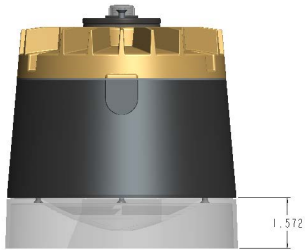


ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 25 foot mounting height.

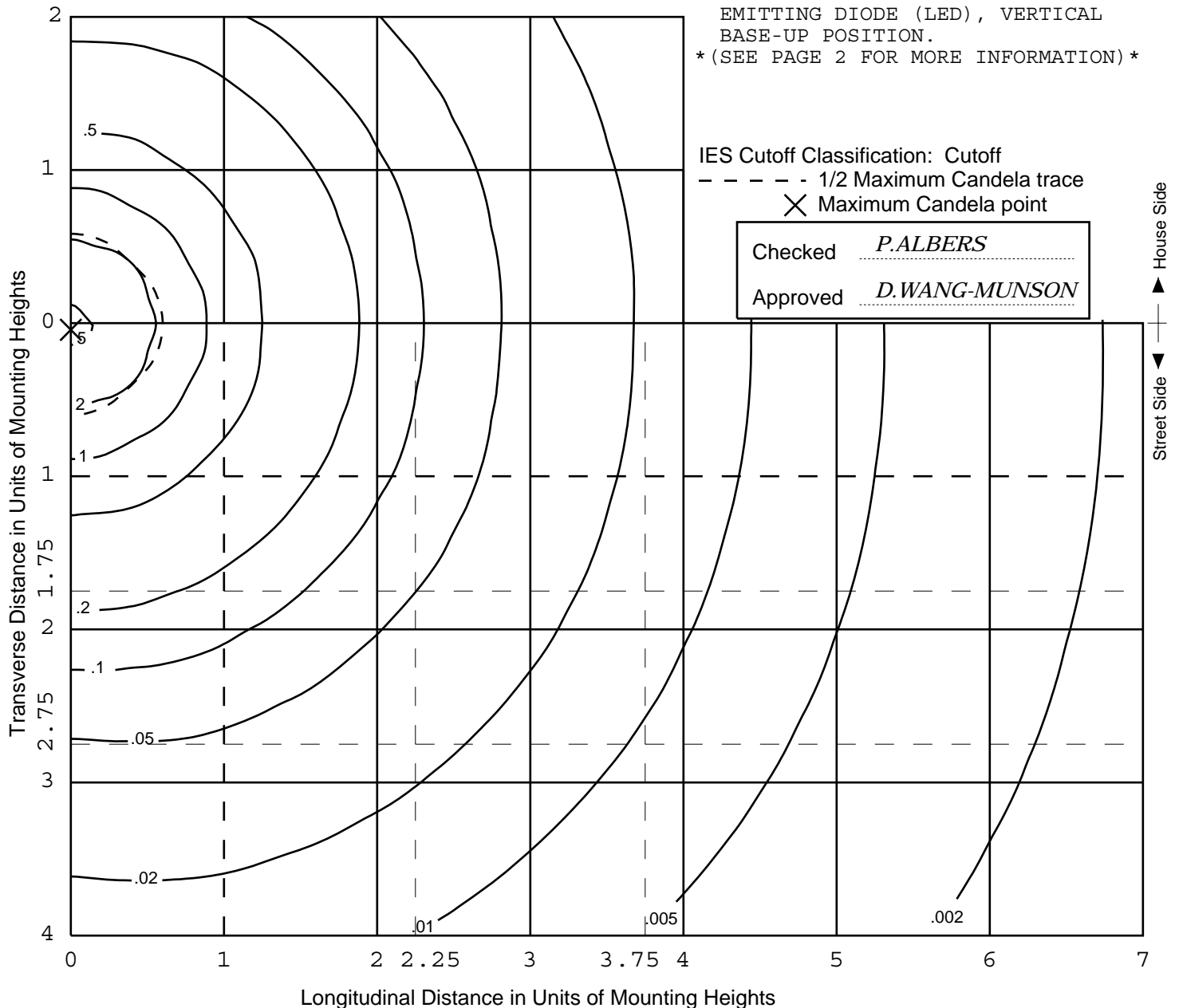


REPORT NUMBER: RAB04236
ISSUE DATE: 04/04/18 PAGE: 1 OF 9
DATE SAMPLE TESTED: 04/04/18
CATALOG NUMBER:
YBLED60N/D10/PCU-YBLED60N/ARM/D10/PCU
(TYPE V)

LUMINAIRE: CAST FINNED METAL HOUSING
WITH WHITE PAINTED INTERIOR, 1
CIRCUIT BOARD WITH 1 LED WITH MOLDED
WHITE PLASTIC TRIM, CLEAR INTERIOR
FROSTED CYLINDRICAL LENS WITH
RECESSED EXTERIOR-FROSTED CONVEX
CENTER. CONVEX CENTER HAS CONCENTRIC
CIRCULAR EXTERIOR PRISMS.

LAMP: ONE WHITE MULTI-CHIP LIGHT
EMITTING DIODE (LED), VERTICAL
BASE-UP POSITION.

