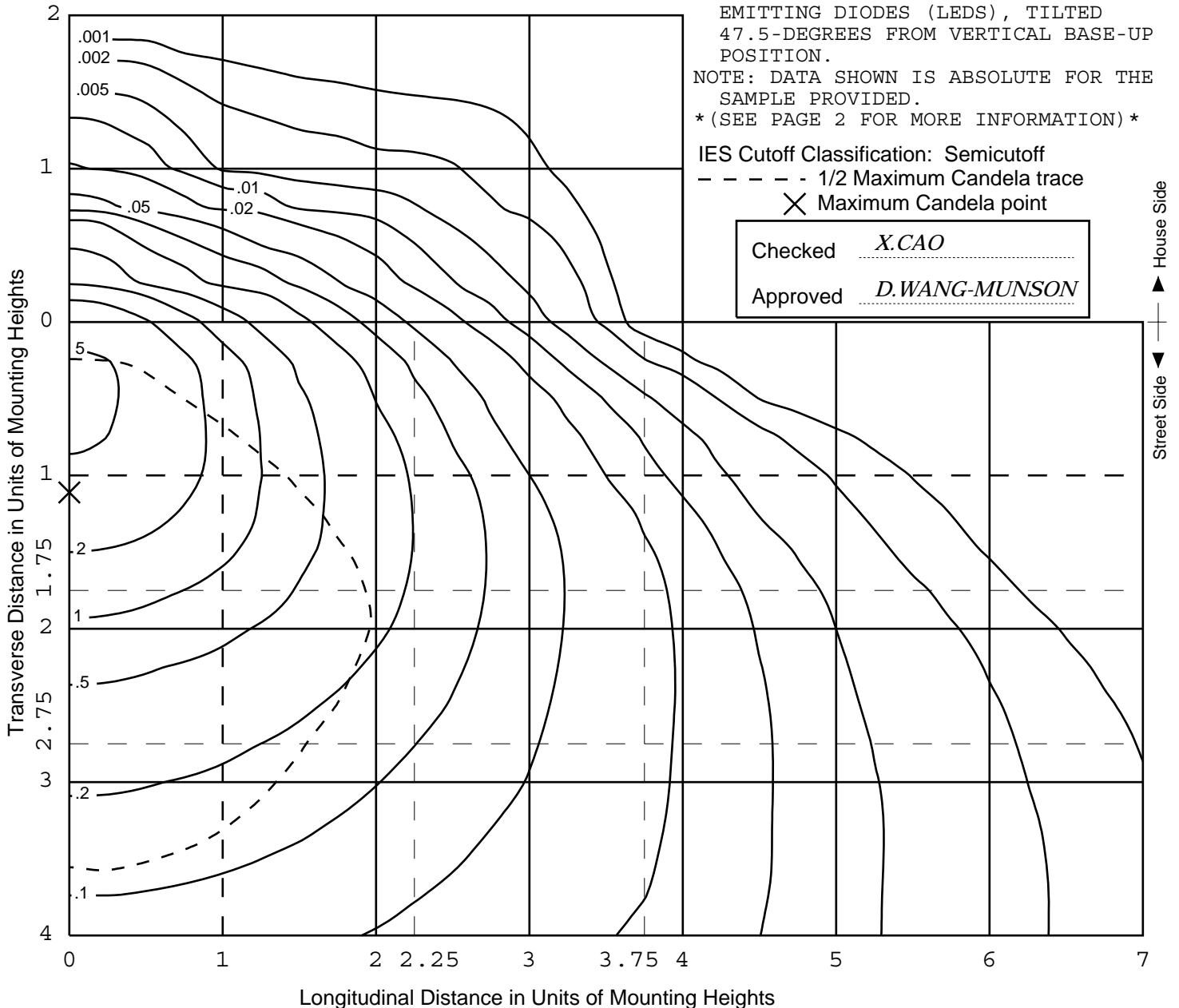
ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 20 foot mounting height.



REPORT NUMBER: RAB02608
 ISSUE DATE: 10/21/16 PAGE: 1 OF 9
 DATE SAMPLE TESTED: 10/21/16
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALEDC52Y/WPLEDC52Y
 (7.5-DEGREE UPTILT - CUTOFF)
 LUMINAIRE: CAST FINNED METAL HOUSING,
 2-PIECE EXTRUDED METAL HEAT SINK, 2
 CIRCUIT BOARDS EACH WITH 1 LED,
 MOLDED PLASTIC REFLECTOR WITH
 SPECULAR FINISH AND 1 OPTICAL
 COMPARTMENT WITH 1 APERTURE PER LED,
 CLEAR FLAT GLASS LENS IN CAST BROWN
 PAINTED METAL FRAME.
 LAMPS: TWO WHITE MULTI-CHIP LIGHT
 EMITTING DIODES (LEDs), TILTED
 47.5-DEGREES FROM VERTICAL BASE-UP
 POSITION.
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE
 SAMPLE PROVIDED.
 (SEE PAGE 2 FOR MORE INFORMATION)

IES Cutoff Classification: Semicutoff
 - - - - 1/2 Maximum Candela trace
 X Maximum Candela point



REPORT NUMBER: RAB02608
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PREPARED FOR: RAB LIGHTING INC.

