

**REPORT NUMBER:** RAB04488

**PAGE:** 1 OF 10

**ISSUE DATE:** 09/14/18

**DATE SAMPLE TESTED:** 07/18/18

**PREPARED FOR:** RAB LIGHTING INC. RC LIGHTING

**CATALOG NUMBER:** BRISKM48L

**LUMINAIRE:** CAST BROWN PAINTED METAL HOUSING, FORMED SPECULAR PAINTED REFLECTOR, 1 WHITE CIRCUIT BOARD WITH 77 LEDS, MOLDED FROSTED PLASTIC LENS.

**LAMPS:** SEVENTY SEVEN WHITE LIGHT EMITTING DIODES (LEDS), TILTED 30-DEGREE FROM VERTICAL BASE-UP POSITION.

**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.

**ABSOLUTE:** NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

**WATT:** TOTAL INPUT WATTS = 34.467 W AT 120.0 VAC.

**LED DRIVER:** LED DRIVER: RDD-DBFE-030-A0901-02

**PROCEDURE:** TEST PROCEDURE: IESNA LM-79-08

**NOTE:** LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE  
AMBIENT: 25.7

**NVLAP LAB CODE:** ACCREDITED LABORATORY CODE 201058-0



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.

Checked X.CAO

Approved D.WANG-MUNSON

REPORT NUMBER: RAB04488

PAGE: 2 OF 10

ISSUE DATE: 09/14/18

DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKM48L

## ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

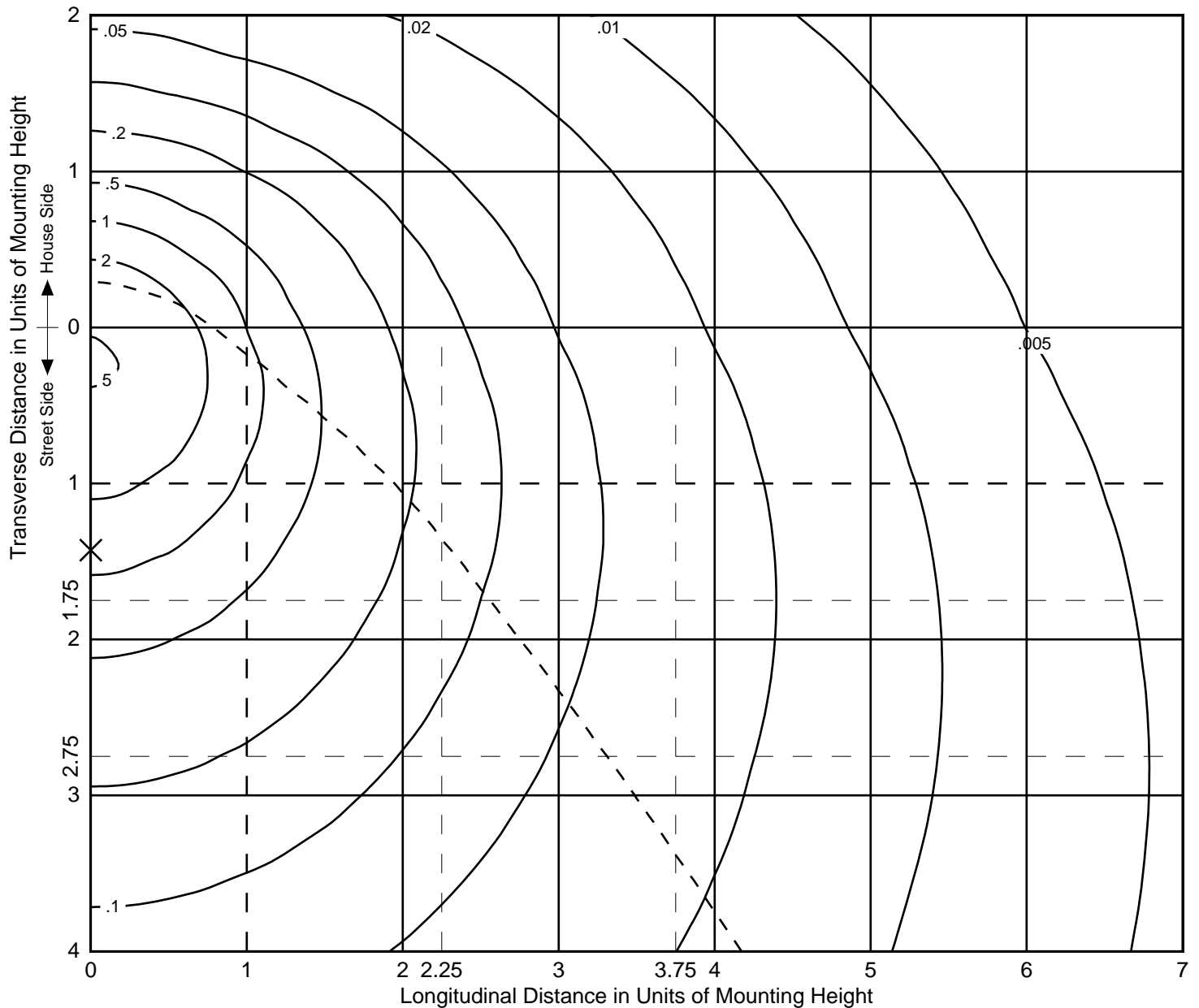
Values based on 15-foot mounting height

IES Classification: (does not classify)