*(SEE PAGE 2 FOR MORE INFORMATION) *



REPORT NUMBER: RAB04236

PAGE: 2 OF 9

ISSUE DATE: 04/04/18

DATE SAMPLE TESTED: 04/04/18

CATALOG NUMBER: YBLED60N/D10/PCU-YBLED60N/ARM/D10/PCU (TYPE V)

ADDITIONAL INFORMATION

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 = 55.703 W AT 277.0 VAC.

LED DRIVER: RDD-060-A1800-095C

TEST PROCEDURE: IESNA LM-79-08

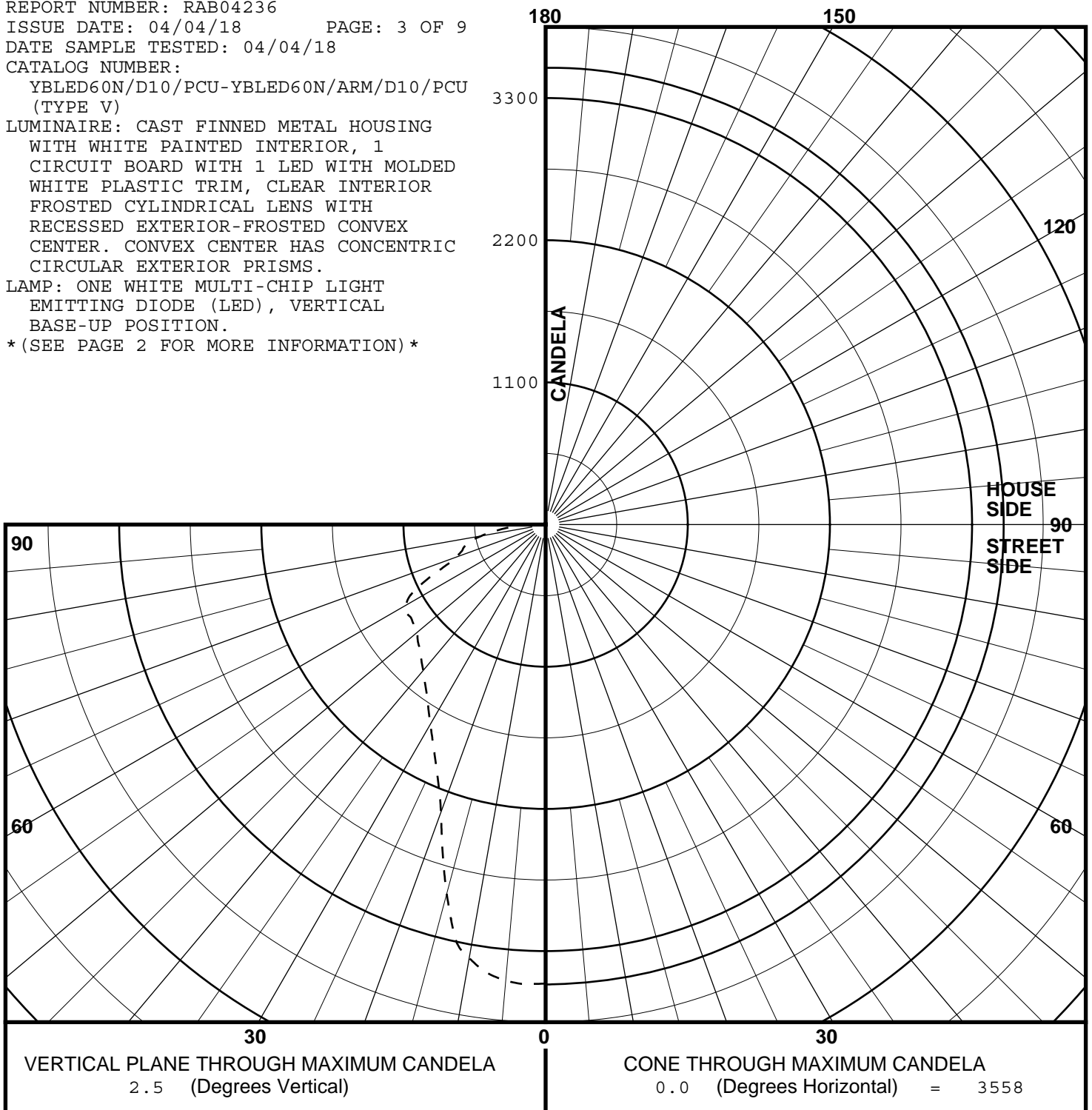
LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE

