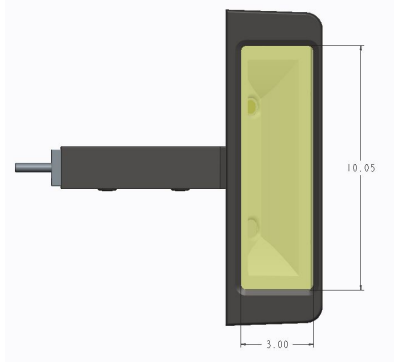


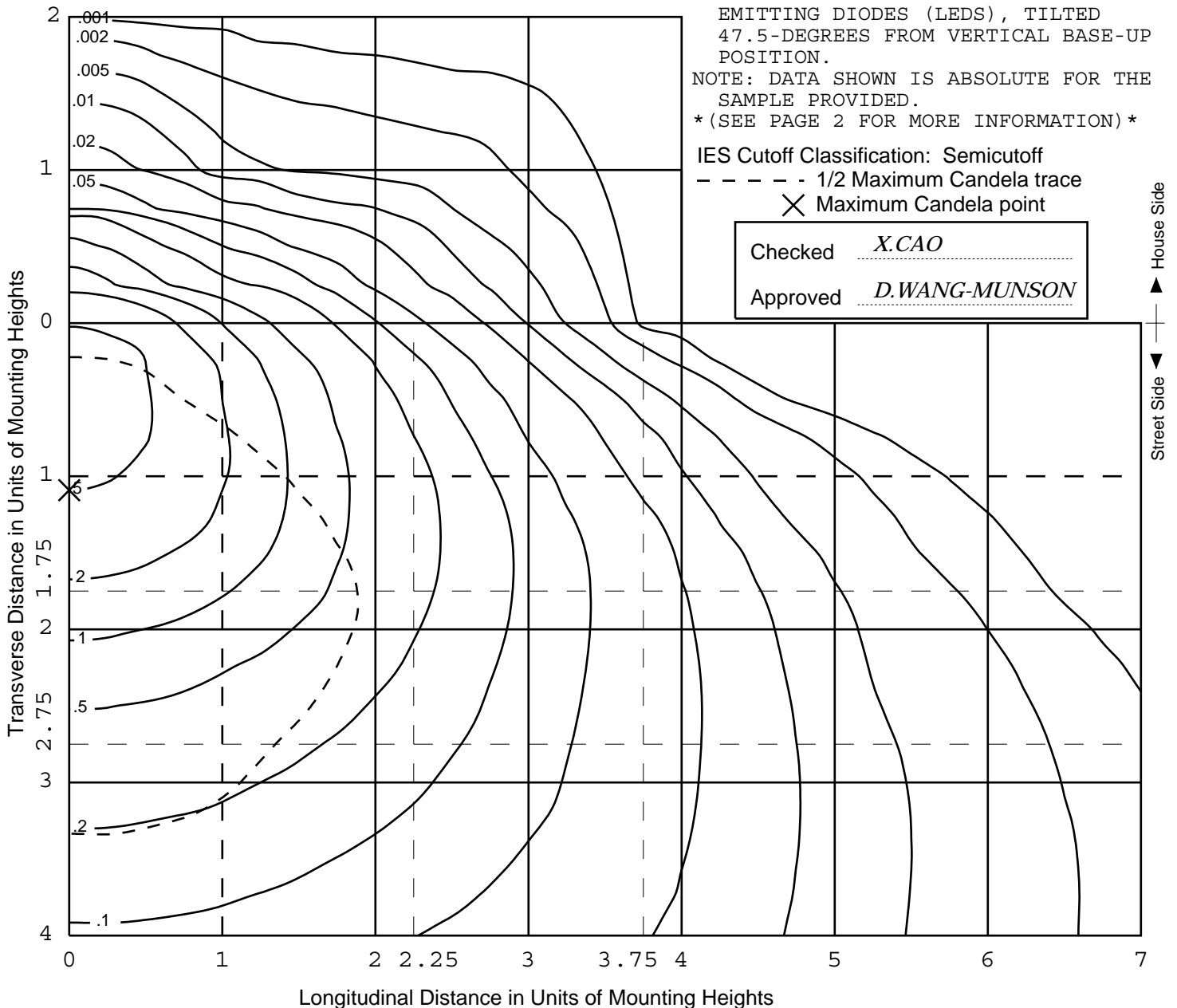
ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 20 foot mounting height.