PAGE: 2 OF 9
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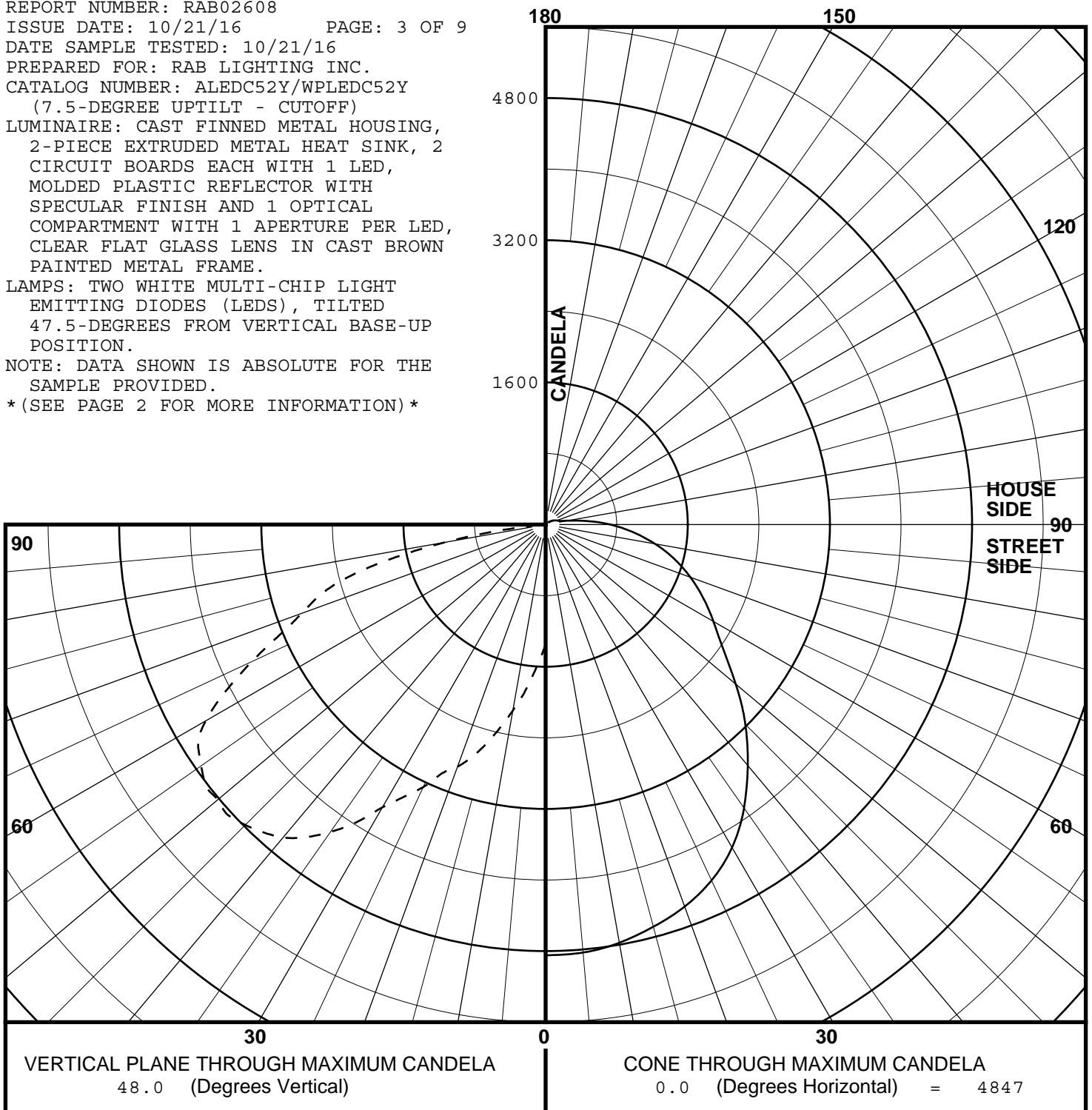
ADDITIONAL INFORMATION

TOTAL INPUT WATTS = 58.085 W AT 120.0 VAC.
LED DRIVER: RD-052-A1400-R
TEST PROCEDURE: IESNA LM-79-08
ACCREDITED LABORATORY CODE 201058-0

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.

