

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  
37.5-DEGREES FROM VERTICAL BASE-UP  
POSITION.

\* (SEE PAGE 2 FOR MORE INFORMATION) \*

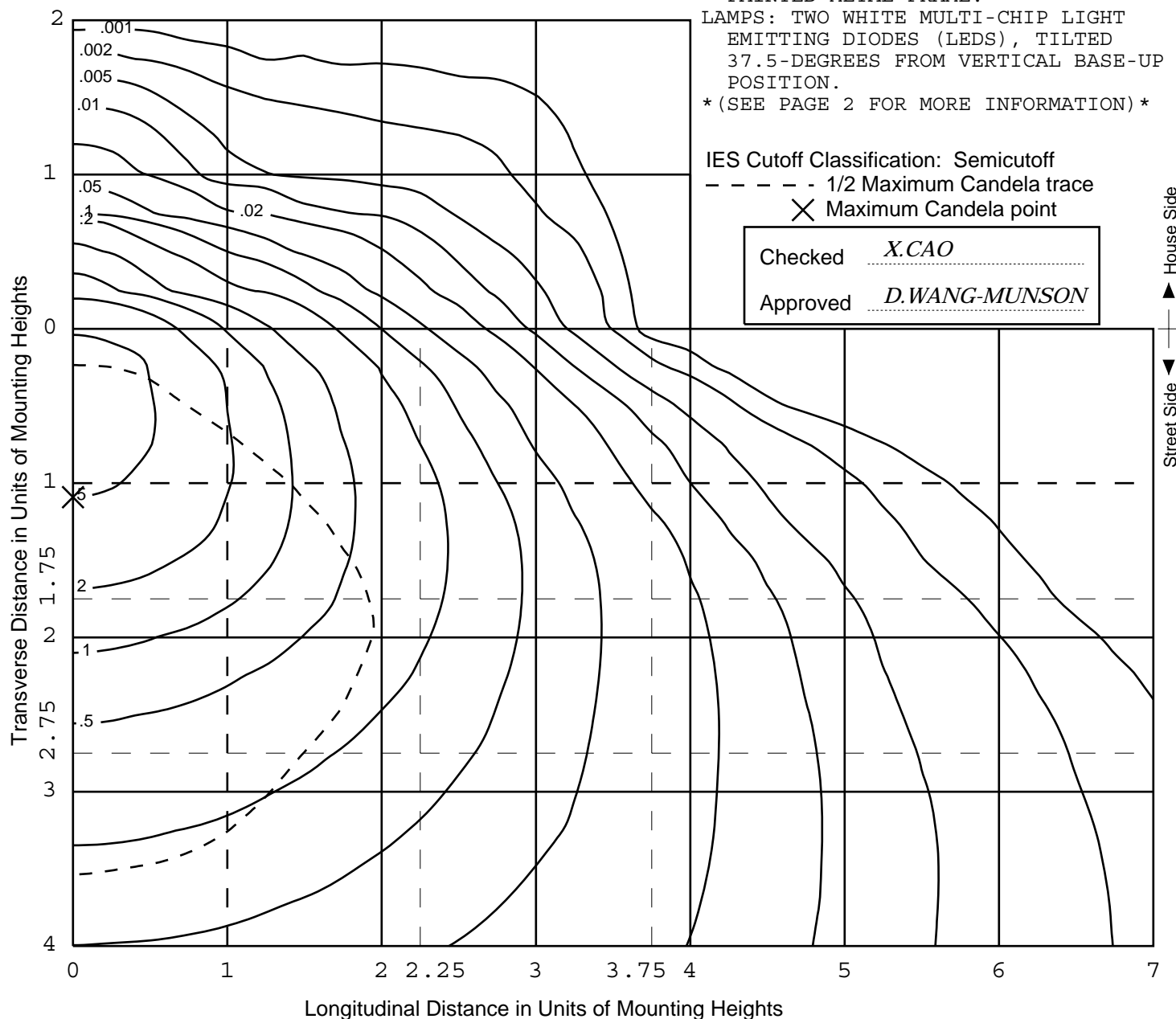
IES Cutoff Classification: Semicutoff

— — — — - 1/2 Maximum Candela trace

✕ Maximum Candela point

Checked X.CAO

Approved D. WANG-MUNSON



REPORT NUMBER: RAB02661  
ISSUE DATE: 11/07/16  
PREPARED FOR: RAB LIGHTING INC.

PAGE: 2 OF 9  
DATE SAMPLE TESTED: 11/07/16

ADDITIONAL INFORMATION

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS = 81.64 W AT 480.0 VAC.