REPORT NUMBER: RAB02589
 ISSUE DATE: 10/17/16 PAGE: 1 OF 9
 DATE SAMPLE TESTED: 10/17/16
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALEDC80Y/WPLEDC80Y
 (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: RAB02589
ISSUE DATE: 10/17/16
PREPARED FOR: RAB LIGHTING INC.

PAGE: 2 OF 9
DATE SAMPLE TESTED: 10/17/16

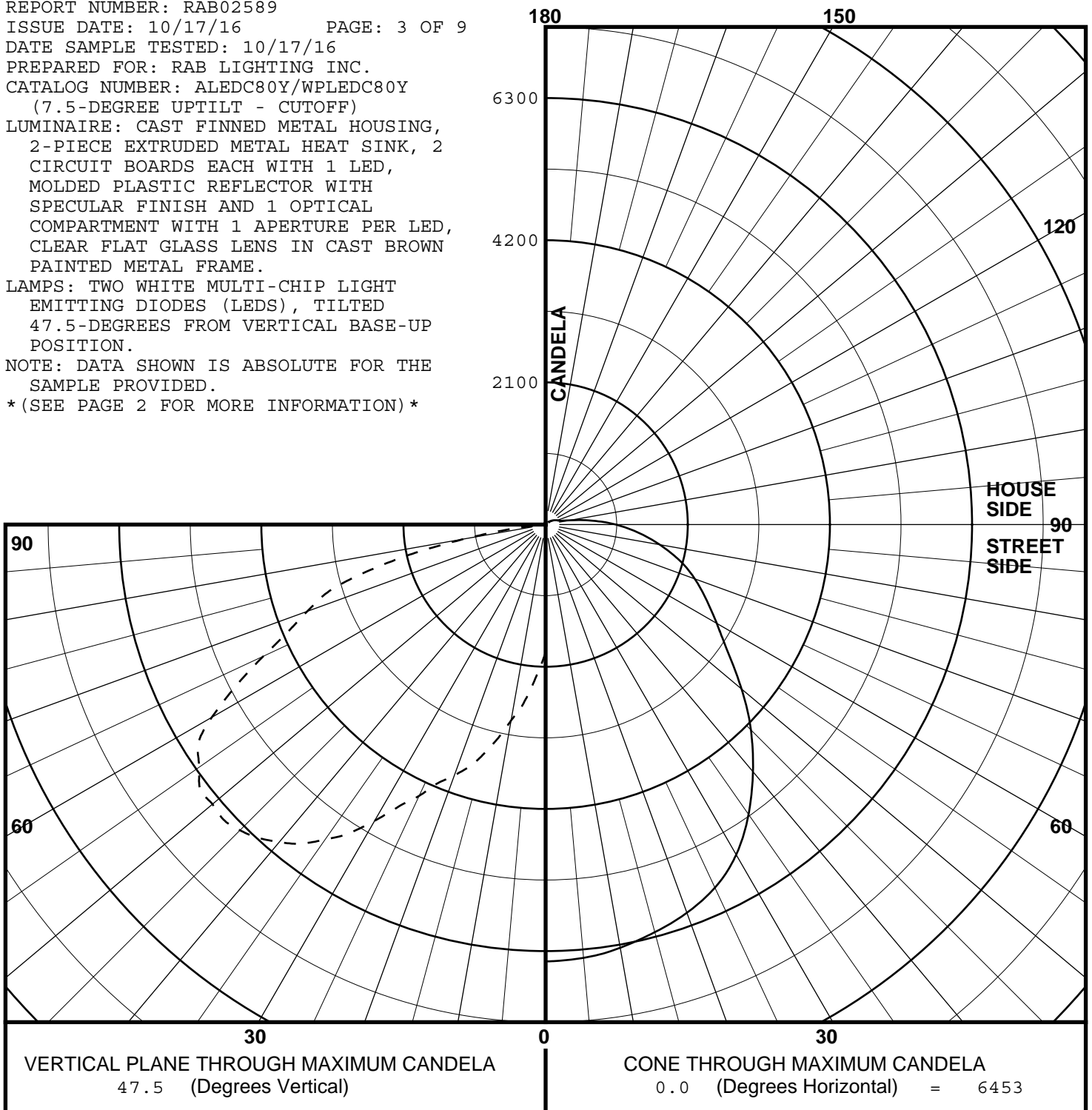
ADDITIONAL INFORMATION

TOTAL INPUT WATTS = 83.043 W AT 120.0 VAC.
LED DRIVER: RD-085-A2000
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.