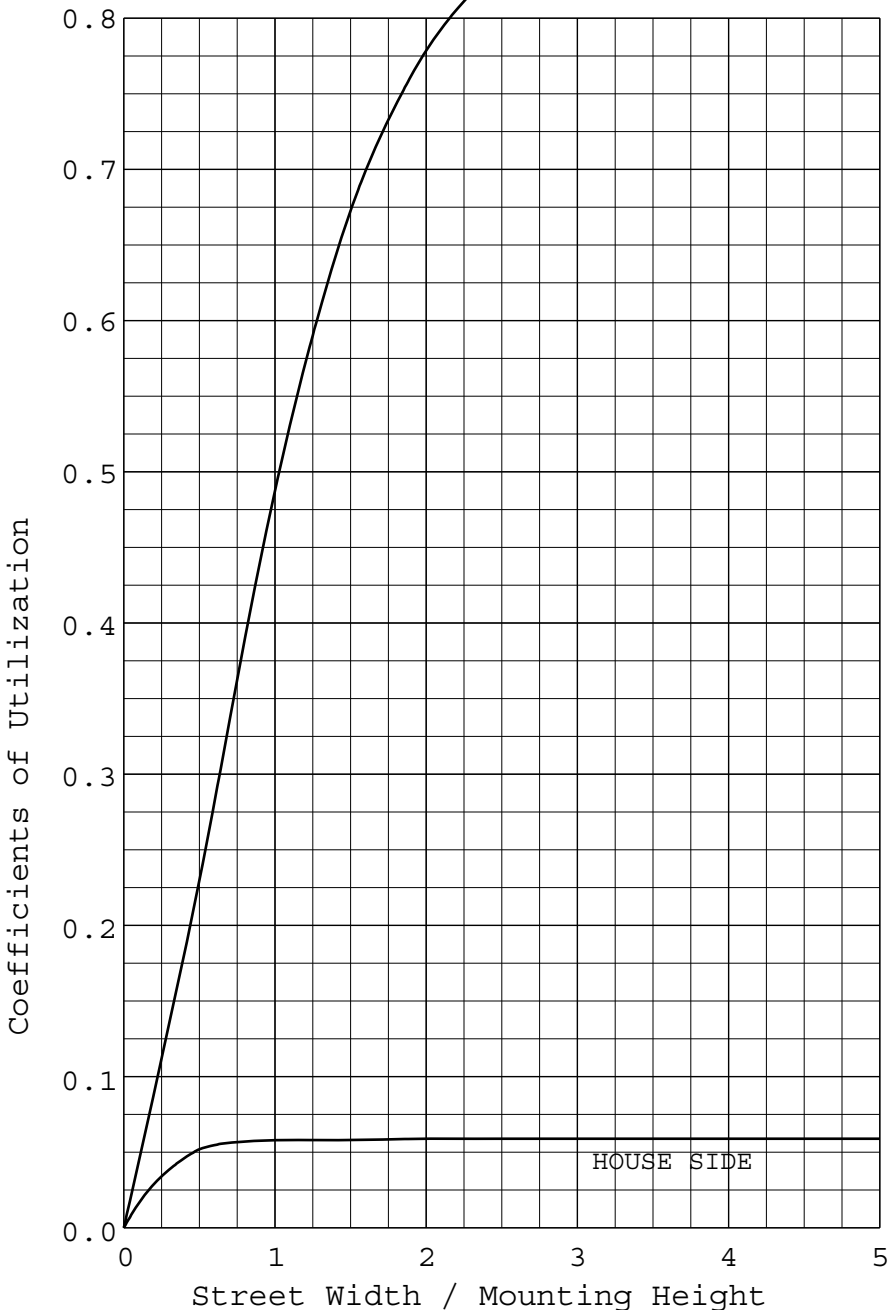
MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

REPORT NUMBER: RAB02608
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 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALEDC52Y/WPLEDC52Y
 (7.5-DEGREE UPTILT - CUTOFF)
 LUMINAIRE: CAST FINNED METAL HOUSING,
 2-PIECE EXTRUDED METAL HEAT SINK, 2
 CIRCUIT BOARDS EACH WITH 1 LED,
 MOLDED PLASTIC REFLECTOR WITH
 SPECULAR FINISH AND 1 OPTICAL
 COMPARTMENT WITH 1 APERTURE PER LED,
 CLEAR FLAT GLASS LENS IN CAST BROWN
 PAINTED METAL FRAME.
 LAMPS: TWO WHITE MULTI-CHIP LIGHT
 EMITTING DIODES (LEDs), TILTED
 47.5-DEGREES FROM VERTICAL BASE-UP
 POSITION.
 NOTE: DATA SHOWN IS ABSOLUTE FOR THE
 SAMPLE PROVIDED.
 (SEE PAGE 2 FOR MORE INFORMATION)



REPORT NUMBER: RAB02608 STREET SIDE PAGE: 4 OF 9
 ISSUE DATE: 10/21/16 DATE SAMPLE TESTED: 10/21/16
 PREPARED FOR: RAB LIGHTING INC.