AMBIENT: 25.0

ACCREDITED LABORATORY CODE 201058-0

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

REPORT NUMBER: RAB04236
 ISSUE DATE: 04/04/18 PAGE: 3 OF 9
 DATE SAMPLE TESTED: 04/04/18
 CATALOG NUMBER:
 YBLED60N/D10/PCU-YBLED60N/ARM/D10/PCU
 (TYPE V)
 LUMINAIRE: CAST FINNED METAL HOUSING
 WITH WHITE PAINTED INTERIOR, 1
 CIRCUIT BOARD WITH 1 LED WITH MOLDED
 WHITE PLASTIC TRIM, CLEAR INTERIOR
 FROSTED CYLINDRICAL LENS WITH
 RECESSED EXTERIOR-FROSTED CONVEX
 CENTER. CONVEX CENTER HAS CONCENTRIC
 CIRCULAR EXTERIOR PRISMS.
 LAMP: ONE WHITE MULTI-CHIP LIGHT
 EMITTING DIODE (LED), VERTICAL
 BASE-UP POSITION.
 (SEE PAGE 2 FOR MORE INFORMATION)



REPORT NUMBER: RAB04236

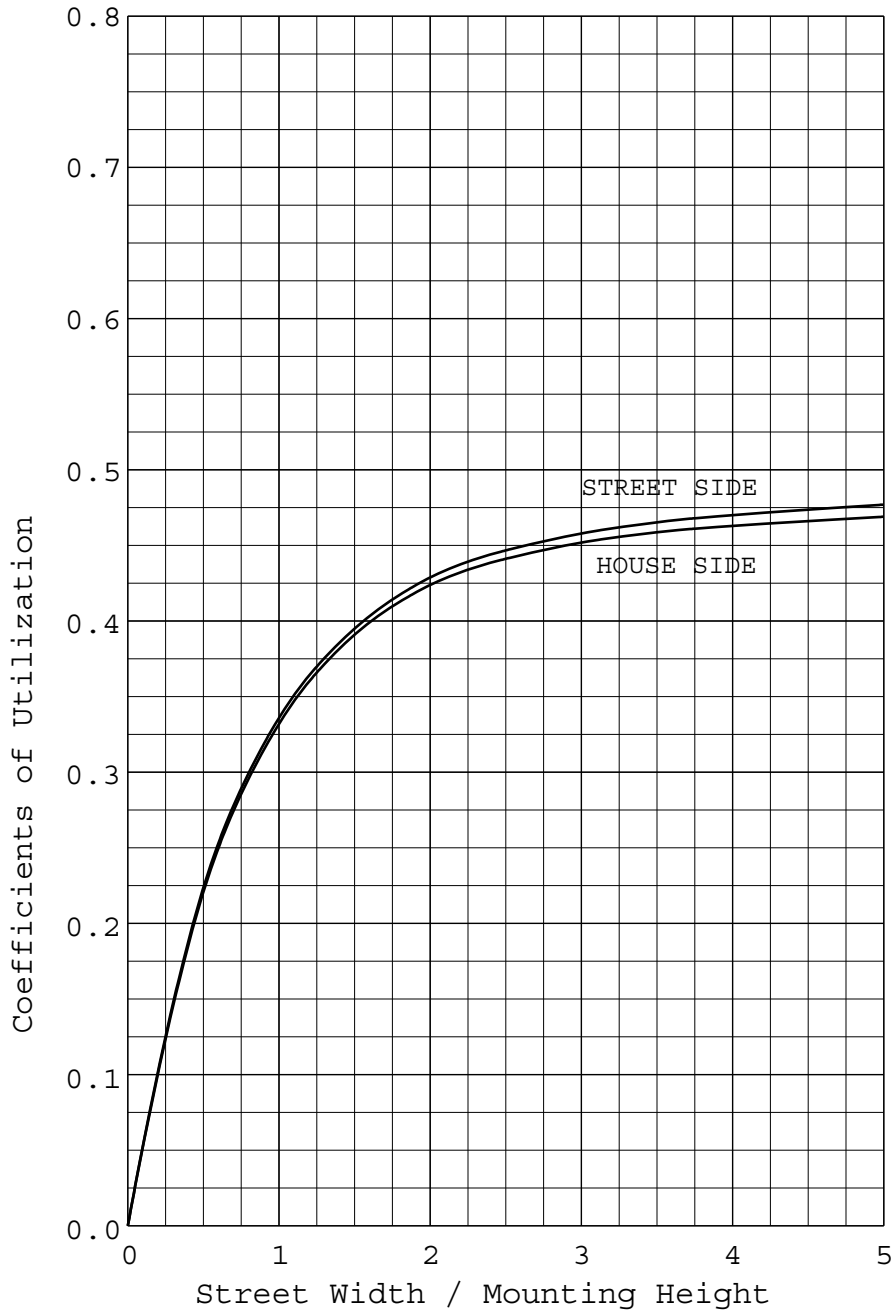
PAGE: 4 OF 9

ISSUE DATE: 04/04/18

DATE SAMPLE TESTED: 04/04/18

CATALOG NUMBER: YBLED60N/D10/PCU-YBLED60N/ARM/D10/PCU (TYPE V)

COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	3712.	49.2
DOWNWARD HOUSE SIDE	3646.	48.4
DOWNWARD TOTAL	7357.	97.6
UPWARD STREET SIDE	97.	1.3
UPWARD HOUSE SIDE	83.	1.1
UPWARD TOTAL	180.	2.4
TOTAL FLUX	7537.	100.0

TOTAL INPUT WATTS = 55.7
EFFICACY = 135.3 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: RAB04236