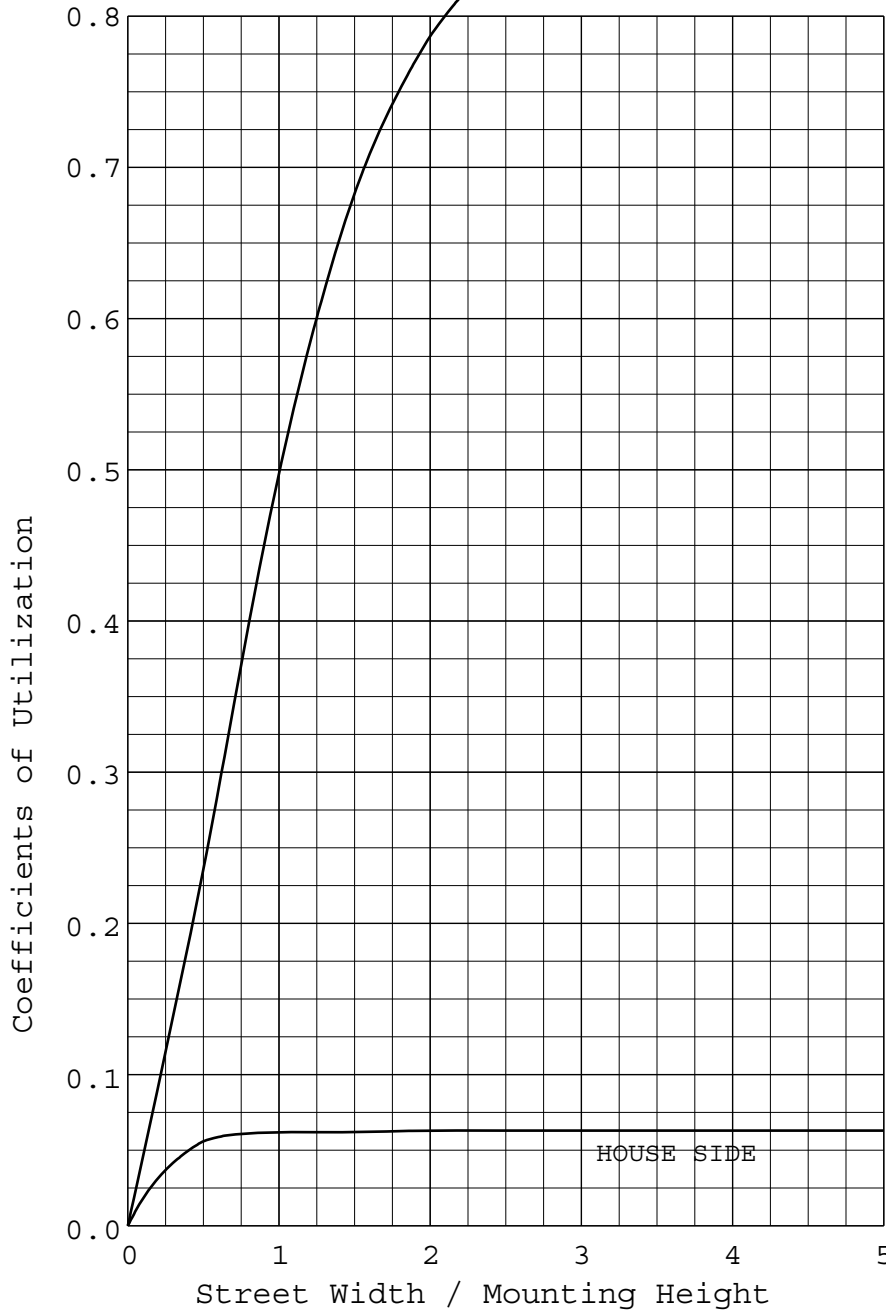
MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

REPORT NUMBER: RAB02589
 ISSUE DATE: 10/17/16 PAGE: 3 OF 9
 DATE SAMPLE TESTED: 10/17/16
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALEDC80Y/WPLEDC80Y
 (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: RAB02589 STREET SIDE PAGE: 4 OF 9
ISSUE DATE: 10/17/16 DATE SAMPLE TESTED: 10/17/16
PREPARED FOR: RAB LIGHTING INC.