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	6527.	94.0
DOWNWARD HOUSE SIDE	413.	6.0
DOWNWARD TOTAL	6940.	100.0
UPWARD STREET SIDE	1.	0.0
UPWARD HOUSE SIDE	0.	0.0
UPWARD TOTAL	1.	0.0
TOTAL FLUX	6941.	100.0
TOTAL INPUT WATTS = 58.1		
EFFICACY = 119.5 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.

REPORT NUMBER: RAB02608
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 PREPARED FOR: RAB LIGHTING INC.

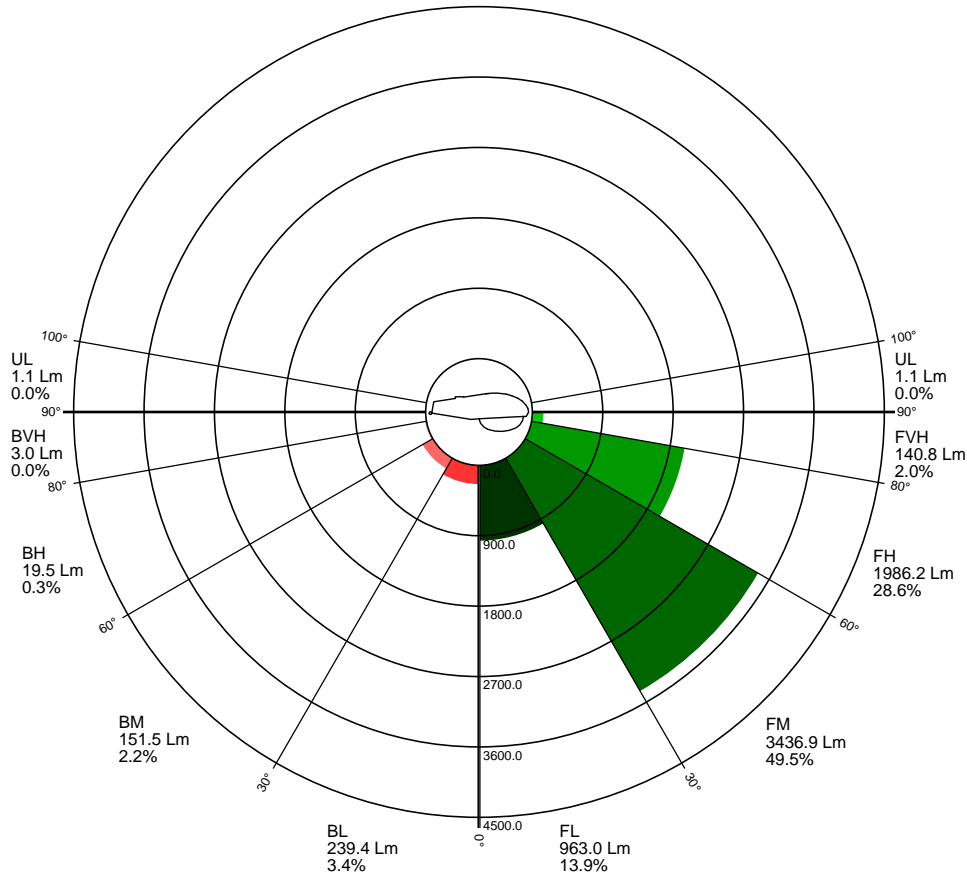
PAGE: 5 OF 9
 DATE SAMPLE TESTED: 10/21/16

BUG Rating:				B1 U1 G2		
Zonal Summary				Zone Ratings		
		Lumens	% of Fixture	B	U	G
Forward		6527	94.0			
FL	(0° - 30°)	963.0	13.9			
FM	(30° - 60°)	3436.9	49.5			
FH	(60° - 80°)	1986.2	28.6			G2
FVH	(80° - 90°)	140.8	2.0			G2
Backward		413	6.0			
BL	(0° - 30°)	239.4	3.4	B1		
BM	(30° - 60°)	151.5	2.2	B0		
BH	(60° - 80°)	19.5	0.3	B0		G0
BVH	(80° - 90°)	3.0	0.0			G0
Upward		1	0.0			
UL	(90° - 100°)	1.1	0.0		U1	
UH	(100° - 180°)	0.0	0.0		U0	
Trapped Light		0	0.0			
Total Flux		6941	100.0			

Zonal Lumen Summary

(Linear scale)