ISSUE DATE: 04/04/18

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DATE SAMPLE TESTED: 04/04/18

CATALOG NUMBER: YBLED60N/D10/PCU-YBLED60N/ARM/D10/PCU (TYPE V)

BUG Rating:

Zonal Summary

Lumens

% of Fixture

B3 U3 G2

Zone Ratings

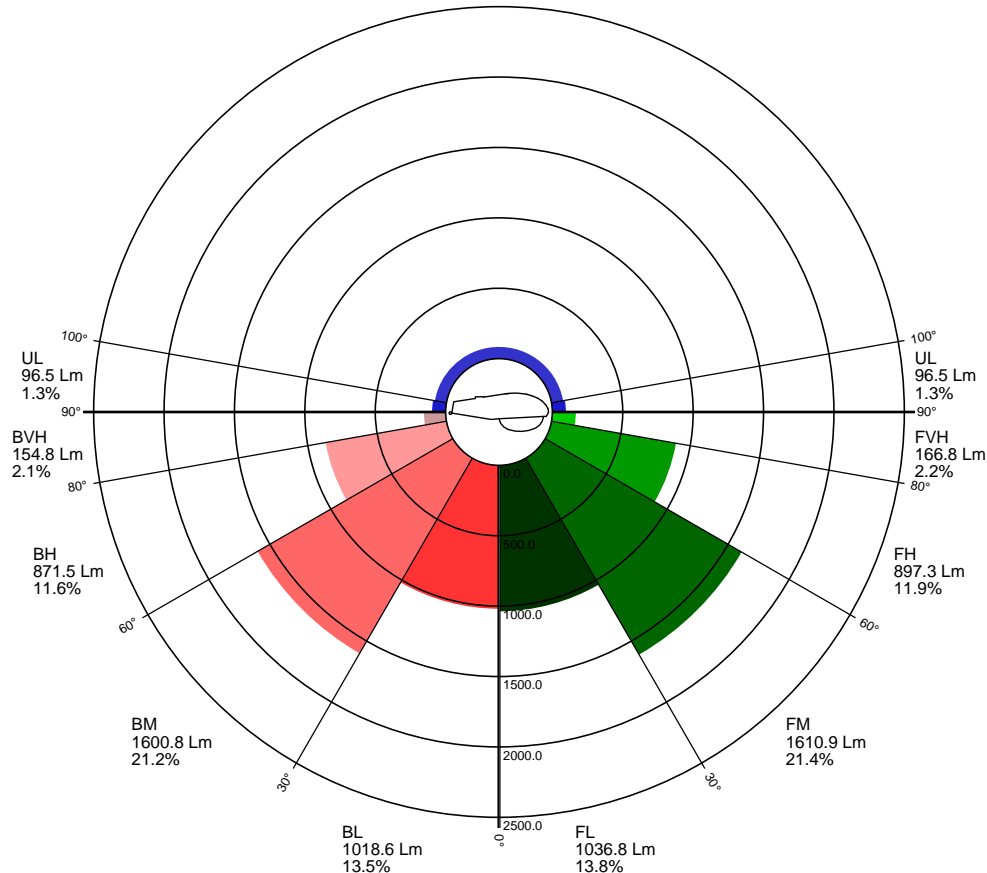
B U G

Forward		3712	49.2			
FL	(0° - 30°)	1036.8	13.8			
FM	(30° - 60°)	1610.9	21.4			
FH	(60° - 80°)	897.3	11.9			G1
FVH	(80° - 90°)	166.8	2.2			G2
Backward		3646	48.4			
BL	(0° - 30°)	1018.6	13.5	B3		
BM	(30° - 60°)	1600.8	21.2	B2		
BH	(60° - 80°)	871.5	11.6	B2		G1
BVH	(80° - 90°)	154.8	2.1			G2
Upward		180	2.4			
UL	(90° - 100°)	96.5	1.3		U3	
UH	(100° - 180°)	83.4	1.1		U3	
Trapped Light		0	0.0			
Total Flux		7537	100.0			

Zonal Lumen Summary

(Linear scale)