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	8611.	93.6
DOWNWARD HOUSE SIDE	584.	6.4
DOWNWARD TOTAL	9195.	100.0
UPWARD STREET SIDE	1.	0.0
UPWARD HOUSE SIDE	1.	0.0
UPWARD TOTAL	1.	0.0
TOTAL FLUX	9197.	100.0
TOTAL INPUT WATTS = 83		
EFFICACY = 110.8 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: RAB02589
 ISSUE DATE: 10/17/16
 PREPARED FOR: RAB LIGHTING INC.

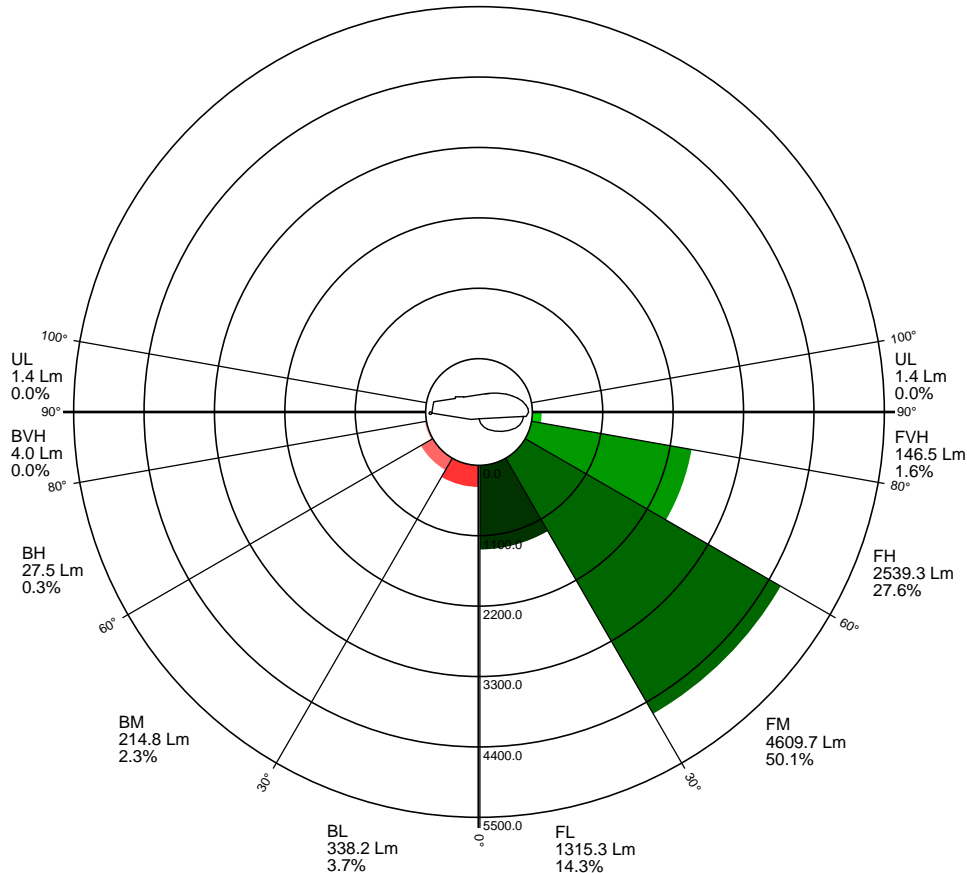
PAGE: 5 OF 9
 DATE SAMPLE TESTED: 10/17/16

BUG Rating:				B1 U1 G2		
Zonal Summary				Zone Ratings		
		Lumens	% of Fixture	B	U	G
Forward		8611	93.6			
FL	(0° - 30°)	1315.3	14.3			
FM	(30° - 60°)	4609.7	50.1			
FH	(60° - 80°)	2539.3	27.6			G2
FVH	(80° - 90°)	146.5	1.6			G2
Backward		584	6.4			
BL	(0° - 30°)	338.2	3.7	B1		
BM	(30° - 60°)	214.8	2.3	B0		
BH	(60° - 80°)	27.5	0.3	B0		G0
BVH	(80° - 90°)	4.0	0.0			G0
Upward		1	0.0			
UL	(90° - 100°)	1.4	0.0		U1	
UH	(100° - 180°)	0.0	0.0		U0	
Trapped Light		0	0.0			
Total Flux		9197	100.0			

Zonal Lumen Summary

(Linear scale)