UH
0.0 Lm
0.0%

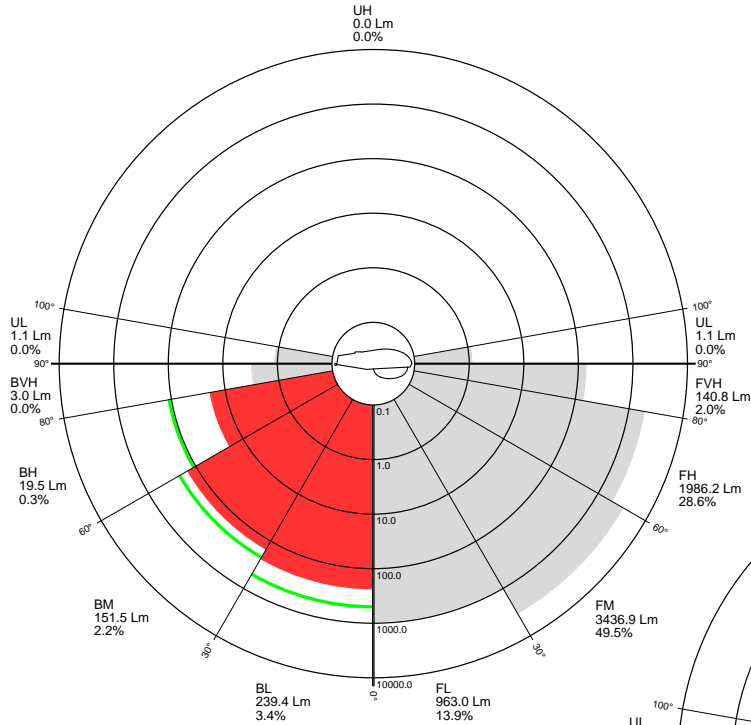


REPORT NUMBER: RAB02608
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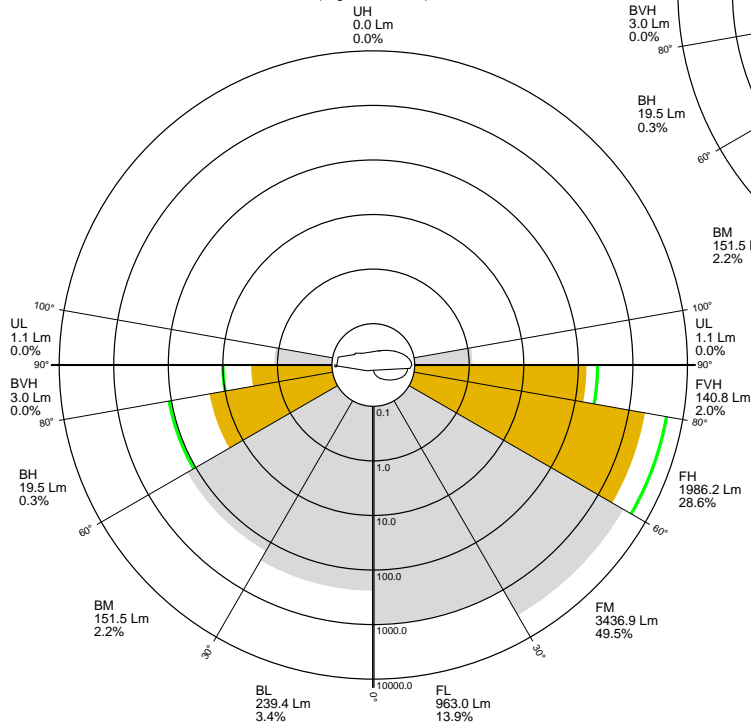
Backlight Rating Details

(Logarithmic scale)



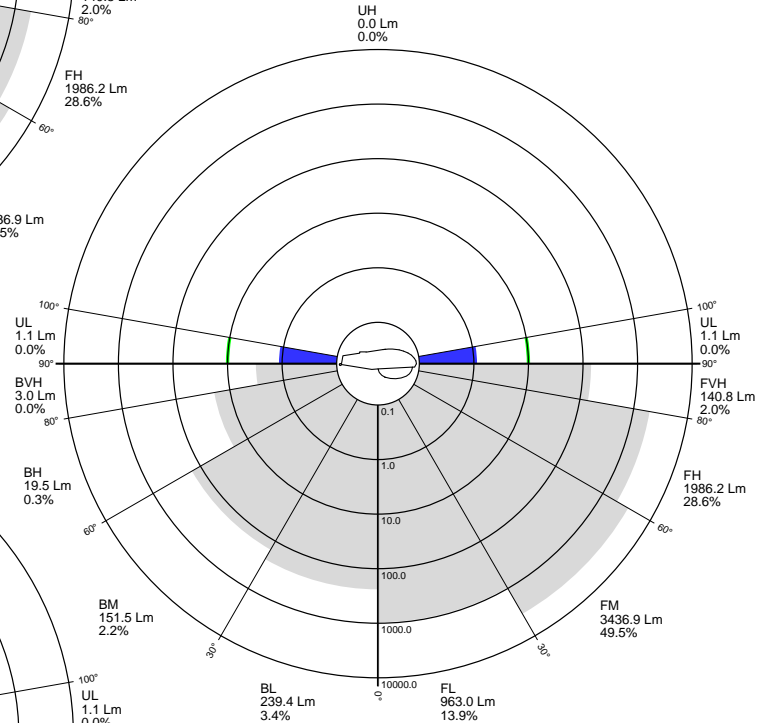
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