UH
83.4 Lm
1.1%



REPORT NUMBER: RAB04236

ISSUE DATE: 04/04/18

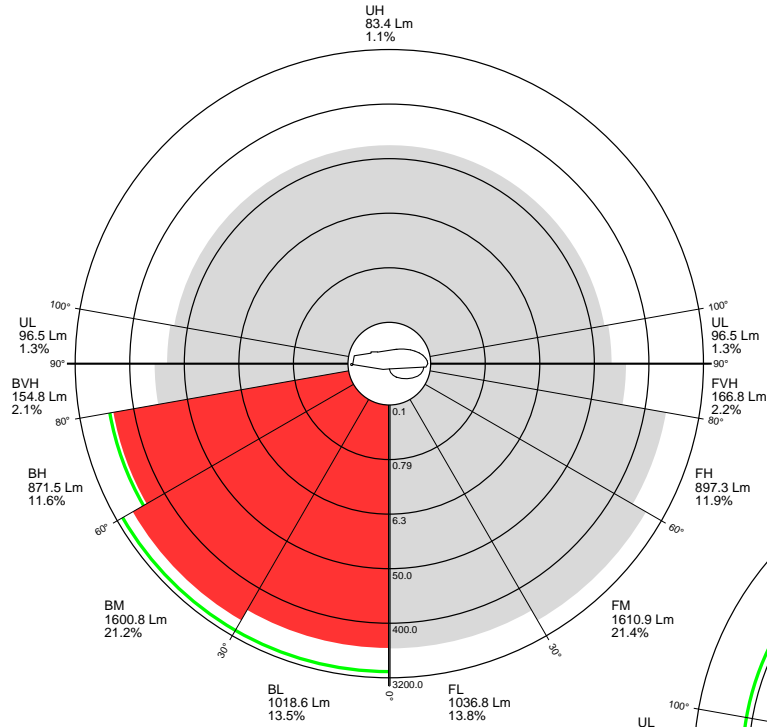
PAGE: 6 OF 9

DATE SAMPLE TESTED: 04/04/18

CATALOG NUMBER: YBLED60N/D10/PCU-YBLED60N/ARM/D10/PCU (TYPE V)

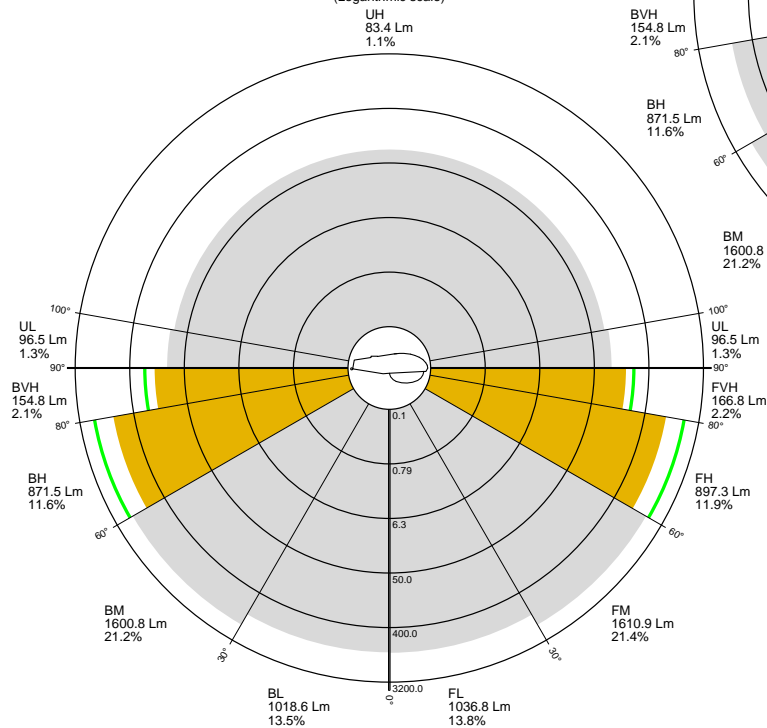
Backlight Rating Details

(Logarithmic scale)



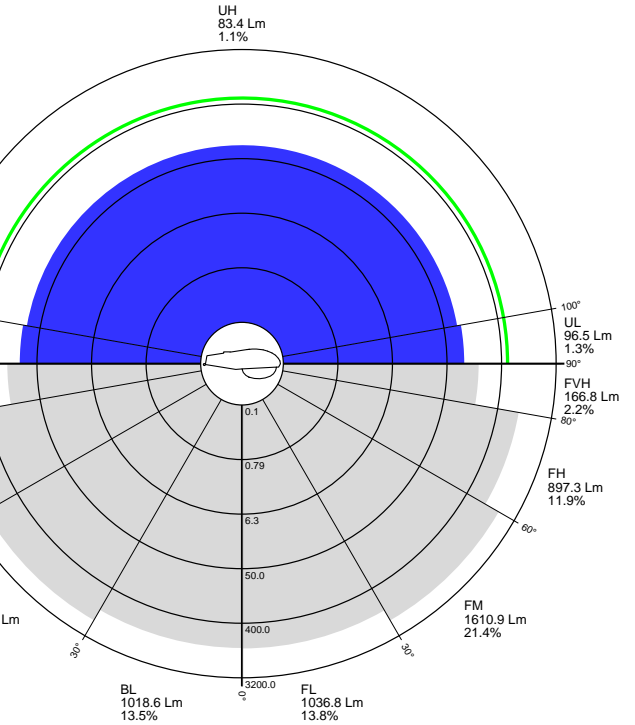
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB04236

PAGE: 7 OF 9

ISSUE DATE: 04/04/18

DATE SAMPLE TESTED: 04/04/18

CATALOG NUMBER: YBLED60N/D10/PCU-YBLED60N/ARM/D10/PCU (TYPE V)