UH
0.0 Lm
0.0%

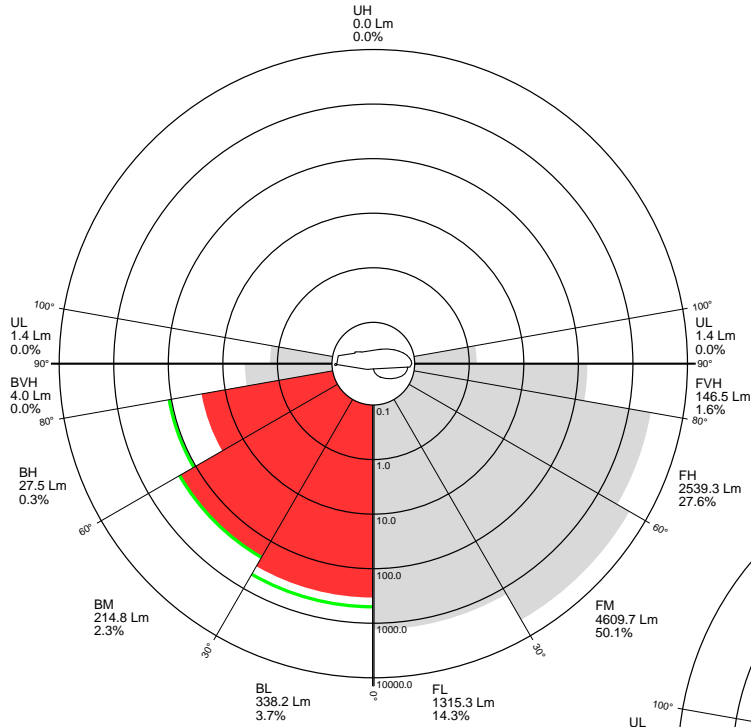


REPORT NUMBER: RAB02589
 ISSUE DATE: 10/17/16
 PREPARED FOR: RAB LIGHTING INC.

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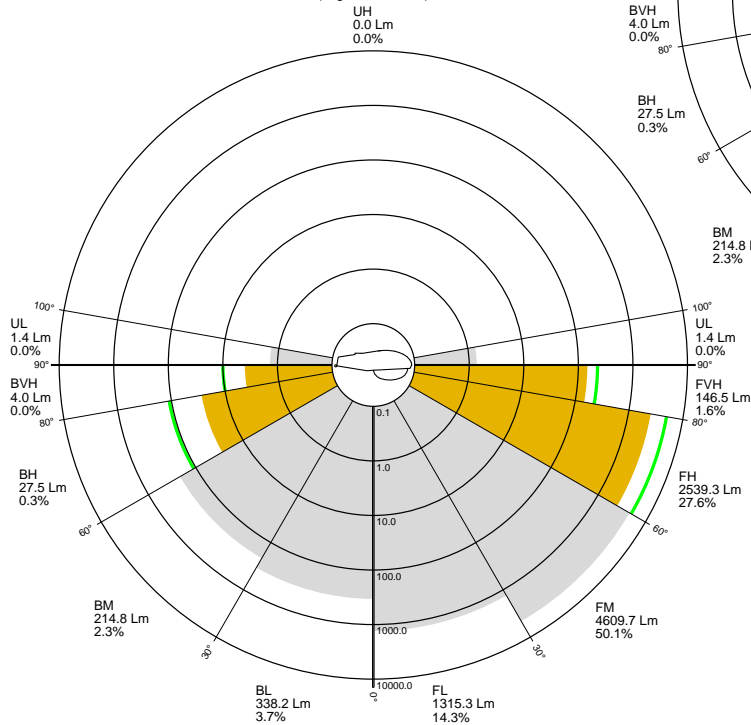
Backlight Rating Details

(Logarithmic scale)