LED DRIVER: RD-H100-A2000-480

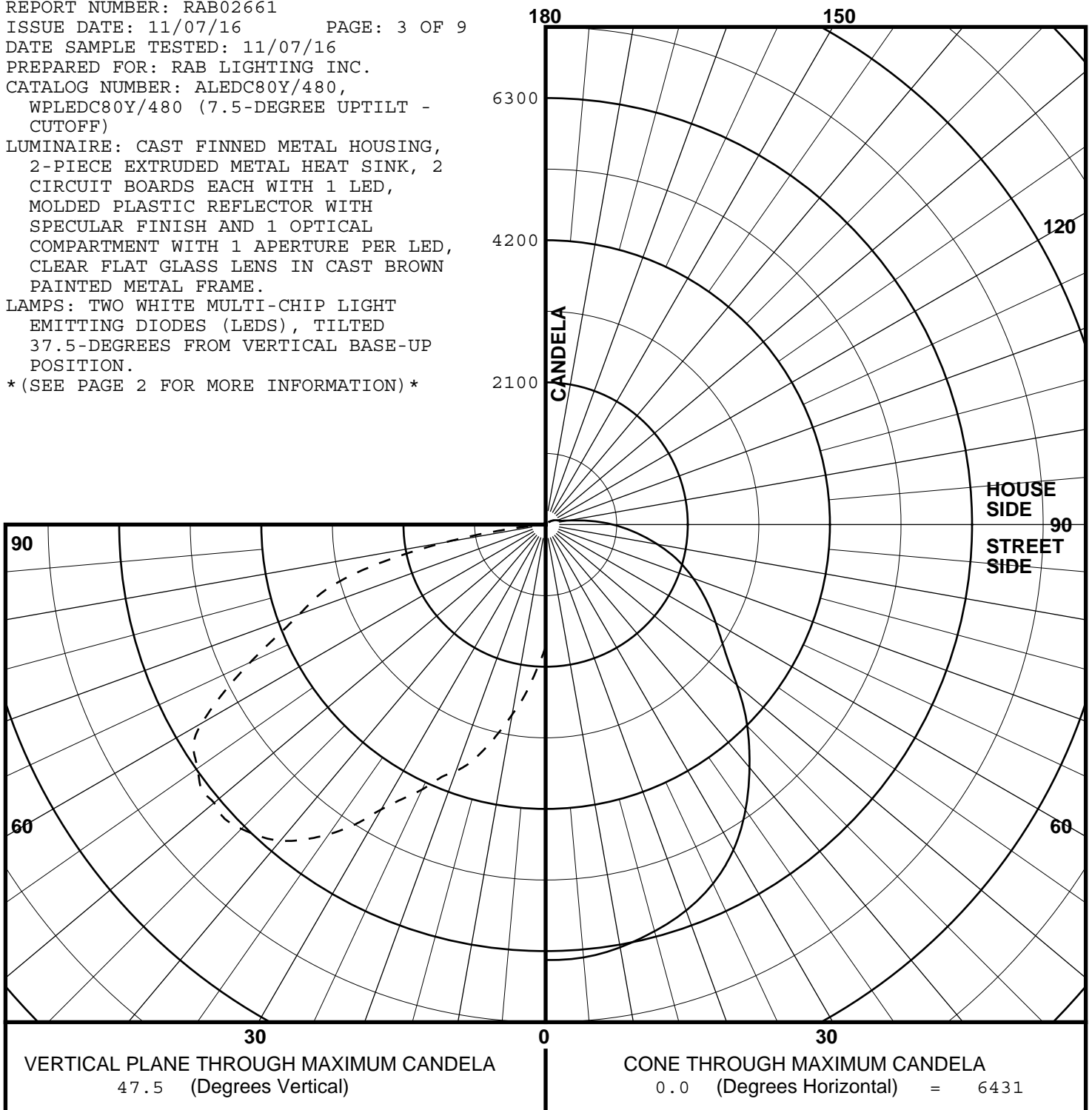
ACCREDITED LABORATORY CODE 201058-0

TEST PROCEDURE: IESNA LM-79-08

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.