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 PREPARED FOR: RAB LIGHTING INC.

PAGE: 7 OF 9
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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	17.	18.	15.	14.	9.	7.	7.	7.	8. 8.
	87.5	68.	75.	65.	62.	44.	27.	24.	32.	8. 8.
	85.0	148.	164.	167.	221.	233.	224.	160.	122.	31. 8.
	82.5	548.	577.	597.	695.	713.	672.	394.	219.	64. 8.
V	80.0	1159.	1192.	1211.	1305.	1269.	1169.	709.	364.	121. 9.
E	77.5	1784.	1814.	1801.	1853.	1757.	1530.	1025.	621.	204. 14.
R	75.0	2323.	2344.	2311.	2239.	2053.	1803.	1368.	919.	350. 62.
T	72.5	2676.	2678.	2597.	2471.	2331.	2127.	1671.	1141.	510. 155.
I	70.0	2921.	2932.	2850.	2771.	2666.	2452.	1933.	1324.	655. 279.
C	67.5	3235.	3250.	3170.	3141.	3074.	2765.	2087.	1472.	798. 393.
A	65.0	3649.	3647.	3563.	3532.	3473.	2950.	2210.	1580.	932. 504.
L	62.5	4060.	4044.	3948.	3927.	3774.	3089.	2307.	1651.	1076. 604.
	60.0	4418.	4419.	4329.	4213.	3908.	3181.	2381.	1702.	1189. 690.
A	57.5	4638.	4628.	4503.	4351.	3990.	3243.	2427.	1737.	1286. 762.
N	55.0	4734.	4727.	4643.	4457.	4006.	3260.	2454.	1770.	1368. 832.
G	52.5	4823.	4796.	4694.	4487.	4002.	3246.	2464.	1822.	1430. 895.
L	50.0	4819.	4815.	4704.	4477.	3953.	3216.	2454.	1894.	1473. 949.
E	48.0<<	4847.	4835.	4686.	4419.	3893.	3180.	2439.	1958.	1502. 990.
	47.5	4844.	4830.	4678.	4400.	3881.	3168.	2433.	1975.	1510. 1000.
	45.0	4781.	4766.	4609.	4283.	3801.	3101.	2420.	2063.	1550. 1049.
	42.5	4700.	4674.	4504.	4148.	3689.	3012.	2448.	2126.	1593. 1095.
	40.0	4596.	4554.	4374.	4017.	3562.	2919.	2486.	2173.	1633. 1149.
	37.5	4435.	4384.	4195.	3853.	3438.	2895.	2526.	2192.	1669. 1203.
	35.0	4224.	4193.	3999.	3675.	3298.	2896.	2558.	2187.	1702. 1256.
	30.0	3675.	3657.	3536.	3330.	3101.	2833.	2539.	2144.	1735. 1345.
	25.0	3260.	3233.	3173.	3036.	2900.	2688.	2399.	2052.	1736. 1391.
	20.0	2901.	2908.	2894.	2805.	2670.	2451.	2199.	1946.	1695. 1419.
	15.0	2544.	2553.	2553.	2443.	2322.	2161.	2004.	1832.	1627. 1418.
	10.0	2125.	2146.	2152.	2073.	2009.	1907.	1805.	1679.	1548. 1400.
	5.0	1715.	1731.	1755.	1703.	1668.	1616.	1573.	1511.	1446. 1372.
	0.0	1344.	1344.	1344.	1344.	1344.	1344.	1344.	1344.	1344. 1344.
		PLANE OF MAXIMUM CANDELA								
		CONE OF MAXIMUM CANDELA								