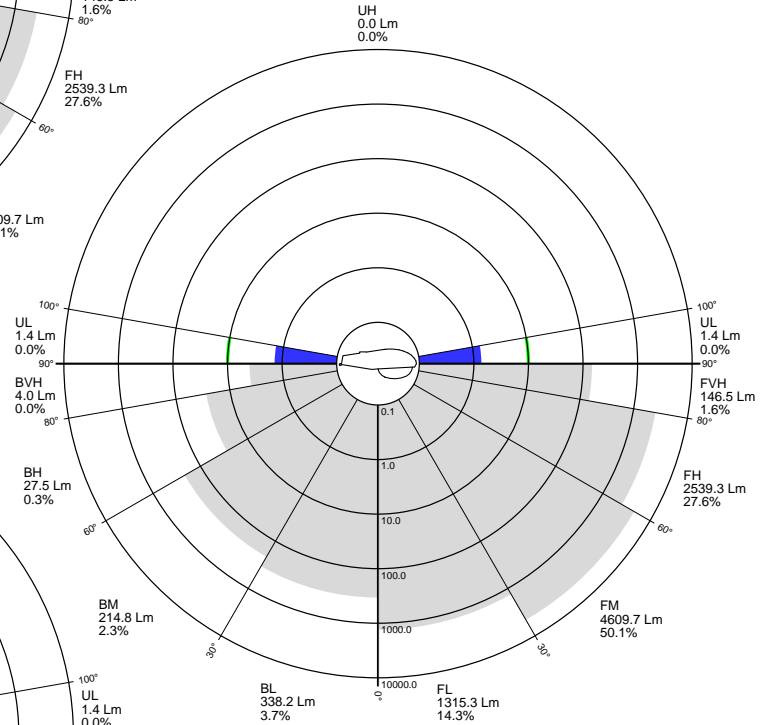
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB02589
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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.	16.	16.	12.	11.	9.	9.	10.	10. 11.
	87.5	50.	45.	48.	42.	43.	25.	23.	27.	11. 11.
	85.0	137.	133.	144.	152.	192.	176.	178.	135.	39. 11.
V	82.5	544.	523.	606.	655.	772.	689.	451.	273.	84. 12.
E	80.0	1213.	1266.	1361.	1422.	1459.	1334.	864.	427.	159. 14.
R	77.5	2055.	2094.	2156.	2154.	2168.	1909.	1271.	749.	264. 22.
T	75.0	2817.	2846.	2873.	2788.	2647.	2280.	1727.	1159.	453. 84.
I	72.5	3416.	3421.	3364.	3158.	2988.	2695.	2148.	1472.	673. 205.
C	70.0	3748.	3756.	3682.	3525.	3415.	3136.	2517.	1728.	878. 370.
A	67.5	4108.	4126.	4084.	3968.	3949.	3577.	2740.	1930.	1062. 525.
L	65.0	4601.	4611.	4589.	4491.	4470.	3897.	2911.	2085.	1232. 667.
	62.5	5154.	5152.	5108.	5030.	4965.	4090.	3053.	2197.	1417. 807.
A	60.0	5695.	5694.	5634.	5518.	5148.	4232.	3165.	2276.	1585. 929.
N	57.5	6093.	6098.	5963.	5733.	5311.	4318.	3243.	2335.	1712. 1032.
G	55.0	6246.	6218.	6076.	5929.	5351.	4365.	3290.	2371.	1826. 1124.
L	52.5	6432.	6390.	6248.	5984.	5358.	4363.	3318.	2415.	1918. 1216.
E	50.0	6425.	6390.	6256.	5991.	5320.	4334.	3316.	2511.	1991. 1300.
	47.5<<	6453.	6425.	6233.	5918.	5227.	4289.	3290.	2619.	2052. 1375.
	45.0	6387.	6361.	6158.	5774.	5130.	4201.	3250.	2736.	2110. 1446.
	42.5	6278.	6253.	6037.	5599.	4984.	4086.	3264.	2837.	2178. 1513.
	40.0	6120.	6103.	5868.	5420.	4822.	3965.	3318.	2919.	2241. 1588.
	37.5	5942.	5910.	5655.	5210.	4659.	3893.	3383.	2968.	2290. 1664.
	35.0	5680.	5658.	5403.	5001.	4458.	3886.	3433.	2974.	2334. 1736.
	30.0	5051.	5010.	4774.	4500.	4185.	3812.	3438.	2937.	2385. 1863.
	25.0	4421.	4403.	4259.	4092.	3904.	3651.	3278.	2817.	2386. 1934.
	20.0	3941.	3934.	3869.	3794.	3639.	3356.	3029.	2673.	2342. 1973.
	15.0	3498.	3503.	3462.	3354.	3203.	2971.	2754.	2513.	2254. 1977.
	10.0	2938.	2943.	2933.	2859.	2760.	2618.	2487.	2323.	2151. 1962.
	5.0	2419.	2406.	2409.	2364.	2336.	2247.	2186.	2109.	2047. 1928.
	0.0	1889.	1889.	1889.	1889.	1889.	1889.	1889.	1889.	1889. 1889.