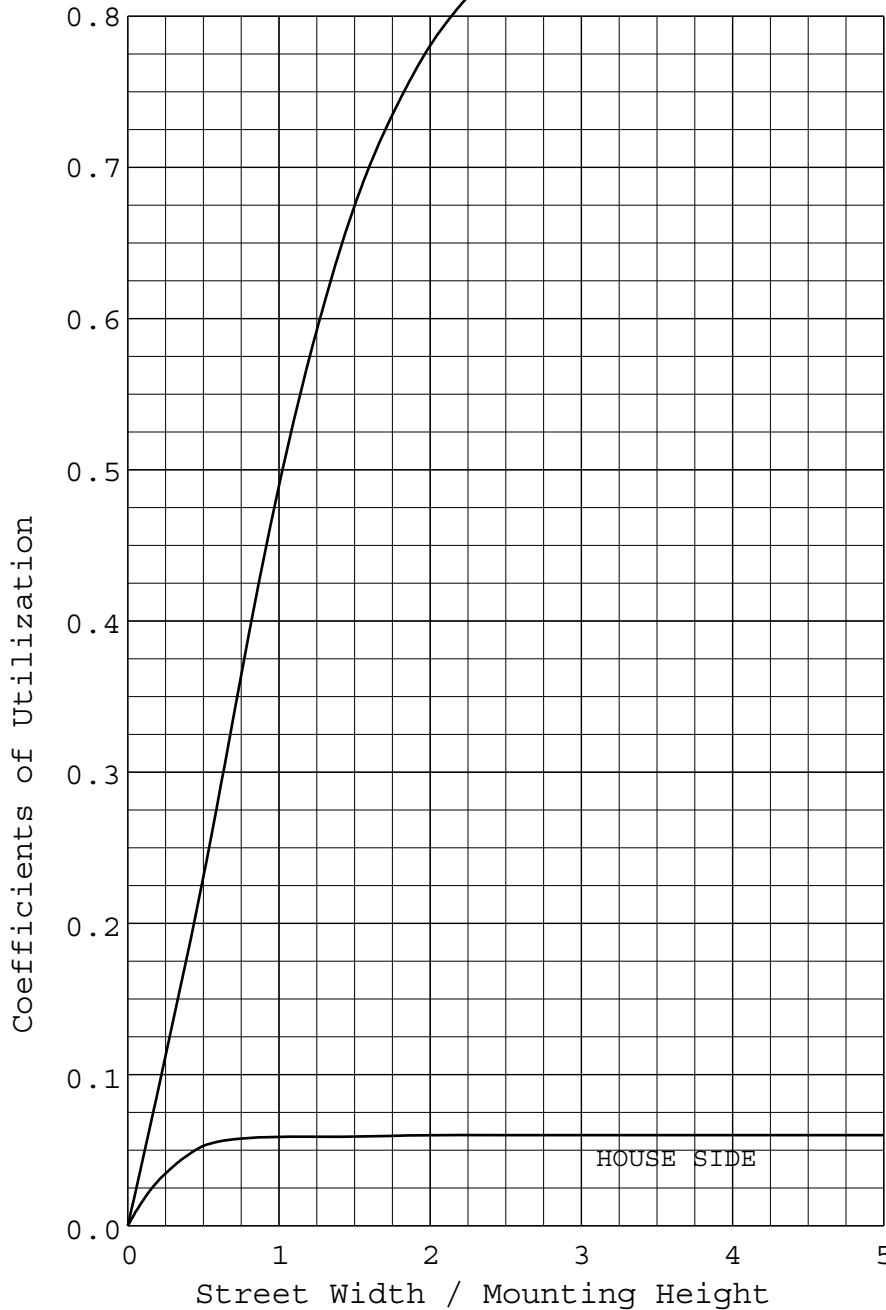
## MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

REPORT NUMBER: RAB02661  
 ISSUE DATE: 11/07/16 PAGE: 3 OF 9  
 DATE SAMPLE TESTED: 11/07/16  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: ALEDC80Y/480,  
 WPLEDC80Y/480 (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  
 37.5-DEGREES FROM VERTICAL BASE-UP  
 POSITION.  
 \*(SEE PAGE 2 FOR MORE INFORMATION)\*



REPORT NUMBER: RAB02661      STREET SIDE      PAGE: 4 OF 9  
 ISSUE DATE: 11/07/16      DATE SAMPLE TESTED: 11/07/16  
 PREPARED FOR: RAB LIGHTING INC.

## COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	8629.	93.9
DOWNWARD HOUSE SIDE	557.	6.1
DOWNWARD TOTAL	9187.	100.0
UPWARD STREET SIDE	1.	0.0
UPWARD HOUSE SIDE	1.	0.0
UPWARD TOTAL	2.	0.0
TOTAL FLUX	9188.	100.0
TOTAL INPUT WATTS = 81.6		
EFFICACY = 112.6 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: RAB02661  
 ISSUE DATE: 11/07/16  
 PREPARED FOR: RAB LIGHTING INC.