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	1.	1.	1.	1.	1.	1.	1.	1.	1.
	175.0	2.	1.	1.	1.	1.	1.	1.	1.	1.
	165.0	3.	3.	3.	3.	3.	3.	3.	3.	3.
	155.0	4.	4.	4.	4.	4.	4.	4.	4.	4.
	145.0	6.	5.	5.	5.	5.	5.	5.	4.	5.
	135.0	9.	9.	8.	8.	8.	8.	7.	7.	7.
	125.0	16.	15.	15.	15.	14.	14.	13.	13.	14.
	115.0	28.	28.	30.	30.	30.	29.	29.	29.	28.
	105.0	34.	34.	35.	35.	36.	36.	35.	34.	35.
	95.0	86.	88.	86.	87.	86.	86.	84.	85.	84.
	90.0	160.	163.	158.	158.	155.	153.	150.	152.	150.
	87.5	221.	226.	219.	218.	213.	213.	205.	207.	202.
	85.0	303.	309.	303.	301.	294.	290.	282.	282.	275.
	82.5	404.	414.	411.	412.	405.	398.	388.	385.	370.
V	80.0	506.	518.	527.	532.	526.	520.	511.	496.	480.
E	77.5	595.	610.	637.	645.	650.	644.	638.	619.	599.
R	75.0	649.	669.	717.	734.	748.	743.	742.	722.	700.
T	72.5	680.	707.	769.	798.	812.	812.	817.	801.	777.
I	70.0	740.	766.	834.	858.	880.	879.	886.	870.	856.
C	67.5	846.	871.	931.	947.	957.	961.	960.	954.	935.
A	65.0	1025.	1046.	1086.	1085.	1090.	1089.	1090.	1076.	1075.
L	62.5	1177.	1192.	1211.	1204.	1200.	1201.	1198.	1191.	1191.
	60.0	1245.	1249.	1258.	1249.	1246.	1249.	1249.	1249.	1247.
A	57.5	1275.	1277.	1279.	1273.	1268.	1267.	1269.	1267.	1267.
N	55.0	1268.	1268.	1268.	1266.	1263.	1263.	1264.	1262.	1261.
G	52.5	1284.	1284.	1284.	1283.	1282.	1280.	1280.	1279.	1277.
L	50.0	1301.	1299.	1301.	1303.	1302.	1299.	1301.	1298.	1298.
E	47.5	1340.	1337.	1340.	1343.	1343.	1337.	1337.	1335.	1336.
	45.0	1375.	1374.	1376.	1379.	1382.	1378.	1379.	1379.	1377.
	42.5	1423.	1420.	1422.	1426.	1428.	1425.	1427.	1429.	1427.
	40.0	1474.	1473.	1474.	1476.	1478.	1479.	1480.	1483.	1480.
	37.5	1535.	1533.	1533.	1536.	1541.	1541.	1544.	1545.	1542.
	35.0	1603.	1600.	1601.	1603.	1608.	1610.	1613.	1615.	1611.
	30.0	1784.	1781.	1780.	1784.	1785.	1788.	1788.	1788.	1783.
	25.0	2016.	2013.	2010.	2003.	2001.	2008.	2001.	2006.	2006.
	20.0	2369.	2362.	2362.	2349.	2342.	2341.	2338.	2347.	2340.
	15.0	2956.	2958.	2954.	2962.	2936.	2937.	2933.	2943.	2916.
	10.0	3406.	3409.	3408.	3407.	3400.	3398.	3393.	3388.	3384.
	5.0	3541.	3540.	3541.	3537.	3537.	3535.	3532.	3529.	3526.
	2.5<<	3558.	3556.	3557.	3555.	3554.	3551.	3551.	3547.	3546.
	0.0	3551.	3551.	3551.	3551.	3551.	3551.	3551.	3551.	3551.

||
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB04236

PAGE: 8 OF 9

ISSUE DATE: 04/04/18

DATE SAMPLE TESTED: 04/04/18

CATALOG NUMBER: YBLED60N/D10/PCU-YBLED60N/ARM/D10/PCU (TYPE V)