||
 PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB02589
 ISSUE DATE: 10/17/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 8 OF 9
 DATE SAMPLE TESTED: 10/17/16

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.	10.	10.	9.	8.	6.	6.	5.	5.
87.5	11.	11.	11.	10.	9.	8.	7.	6.	5.	4.	4.
85.0	11.	11.	10.	9.	9.	8.	6.	5.	4.	3.	3.
V 82.5	11.	11.	10.	9.	8.	7.	6.	4.	3.	1.	1.
E 80.0	12.	11.	10.	9.	8.	7.	5.	4.	2.	1.	0.
R 77.5	13.	11.	13.	11.	8.	6.	5.	3.	2.	0.	0.
T 75.0	18.	13.	19.	17.	8.	6.	5.	3.	2.	0.	0.
I 72.5	86.	59.	26.	22.	10.	6.	4.	3.	1.	0.	0.
C 70.0	178.	94.	38.	22.	12.	7.	5.	3.	1.	0.	0.
A 67.5	277.	127.	65.	21.	13.	8.	5.	4.	2.	0.	0.
L 65.0	397.	176.	90.	22.	14.	9.	6.	5.	3.	2.	2.
62.5	511.	244.	115.	27.	14.	10.	8.	6.	5.	5.	5.
A 60.0	616.	311.	136.	35.	14.	11.	9.	10.	11.	10.	10.
N 57.5	709.	381.	154.	59.	17.	12.	13.	14.	17.	17.	16.
G 55.0	798.	451.	170.	87.	23.	14.	15.	19.	21.	21.	21.
L 52.5	884.	525.	186.	112.	32.	17.	18.	22.	25.	26.	27.
E 50.0	966.	601.	200.	134.	55.	26.	22.	24.	27.	29.	29.
47.5<<	1039.	675.	214.	154.	88.	38.	27.	27.	28.	30.	30.
45.0	1105.	746.	236.	170.	119.	56.	39.	31.	31.	32.	32.
42.5	1171.	811.	270.	185.	142.	88.	50.	44.	37.	36.	35.
40.0	1249.	893.	327.	212.	162.	122.	77.	56.	53.	51.	50.
37.5	1334.	987.	407.	233.	185.	151.	118.	87.	70.	64.	62.
35.0	1422.	1088.	506.	266.	216.	187.	169.	147.	123.	106.	101.
30.0	1586.	1295.	748.	388.	325.	282.	273.	267.	264.	258.	259.
25.0	1701.	1463.	983.	606.	426.	405.	379.	377.	384.	384.	383.
20.0	1782.	1592.	1210.	881.	627.	499.	478.	485.	486.	489.	483.
15.0	1831.	1688.	1404.	1144.	929.	752.	630.	573.	551.	546.	544.
10.0	1859.	1761.	1586.	1416.	1254.	1118.	1011.	940.	889.	871.	858.
5.0	1875.	1829.	1739.	1668.	1600.	1531.	1457.	1424.	1392.	1353.	1370.
0.0	1889.	1889.	1889.	1889.	1889.	1889.	1889.	1889.	1889.	1889.	1889.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB02589
 ISSUE DATE: 10/17/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 9 OF 9
 DATE SAMPLE TESTED: 10/17/16

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	45
5- 10	135
10- 15	224
15- 20	319
20- 25	416
25- 30	514
30- 35	612
35- 40	704
40- 45	791
45- 50	868
50- 55	920
55- 60	931
60- 65	867
65- 70	737
70- 75	584
75- 80	378
80- 85	134
85- 90	16
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	180
0- 20	723
0- 30	1654
0- 40	2969
0- 50	4628
0- 60	6478
0- 70	8082
0- 80	9045
0- 90	9195
0-100	9197
0-110	9197
0-120	9197
0-130	9197
0-140	9197
0-150	9197
0-160	9197
0-170	9197
0-180	9197

REPORT NUMBER: RAB02590
DATE: 10/18/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: ALED80Y/WPLEDC80Y (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-085-A2000

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	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 X.CAO

Approved D.WANG-MUNSON
Lighting Engineer

REPORT NUMBER: RAB02590
 DATE: 10/18/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALED80Y/WPLEDC80Y (7.5-DEGREE UPTILT - CUTOFF)