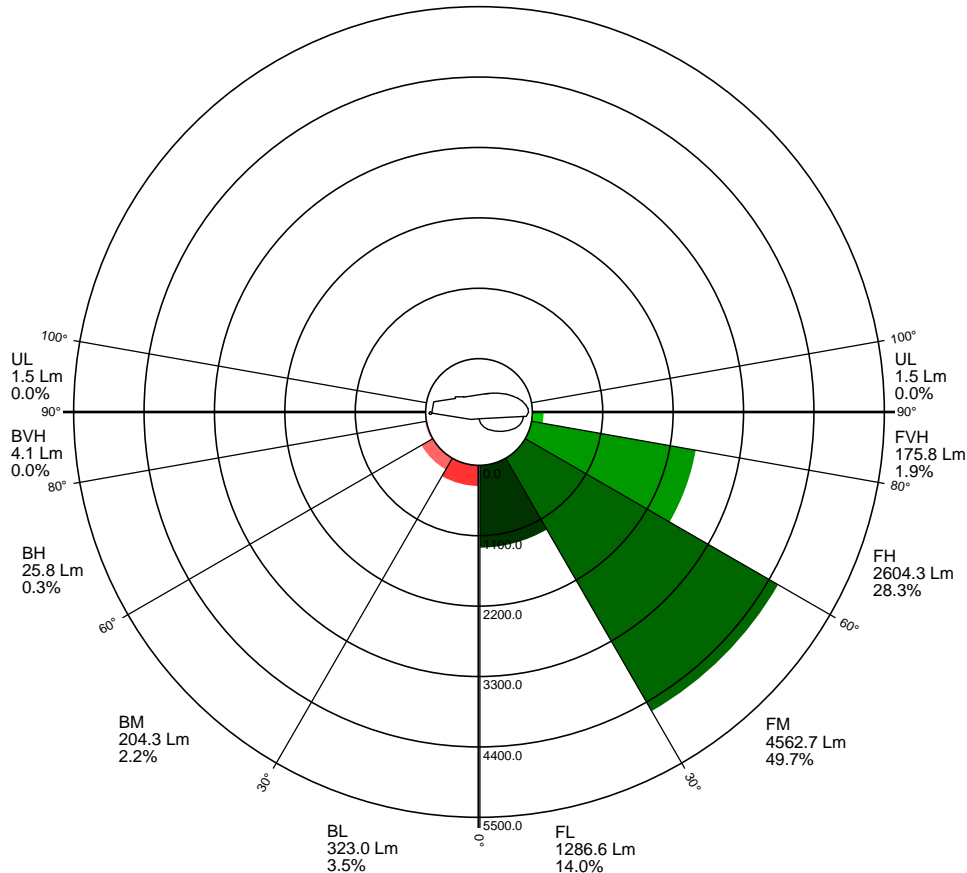
PAGE: 5 OF 9  
 DATE SAMPLE TESTED: 11/07/16

BUG Rating:				B1 U1 G2		
Zonal Summary				Zone Ratings		
		Lumens	% of Fixture	B	U	G
Forward		8629	93.9			
FL	(0° - 30°)	1286.6	14.0			
FM	(30° - 60°)	4562.7	49.7			
FH	(60° - 80°)	2604.3	28.3			G2
FVH	(80° - 90°)	175.8	1.9			G2
Backward		557	6.1			
BL	(0° - 30°)	323.0	3.5	B1		
BM	(30° - 60°)	204.3	2.2	B0		
BH	(60° - 80°)	25.8	0.3	B0		G0
BVH	(80° - 90°)	4.1	0.0			G0
Upward		2	0.0			
UL	(90° - 100°)	1.5	0.0		U1	
UH	(100° - 180°)	0.0	0.0		U0	
Trapped Light		0	0.0			
Total Flux		9188	100.0			

### Zonal Lumen Summary

(Linear scale)