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	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
	175.0	1.	1.	1.	1.	1.	1.	0.	1.	1.	1.
	165.0	3.	3.	2.	2.	2.	2.	1.	1.	1.	1.
	155.0	3.	4.	3.	3.	3.	2.	2.	2.	1.	1.
	145.0	5.	5.	5.	4.	4.	3.	3.	2.	2.	2.
	135.0	7.	7.	7.	7.	7.	6.	5.	4.	3.	2.
	125.0	14.	14.	14.	13.	13.	13.	12.	11.	7.	4.
	115.0	28.	28.	27.	26.	26.	26.	25.	24.	12.	4.
	105.0	35.	35.	35.	35.	35.	35.	33.	29.	21.	12.
	95.0	84.	85.	85.	84.	84.	82.	83.	78.	71.	67.
	90.0	149.	150.	150.	150.	150.	149.	148.	145.	148.	146.
	87.5	199.	202.	201.	202.	203.	202.	200.	195.	198.	196.
	85.0	268.	264.	272.	274.	271.	275.	266.	262.	265.	264.
	82.5	355.	354.	366.	370.	368.	374.	361.	352.	352.	349.
V	80.0	460.	461.	470.	477.	482.	480.	474.	455.	450.	442.
E	77.5	580.	587.	594.	599.	613.	608.	598.	569.	554.	540.
R	75.0	679.	688.	692.	707.	722.	722.	712.	672.	646.	623.
T	72.5	757.	765.	775.	791.	805.	808.	798.	757.	720.	681.
I	70.0	836.	841.	851.	855.	866.	871.	871.	835.	783.	729.
C	67.5	917.	921.	932.	939.	946.	953.	950.	933.	875.	799.
A	65.0	1062.	1066.	1061.	1064.	1074.	1067.	1080.	1073.	999.	904.
L	62.5	1184.	1183.	1187.	1191.	1197.	1192.	1205.	1208.	1152.	1071.
	60.0	1246.	1247.	1254.	1256.	1256.	1257.	1262.	1275.	1253.	1205.
A	57.5	1267.	1268.	1271.	1272.	1271.	1271.	1275.	1286.	1283.	1264.
N	55.0	1261.	1262.	1266.	1266.	1264.	1263.	1267.	1277.	1281.	1271.
G	52.5	1276.	1276.	1280.	1279.	1275.	1273.	1276.	1283.	1284.	1280.
L	50.0	1294.	1293.	1296.	1292.	1287.	1285.	1288.	1294.	1297.	1295.
E	47.5	1327.	1327.	1326.	1321.	1316.	1312.	1314.	1319.	1322.	1325.
	45.0	1368.	1367.	1366.	1361.	1357.	1352.	1352.	1358.	1358.	1362.
	42.5	1416.	1414.	1412.	1409.	1404.	1399.	1397.	1401.	1402.	1406.
	40.0	1471.	1468.	1466.	1462.	1458.	1454.	1452.	1455.	1457.	1460.
	37.5	1534.	1532.	1531.	1528.	1524.	1519.	1518.	1521.	1522.	1522.
	35.0	1605.	1604.	1605.	1601.	1598.	1594.	1593.	1593.	1593.	1594.
	30.0	1783.	1783.	1784.	1781.	1777.	1775.	1772.	1770.	1768.	1760.
	25.0	2003.	2001.	1998.	1994.	1990.	1983.	1982.	1976.	1970.	1962.
	20.0	2331.	2326.	2320.	2310.	2303.	2293.	2283.	2274.	2268.	2257.
	15.0	2914.	2907.	2897.	2885.	2870.	2833.	2828.	2799.	2809.	2790.
	10.0	3376.	3371.	3364.	3355.	3352.	3335.	3321.	3320.	3305.	3304.
	5.0	3524.	3523.	3519.	3518.	3513.	3509.	3504.	3501.	3497.	3495.
	2.5<<	3544.	3546.	3545.	3544.	3542.	3542.	3541.	3539.	3535.	3537.
	0.0	3551.	3551.	3551.	3551.	3551.	3551.	3551.	3551.	3551.	3551.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB04236

ISSUE DATE: 04/04/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

PAGE: 9 OF 9

DATE SAMPLE TESTED: 04/04/18

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	85
5- 10	247
10- 15	373
15- 20	425
20- 25	449
25- 30	476
30- 35	497
35- 40	511
40- 45	524
45- 50	538
50- 55	557
55- 60	585
60- 65	569
65- 70	475
70- 75	404
75- 80	321
80- 85	206
85- 90	115
90- 95	63
95-100	34
100-105	20
105-110	16
110-115	14
115-120	11
120-125	7
125-130	5
130-135	3
135-140	2
140-145	1
145-150	1
150-155	1
155-160	1
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE ZONAL LUMEN SUMMARY

0- 10	331
0- 20	1130
0- 30	2055
0- 40	3064
0- 50	4126
0- 60	5267
0- 70	6311
0- 80	7036
0- 90	7357
0-100	7454
0-110	7491
0-120	7516
0-130	7527
0-140	7533
0-150	7535
0-160	7537
0-170	7537
0-180	7537

REPORT NUMBER: RAB04237
 DATE: 4/4/2018
 PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
 CATALOG NUMBER: YBLED60N/D10/PCU-YBLED60N/ARM/D10/PCU (TYPE V)

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: CAST FINNED METAL HOUSING WITH WHITE PAINTED INTERIOR, 1 CIRCUIT BOARD WITH 1 LED WITH MOLDED WHITE PLASTIC TRIM, CLEAR INTERIOR FROSTED CYLINDRICAL LENS WITH RECESSED EXTERIOR-FROSTED CONVEX CENTER. CONVEX CENTER HAS CONCENTRIC CIRCULAR EXTERIOR PRISMS.

LAMP: ONE WHITE MULTI-CHIP LIGHT EMITTING DIODE (LED), VERTICAL BASE-UP POSITION.