Page 2 of 4

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	9197 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4312
Chromaticity Ordinate y	0.4042
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2469
Chromaticity Ordinate v'	0.5206
Correlated Color Temp CCT (K)	3099
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	26062 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.695
Input Power (Watts)	83.0
Input Power Factor (%)	99.6
Input Current THD (%)	5.4
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	110.8
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.314
Input Power (Watts)	81.1
Input Power Factor (%)	93.2
Input Current THD (%)	12.1
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:

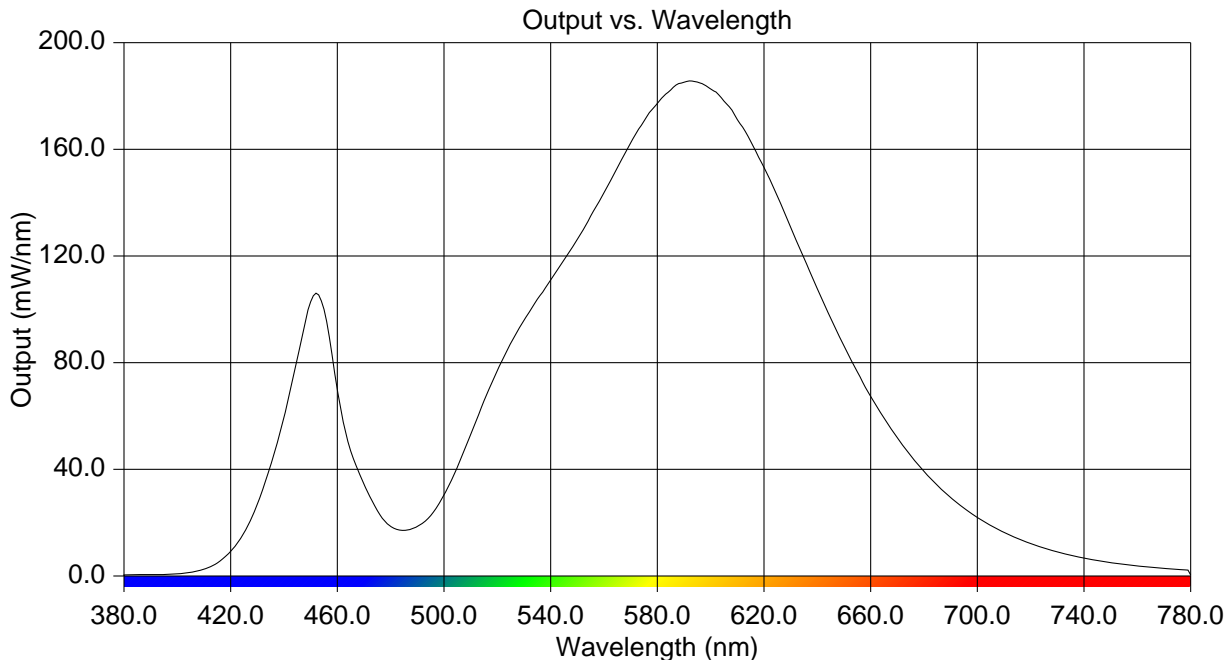
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even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

REPORT NUMBER: RAB02590
 DATE: 10/18/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: ALEDC80Y/WPLEDC80Y (7.5-DEGREE UPTILT - CUTOFF)

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.397	515	65.685	650	86.213
385	0.444	520	77.108	655	76.561
390	0.488	525	87.228	660	67.467
395	0.599	530	95.977	665	59.210
400	0.816	535	103.786	670	51.764
405	1.354	540	111.141	675	45.168
410	2.525	545	118.515	680	39.176
415	4.881	550	126.146	685	34.034
420	9.189	555	134.976	690	29.430
425	16.174	560	143.616	695	25.448
430	26.856	565	152.957	700	21.959
435	41.654	570	162.453	705	18.951
440	59.516	575	170.582	710	16.344
445	81.740	580	177.251	715	14.099
450	102.855	585	182.230	720	12.168
455	100.017	590	185.157	725	10.470
460	69.875	595	185.231	730	9.007
465	46.898	600	182.599	735	7.808
470	34.409	605	178.077	740	6.686
475	24.541	610	171.149	745	5.800
480	18.565	615	163.012	750	5.023
485	17.147	620	153.223	755	4.345
490	18.562	625	142.468	760	3.781
495	22.630	630	130.871	765	3.279
500	30.420	635	119.299	770	2.847
505	40.754	640	107.517	775	2.466
510	53.137	645	96.789	780	0.373



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CIE Chromaticity Diagram