UH  
0.0 Lm  
0.0%

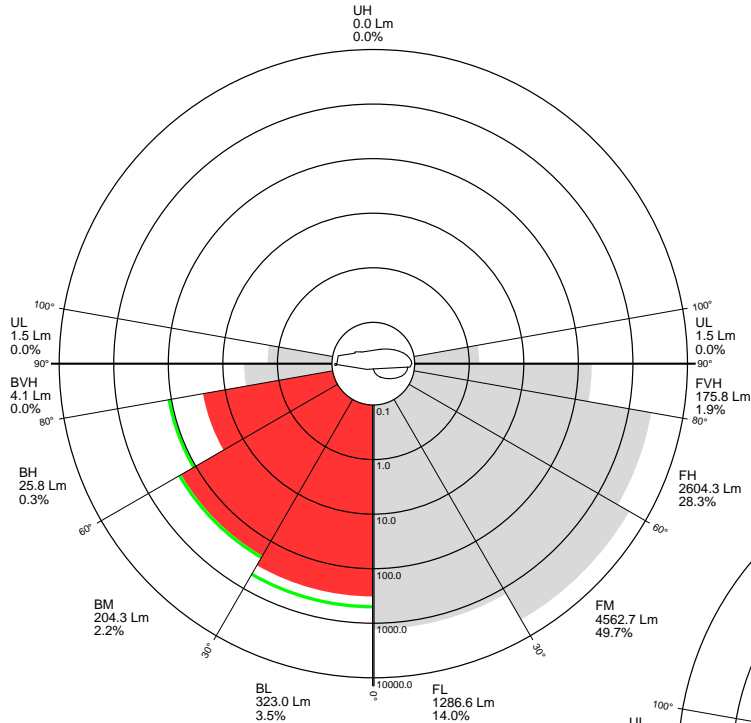


REPORT NUMBER: RAB02661  
ISSUE DATE: 11/07/16  
PREPARED FOR: RAB LIGHTING INC.

PAGE: 6 OF 9  
DATE SAMPLE TESTED: 11/07/16

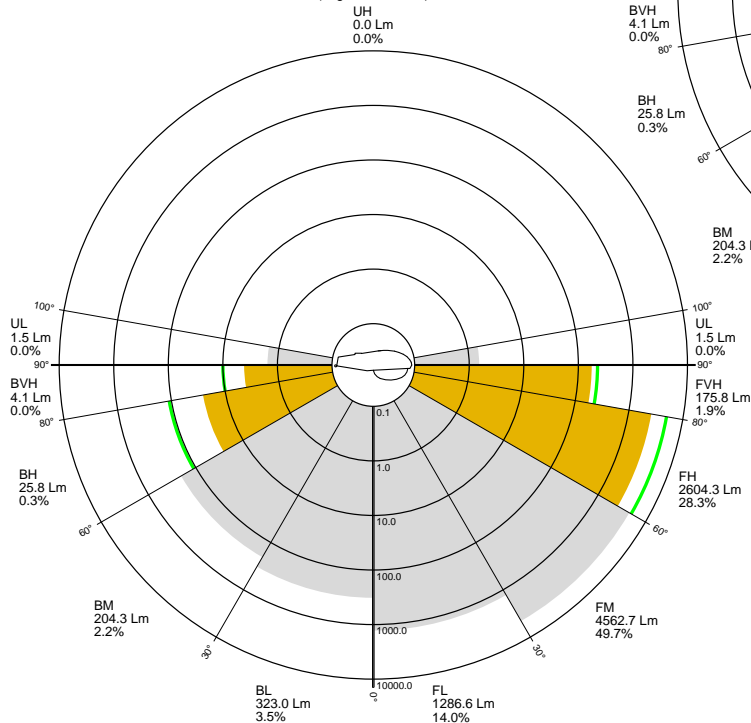
### Backlight Rating Details

(Logarithmic scale)



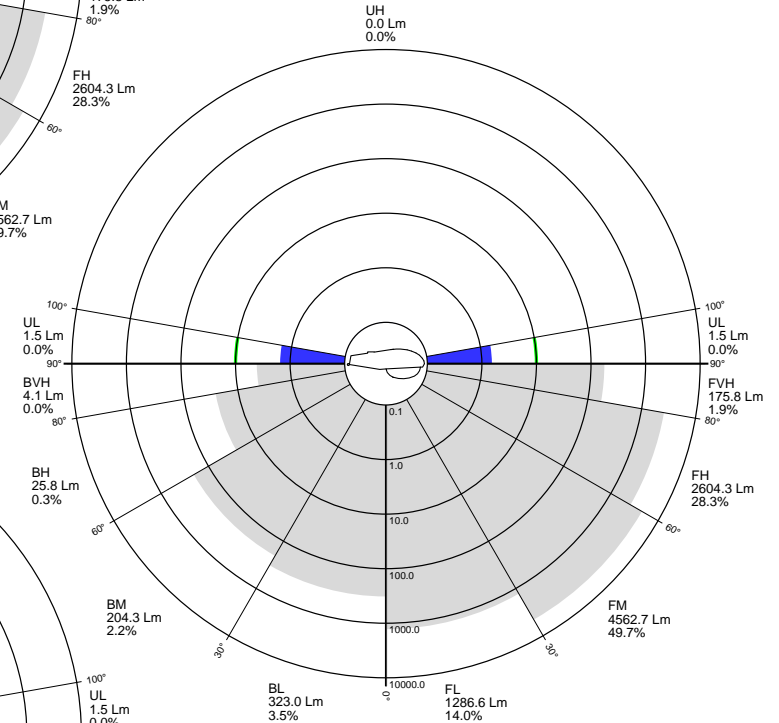
### Glare Rating Details

(Logarithmic scale)



### Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB02661  
 ISSUE DATE: 11/07/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 7 OF 9  
 DATE SAMPLE TESTED: 11/07/16

### 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.
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		22.	21.	20.	19.	13.	9.	9.	9.	10. 11.
87.5		80.	78.	78.	76.	52.	33.	29.	36.	10. 11.
85.0		179.	179.	203.	245.	277.	238.	206.	153.	37. 11.
V 82.5		695.	700.	770.	845.	907.	834.	513.	285.	76. 11.
E 80.0		1500.	1500.	1564.	1647.	1638.	1487.	927.	459.	152. 11.
R 77.5		2337.	2333.	2348.	2356.	2292.	2009.	1346.	794.	252. 17.
T 75.0		3064.	3056.	3031.	2933.	2705.	2369.	1779.	1167.	434. 74.
I 72.5		3542.	3532.	3428.	3237.	3071.	2791.	2188.	1480.	650. 195.
C 70.0		3871.	3864.	3762.	3621.	3507.	3230.	2541.	1725.	855. 360.
A 67.5		4286.	4276.	4185.	4090.	4040.	3626.	2750.	1920.	1042. 507.
L 65.0		4814.	4793.	4716.	4615.	4579.	3888.	2910.	2067.	1218. 656.
62.5		5358.	5297.	5237.	5143.	5001.	4073.	3040.	2170.	1400. 790.
A 60.0		5865.	5813.	5753.	5565.	5172.	4200.	3141.	2239.	1562. 907.
N 57.5		6170.	6142.	5995.	5738.	5286.	4278.	3204.	2293.	1701. 1005.
G 55.0		6276.	6249.	6159.	5911.	5303.	4310.	3252.	2338.	1817. 1100.
L 52.5		6413.	6395.	6245.	5947.	5301.	4299.	3266.	2410.	1907. 1186.
E 50.0		6394.	6389.	6259.	5944.	5240.	4272.	3255.	2505.	1970. 1262.
47.5<<		6431.	6418.	6218.	5851.	5147.	4214.	3225.	2611.	2018. 1330.
45.0		6356.	6336.	6129.	5696.	5050.	4125.	3205.	2733.	2068. 1395.
42.5		6246.	6218.	5989.	5524.	4903.	4011.	3242.	2825.	2125. 1457.
40.0		6097.	6057.	5817.	5343.	4725.	3876.	3298.	2892.	2179. 1531.
37.5		5865.	5835.	5566.	5129.	4559.	3828.	3356.	2924.	2227. 1605.
35.0		5585.	5557.	5317.	4895.	4367.	3831.	3400.	2919.	2270. 1673.
30.0		4860.	4851.	4692.	4426.	4120.	3762.	3381.	2862.	2316. 1800.
25.0		4318.	4305.	4222.	4045.	3870.	3591.	3203.	2737.	2320. 1867.
20.0		3880.	3876.	3888.	3763.	3565.	3265.	2940.	2602.	2265. 1904.
15.0		3413.	3427.	3417.	3283.	3101.	2898.	2685.	2455.	2179. 1903.
10.0		2851.	2885.	2873.	2782.	2666.	2566.	2423.	2257.	2080. 1886.
5.0		2313.	2333.	2344.	2302.	2213.	2180.	2109.	2034.	1939. 1842.
0.0		1809.	1809.	1809.	1809.	1809.	1809.	1809.	1809.	1809.

||  
 PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB02661  
 ISSUE DATE: 11/07/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 8 OF 9  
 DATE SAMPLE TESTED: 11/07/16