DRIVER: RDD-060-A1800-095C

OBJECT OF TEST: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT THE RATED INPUT VOLTAGES (277.0 AND 120.0 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	02/22/19

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 (120.0 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: RAB04237
 DATE: 4/4/2018
 PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
 CATALOG NUMBER: YBLED60N/D10/PCU-YBLED60N/ARM/D10/PCU (TYPE V)

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RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	7537 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3784
Chromaticity Ordinate y	0.3769
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2237
Chromaticity Ordinate v'	0.5013
Correlated Color Temp CCT (K)	4057
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	21826 *
ELECTRICAL	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.224
Input Power (Watts)	55.7
Input Power Factor (%)	89.8
Input Current THD (%)	7.9
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	135.3
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.458
Input Power (Watts)	54.7
Input Power Factor (%)	99.6
Input Current THD (%)	8.6
Input Voltage THD (%)	0.2
Off-State Power (Watts)	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	75
R1 Light greyish red	71
R2 Dark greyish yellow	84
R3 Strong yellowish green	93
R4 Moderate yellowish green	71
R5 Light bluish green	72
R6 Light blue	78
R7 Light violet	80
R8 Light reddish purple	49
R9 Strong red	-32
R10 Strong yellow	63
R11 Strong green	67
R12 Strong blue	51
R13 Light yellowish pink (skin)	74
R14 Moderate olive green (leaf)	97

*NOTE:

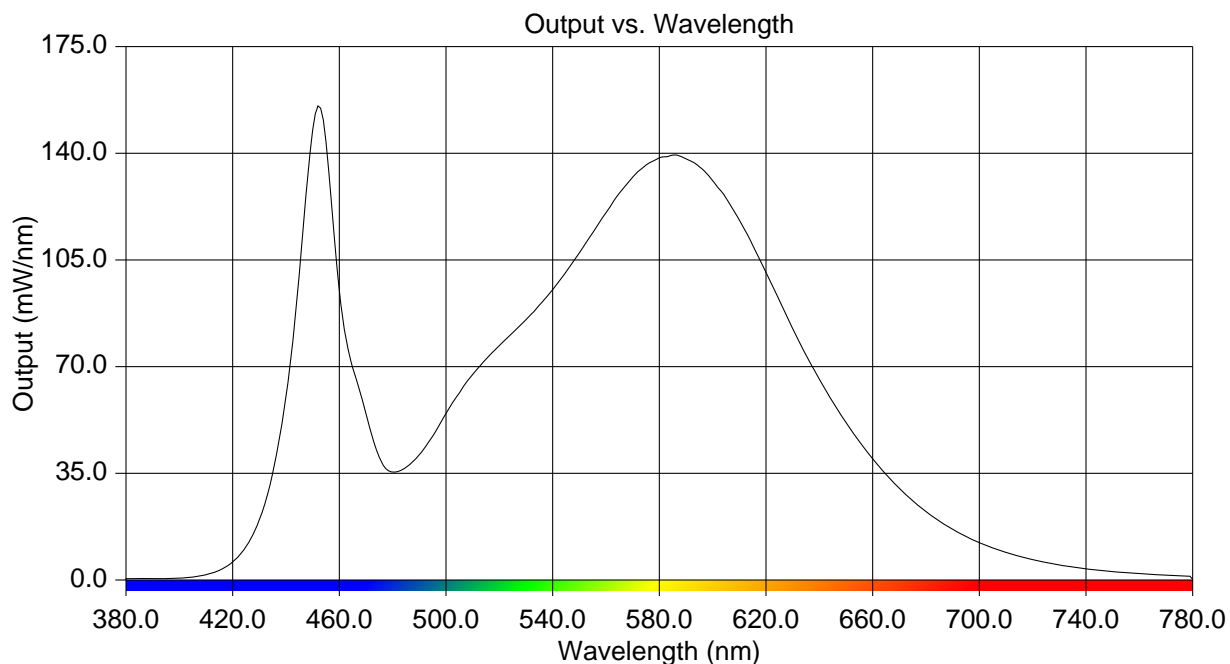
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB04237
 DATE: 4/4/2018
 PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
 CATALOG NUMBER: YBLED60N/D10/PCU-YBLED60N/ARM/D10/PCU (TYPE V)

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.416	515	72.464	650	51.682
385	0.434	520	76.956	655	45.445
390	0.434	525	81.158	660	39.820
395	0.464	530	85.423	665	34.634
400	0.609	535	90.188	670	30.025
405	0.961	540	95.362	675	25.974
410	1.714	545	100.942	680	22.432
415	3.167	550	107.412	685	19.345
420	5.919	555	113.894	690	16.588
425	10.916	560	120.506	695	14.300
430	19.742	565	126.925	700	12.233
435	34.832	570	132.159	705	10.498
440	60.104	575	136.139	710	9.030
445	100.738	580	138.553	715	7.796
450	147.648	585	139.432	720	6.677
455	143.755	590	138.201	725	5.754
460	94.919	595	135.600	730	4.937
465	69.618	600	131.070	735	4.252
470	54.538	605	125.279	740	3.671
475	40.257	610	118.058	745	3.157
480	35.347	615	109.857	750	2.756
485	37.004	620	100.928	755	2.400
490	41.035	625	91.889	760	2.065
495	47.174	630	82.458	765	1.811
500	54.690	635	73.831	770	1.572
505	61.347	640	65.919	775	1.380
510	67.455	645	58.450	780	0.208



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CIE Chromaticity Diagram