REPORT NUMBER: RAB02608
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PAGE: 8 OF 9
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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.	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	8.	8.	8.	8.	7.	7.	6.	5.	4.	4.	4.
87.5	8.	8.	8.	8.	7.	6.	5.	5.	4.	4.	4.
85.0	8.	8.	8.	7.	7.	6.	5.	4.	3.	3.	2.
82.5	8.	8.	7.	7.	6.	5.	4.	4.	2.	1.	1.
V 80.0	8.	8.	7.	7.	6.	5.	4.	3.	2.	1.	0.
E 77.5	8.	8.	9.	7.	5.	5.	3.	3.	1.	0.	0.
R 75.0	11.	8.	12.	11.	6.	4.	3.	2.	1.	0.	0.
T 72.5	63.	44.	18.	15.	6.	4.	3.	2.	1.	0.	0.
I 70.0	128.	70.	26.	16.	8.	4.	3.	2.	1.	0.	0.
C 67.5	204.	93.	44.	15.	9.	5.	3.	2.	1.	0.	0.
A 65.0	291.	130.	64.	15.	10.	6.	4.	3.	2.	0.	0.
L 62.5	371.	176.	83.	18.	10.	7.	5.	4.	3.	2.	2.
60.0	447.	221.	101.	24.	10.	8.	6.	6.	6.	5.	5.
A 57.5	511.	269.	115.	39.	11.	8.	8.	9.	11.	10.	10.
N 55.0	571.	318.	127.	62.	15.	9.	10.	13.	14.	14.	14.
G 52.5	633.	368.	139.	83.	22.	11.	12.	15.	18.	18.	19.
L 50.0	689.	419.	151.	99.	37.	17.	15.	17.	20.	22.	22.
E 48.0<<	730.	458.	159.	112.	57.	25.	19.	19.	21.	22.	22.
47.5	739.	468.	161.	114.	62.	27.	19.	19.	21.	22.	22.
45.0	784.	517.	172.	127.	87.	38.	26.	22.	23.	23.	24.
42.5	828.	561.	189.	137.	106.	60.	35.	29.	25.	25.	25.
40.0	883.	616.	218.	154.	120.	86.	52.	39.	38.	33.	34.
37.5	943.	681.	268.	174.	137.	111.	84.	56.	47.	44.	45.
35.0	1002.	753.	334.	197.	160.	136.	123.	101.	82.	67.	67.
30.0	1124.	901.	501.	268.	242.	208.	201.	199.	192.	185.	182.
25.0	1207.	1027.	675.	406.	311.	302.	280.	283.	286.	283.	284.
20.0	1266.	1128.	838.	601.	425.	366.	364.	371.	363.	358.	356.
15.0	1303.	1201.	984.	792.	634.	513.	441.	416.	404.	404.	404.
10.0	1321.	1254.	1120.	988.	869.	789.	704.	650.	612.	587.	593.
5.0	1332.	1298.	1240.	1185.	1127.	1065.	1027.	986.	970.	952.	962.
0.0	1344.	1344.	1344.	1344.	1344.	1344.	1344.	1344.	1344.	1344.	1344.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB02608
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PAGE: 9 OF 9
 DATE SAMPLE TESTED: 10/21/16

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	32
5- 10	96
10- 15	161
15- 20	231
20- 25	304
25- 30	377
30- 35	449
35- 40	519
40- 45	586
45- 50	646
50- 55	688
55- 60	702
60- 65	665
65- 70	571
70- 75	457
75- 80	313
80- 85	126
85- 90	18
90- 95	1
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	129
0- 20	521
0- 30	1202
0- 40	2170
0- 50	3401
0- 60	4791
0- 70	6026
0- 80	6796
0- 90	6940
0-100	6941
0-110	6941
0-120	6941
0-130	6941
0-140	6941
0-150	6941
0-160	6941
0-170	6941
0-180	6941

REPORT NUMBER: RAB02609
DATE: 10/19/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: ALED52Y/WPLEDC52Y (7.5-DEGREE UPTILT - CUTOFF)

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: CAST FINNED METAL HOUSING, 2-PIECE EXTRUDED METAL HEAT SINK, 2
CIRCUIT BOARDS EACH WITH 1 LED, MOLDED PLASTIC REFLECTOR WITH
SPECULAR FINISH AND 1 OPTICAL COMPARTMENT WITH 1 APERTURE PER LED,
CLEAR FLAT GLASS LENS IN CAST BROWN PAINTED METAL FRAME.

LAMP: TWO WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDs), TILTED
47.5-DEGREES FROM VERTICAL BASE-UP POSITION.