### 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	11.	11.	11.	11.	10.	9.	8.	7.	6.	6.	6.
87.5	11.	11.	11.	10.	9.	9.	7.	6.	5.	5.	5.
85.0	11.	11.	10.	10.	9.	8.	7.	5.	4.	4.	3.
V 82.5	10.	10.	10.	9.	8.	7.	6.	5.	3.	2.	2.
E 80.0	10.	10.	10.	9.	8.	7.	6.	4.	3.	1.	1.
R 77.5	11.	10.	11.	10.	7.	6.	5.	4.	2.	1.	0.
T 75.0	12.	10.	15.	14.	8.	6.	4.	3.	2.	0.	0.
I 72.5	76.	56.	24.	22.	9.	6.	4.	3.	1.	0.	0.
C 70.0	159.	90.	35.	23.	12.	6.	4.	3.	1.	0.	0.
A 67.5	260.	122.	57.	21.	13.	7.	5.	3.	2.	0.	0.
L 65.0	377.	173.	81.	21.	14.	9.	5.	4.	3.	1.	0.
62.5	485.	231.	107.	25.	14.	10.	7.	5.	4.	4.	4.
A 60.0	586.	293.	131.	33.	13.	11.	9.	9.	9.	8.	8.
N 57.5	677.	358.	151.	52.	16.	11.	12.	14.	16.	16.	15.
G 55.0	763.	426.	168.	81.	20.	13.	14.	18.	21.	21.	21.
L 52.5	848.	495.	186.	109.	30.	16.	17.	22.	26.	27.	27.
E 50.0	926.	564.	203.	131.	48.	23.	21.	24.	28.	31.	31.
47.5<<	993.	634.	216.	153.	81.	36.	26.	27.	29.	31.	32.
45.0	1052.	697.	233.	170.	115.	51.	36.	31.	32.	33.	33.
42.5	1113.	758.	256.	185.	141.	81.	48.	41.	36.	36.	36.
40.0	1185.	831.	299.	208.	162.	116.	69.	54.	53.	48.	48.
37.5	1268.	917.	364.	234.	184.	148.	110.	78.	64.	62.	62.
35.0	1349.	1012.	455.	267.	214.	184.	165.	138.	110.	89.	90.
30.0	1511.	1214.	682.	368.	325.	282.	272.	267.	257.	246.	248.
25.0	1624.	1384.	916.	557.	423.	409.	380.	382.	383.	379.	378.
20.0	1703.	1517.	1134.	818.	582.	491.	492.	493.	485.	479.	473.
15.0	1752.	1614.	1329.	1069.	866.	696.	603.	560.	542.	543.	543.
10.0	1780.	1686.	1509.	1332.	1162.	1070.	941.	874.	825.	806.	796.
5.0	1790.	1742.	1661.	1587.	1505.	1437.	1375.	1341.	1292.	1303.	1291.
0.0	1809.	1809.	1809.	1809.	1809.	1809.	1809.	1809.	1809.	1809.	1809.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB02661  
 ISSUE DATE: 11/07/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 9 OF 9  
 DATE SAMPLE TESTED: 11/07/16

### 5-DEGREE ZONAL LUMEN SUMMARY

0- 5	43
5- 10	129
10- 15	216
15- 20	310
20- 25	407
25- 30	503
30- 35	598
35- 40	690
40- 45	779
45- 50	858
50- 55	913
55- 60	929
60- 65	876
65- 70	750
70- 75	599
75- 80	406
80- 85	159
85- 90	21
90- 95	2
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	173
0- 20	699
0- 30	1610
0- 40	2898
0- 50	4535
0- 60	6377
0- 70	8002
0- 80	9007
0- 90	9187
0-100	9188
0-110	9188
0-120	9188
0-130	9188
0-140	9188
0-150	9188
0-160	9188
0-170	9188
0-180	9188

REPORT NUMBER: RAB02662  
DATE: 11/2/2016  
PREPARED FOR: RAB LIGHTING INC.  
CATALOG NUMBER: ALEDC80Y/480, WPLEDC80Y/480 (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 37.5-DEGREES FROM VERTICAL BASE-UP POSITION.

DRIVER: RD-H100-A2000-480

OBJECT OF TEST: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT THE RATED INPUT VOLTAGES (480.0 AND 347.0 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	9/16/17
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	9/16/17

OBJECT OF TEST: Measure the Absolute Flux in lumens\*, Total Radiant Flux\*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRI<sub>a</sub>,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 (347.0 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: RAB02662  
 DATE: 11/2/2016  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: ALEDC80Y/480, WPLEDC80Y/480 (7.5-DEGREE UPTILT - CUTOFF)

Page 2 of 4

### RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	9188 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4310
Chromaticity Ordinate y	0.4042
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2467
Chromaticity Ordinate v'	0.5205
Correlated Color Temp CCT (K)	3104
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	26029 *
ELECTRICAL	
Input Voltage (Volts AC)	480.0
Input Current (Amps AC)	0.190
Input Power (Watts)	81.6
Input Power Factor (%)	89.5
Input Current THD (%)	15.5
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	112.6
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	347.0
Input Current (Amps AC)	0.239
Input Power (Watts)	80.2
Input Power Factor (%)	96.6
Input Current THD (%)	12.8
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	53
R11 Strong green	60
R12 Strong blue	43
R13 Light yellowish pink (skin)	69
R14 Moderate olive green (leaf)	95