DRIVER: RD-052-A1400-R

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: N/A
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	2/26/17
	OCEAN OPTICS QE65PRO Spectroradiometer	10/18/17
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	10/18/17

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: RAB02609
 DATE: 10/19/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED52Y/WPLEDC52Y (7.5-DEGREE UPTILT - CUTOFF)

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RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	6941 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4329
Chromaticity Ordinate y	0.4058
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2472
Chromaticity Ordinate v'	0.5215
Correlated Color Temp CCT (K)	3083
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	19591 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.488
Input Power (Watts)	58.1
Input Power Factor (%)	99.3
Input Current THD (%)	6.5
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	119.5
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.215
Input Power (Watts)	57.8
Input Power Factor (%)	97.2
Input Current THD (%)	7.8
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	80
R3 Strong yellowish green	91
R4 Moderate yellowish green	67
R5 Light bluish green	66
R6 Light blue	72
R7 Light violet	79
R8 Light reddish purple	45
R9 Strong red	-33
R10 Strong yellow	54
R11 Strong green	60
R12 Strong blue	42
R13 Light yellowish pink (skin)	69
R14 Moderate olive green (leaf)	95

*NOTE:

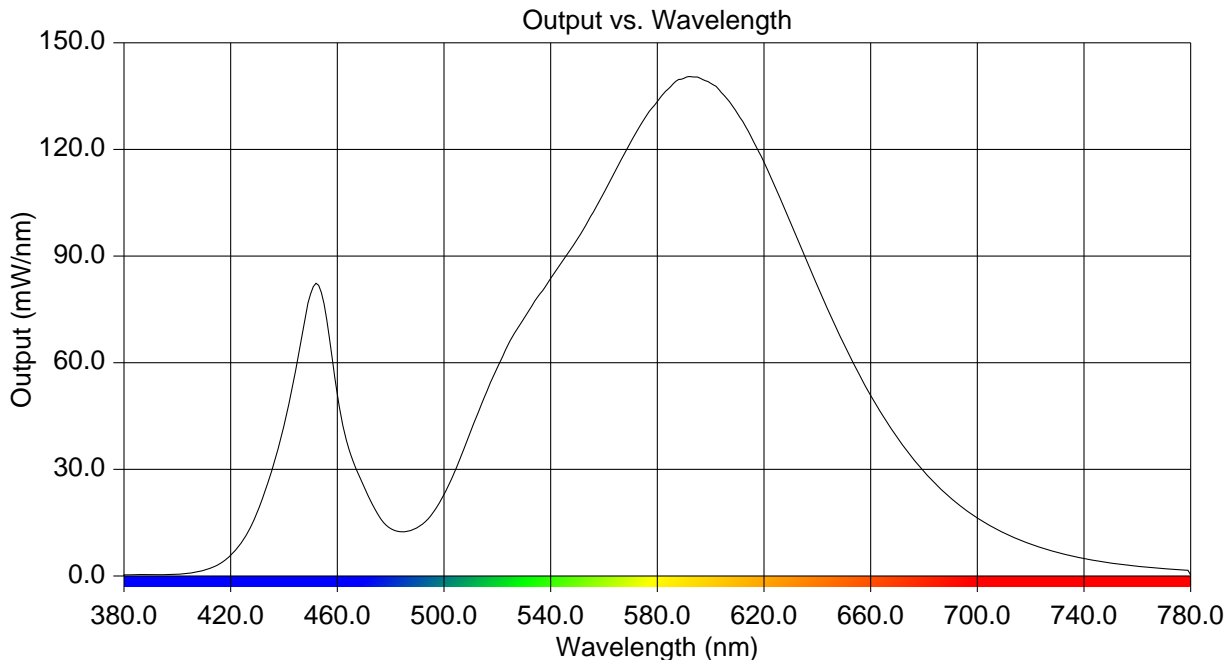
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB02609
 DATE: 10/19/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED52Y/WPLEDC52Y (7.5-DEGREE UPTILT - CUTOFF)

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.306	515	50.040	650	65.183
385	0.333	520	58.613	655	57.713
390	0.341	525	66.413	660	50.829
395	0.402	530	72.471	665	44.517
400	0.536	535	78.363	670	38.909
405	0.844	540	83.753	675	33.840
410	1.541	545	89.278	680	29.314
415	3.047	550	94.785	685	25.410
420	5.832	555	101.161	690	21.921
425	10.446	560	107.883	695	18.936
430	17.983	565	114.948	700	16.330
435	28.655	570	122.024	705	14.047
440	42.370	575	128.400	710	12.115
445	60.461	580	133.433	715	10.467
450	79.397	585	137.629	720	8.950
455	76.638	590	139.985	725	7.703
460	51.034	595	140.343	730	6.631
465	34.182	600	138.578	735	5.619
470	25.117	605	135.134	740	4.914
475	17.610	610	130.106	745	4.216
480	13.348	615	123.797	750	3.674
485	12.467	620	116.380	755	3.169
490	13.609	625	108.195	760	2.749
495	16.907	630	99.377	765	2.381
500	22.905	635	90.511	770	2.053
505	31.122	640	81.616	775	1.795
510	40.704	645	73.286	780	0.271



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CIE Chromaticity Diagram