### \*NOTE:

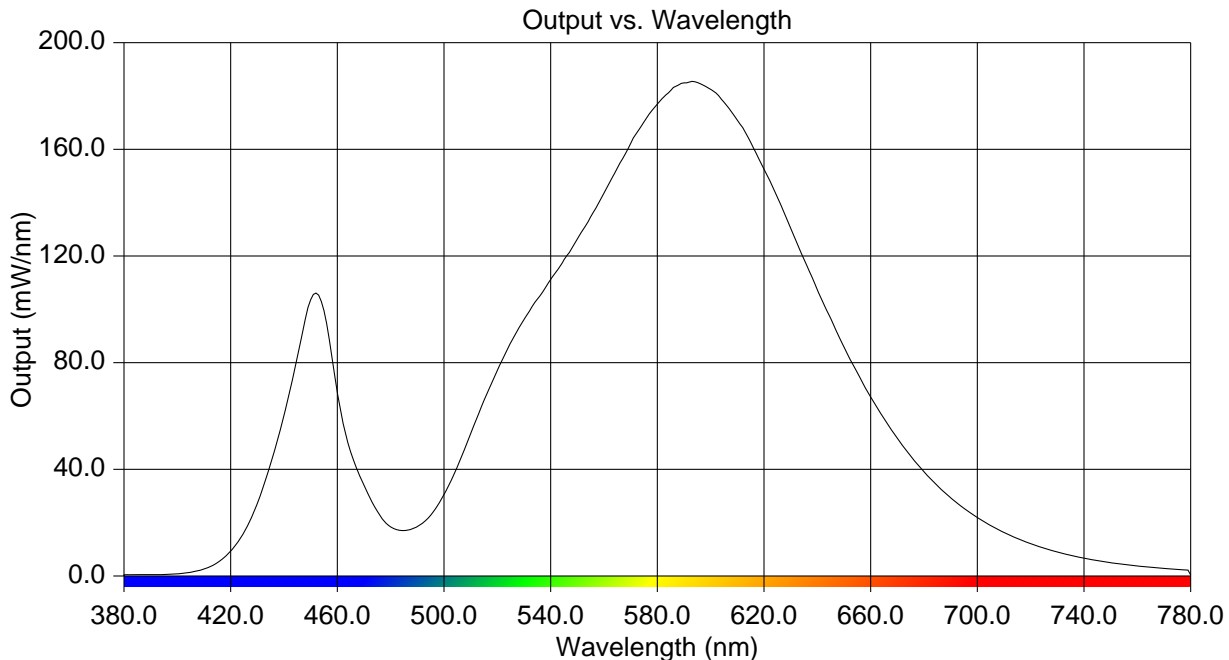
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even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

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 CATALOG NUMBER: ALEDC80Y/480, WPLEDC80Y/480 (7.5-DEGREE UPTILT - CUTOFF)

Page 3 of 4

### RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.436	515	65.854	650	85.831
385	0.454	520	77.031	655	76.264
390	0.474	525	87.519	660	67.152
395	0.590	530	96.151	665	59.027
400	0.807	535	103.806	670	51.707
405	1.390	540	111.147	675	44.909
410	2.593	545	118.596	680	39.041
415	4.986	550	126.381	685	33.920
420	9.318	555	134.699	690	29.329
425	16.375	560	143.661	695	25.366
430	27.201	565	152.979	700	21.938
435	42.160	570	162.196	705	18.927
440	60.009	575	170.287	710	16.355
445	82.405	580	176.989	715	14.059
450	103.590	585	182.034	720	12.105
455	99.472	590	184.919	725	10.427
460	68.991	595	185.069	730	8.999
465	46.495	600	182.445	735	7.763
470	34.017	605	177.563	740	6.655
475	24.275	610	170.766	745	5.770
480	18.419	615	162.658	750	5.017
485	17.023	620	152.555	755	4.319
490	18.529	625	142.017	760	3.774
495	22.776	630	130.486	765	3.256
500	30.539	635	118.848	770	2.831
505	40.962	640	107.361	775	2.464
510	53.363	645	96.629	780	0.374



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CATALOG NUMBER: ALED80Y/480, WPLED80Y/480 (7.5-DEGREE UPTILT - CUTOFF)

Page 4 of 4

## CIE Chromaticity Diagram