Cutoff Classification (deprecated): Noncutoff

--- 1/2 Maximum Candela trace

× Maximum Candela point



REPORT NUMBER: RAB04488

PAGE: 3 OF 10

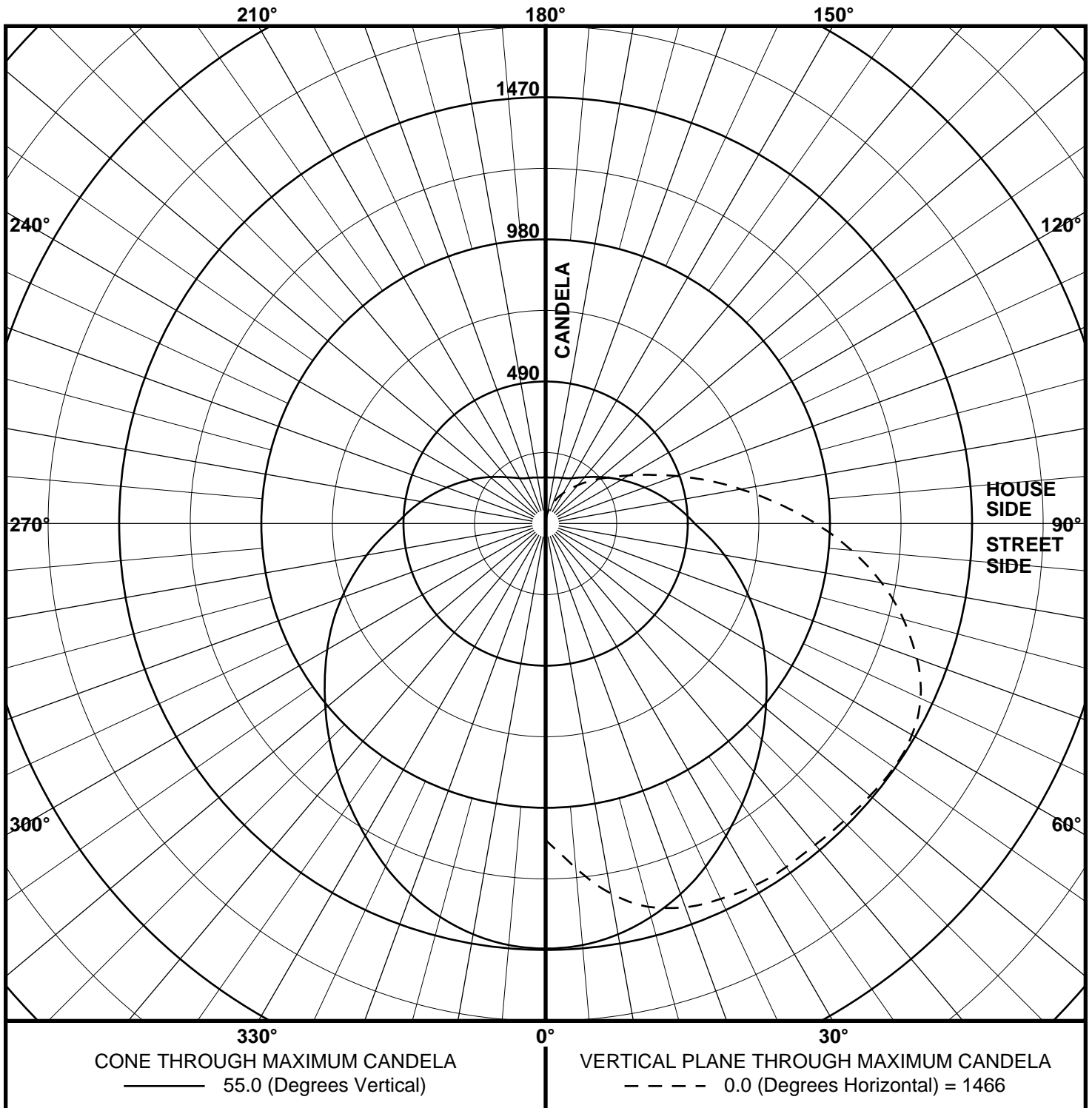
ISSUE DATE: 09/14/18

DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKM48L

## MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA



**REPORT NUMBER:** RAB04488

**PAGE:** 4 OF 10

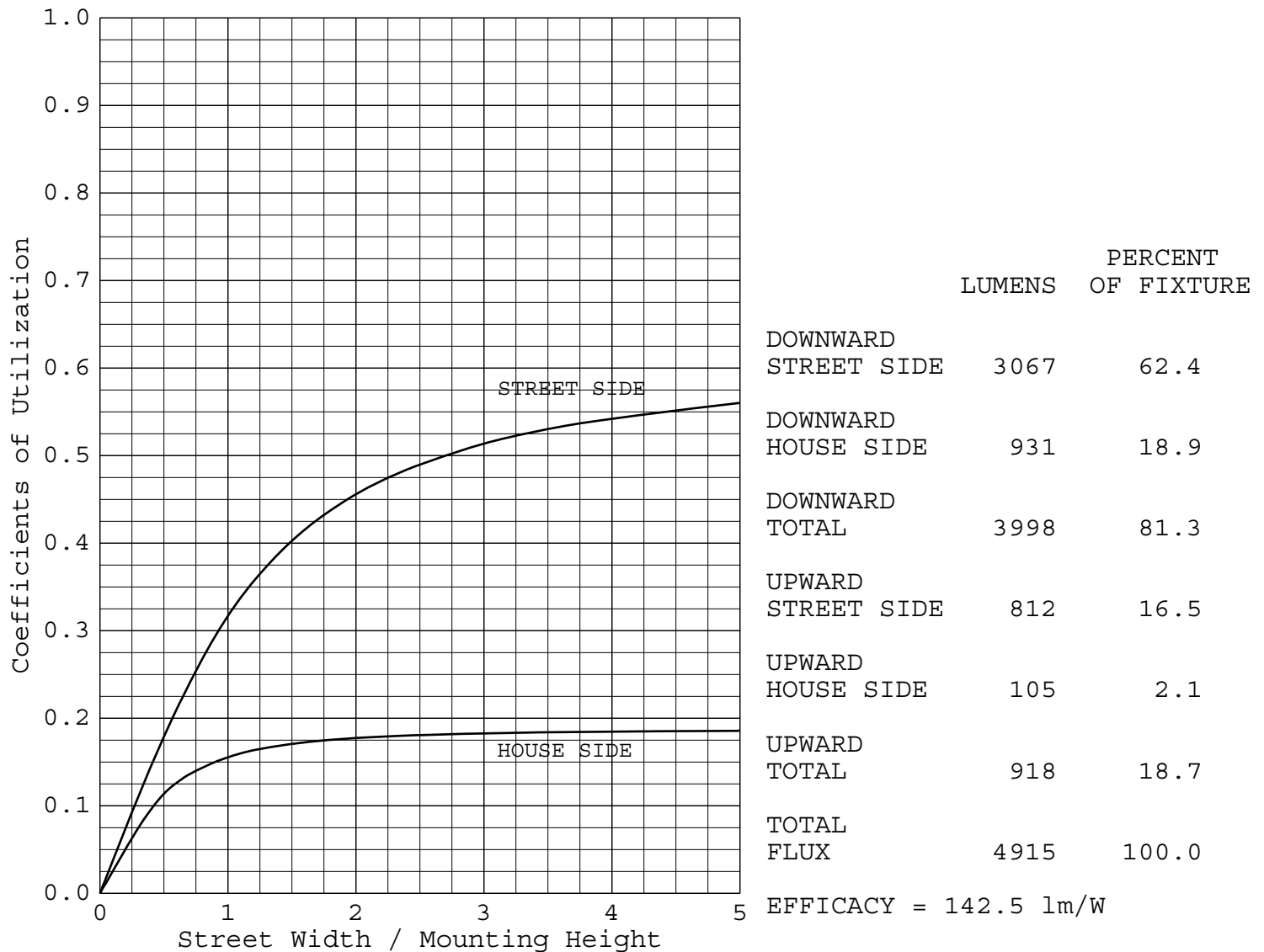
**ISSUE DATE:** 09/14/18

**DATE SAMPLE TESTED:** 07/18/18

**PREPARED FOR:** RAB LIGHTING INC. RC LIGHTING

**CATALOG NUMBER:** BRISKM48L

## COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION



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:** RAB04488

**PAGE:** 5 OF 10

**ISSUE DATE:** 09/14/18

**DATE SAMPLE TESTED:** 07/18/18

**PREPARED FOR:** RAB LIGHTING INC. RC LIGHTING

**CATALOG NUMBER:** BRISKM48L

BUG Rating			B1 U4 G3		
Zonal Summary			Zone Ratings		
			B	U	G
Forward					
FL	(0° – 30°)	3067			
FM	(30° – 60°)	519.7			
FH	(60° – 80°)	1267.5			
FVH	(80° – 90°)	916.2			G1
		363.2			G3
Backward					
BL	(0° – 30°)	931			
BM	(30° – 60°)	319.4	B1		
BH	(60° – 80°)	418.8	B1		
BVH	(80° – 90°)	154.9	B1		G1
		38.0			G1
Upward					
UL	(90° – 100°)	918			
UH	(100° – 180°)	301.3		U3	
		616.2		U4	
Trapped Light					
Total Flux					
		0			
		4915			
		100.0			

REPORT NUMBER: RAB04488

ISSUE DATE: 09/14/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

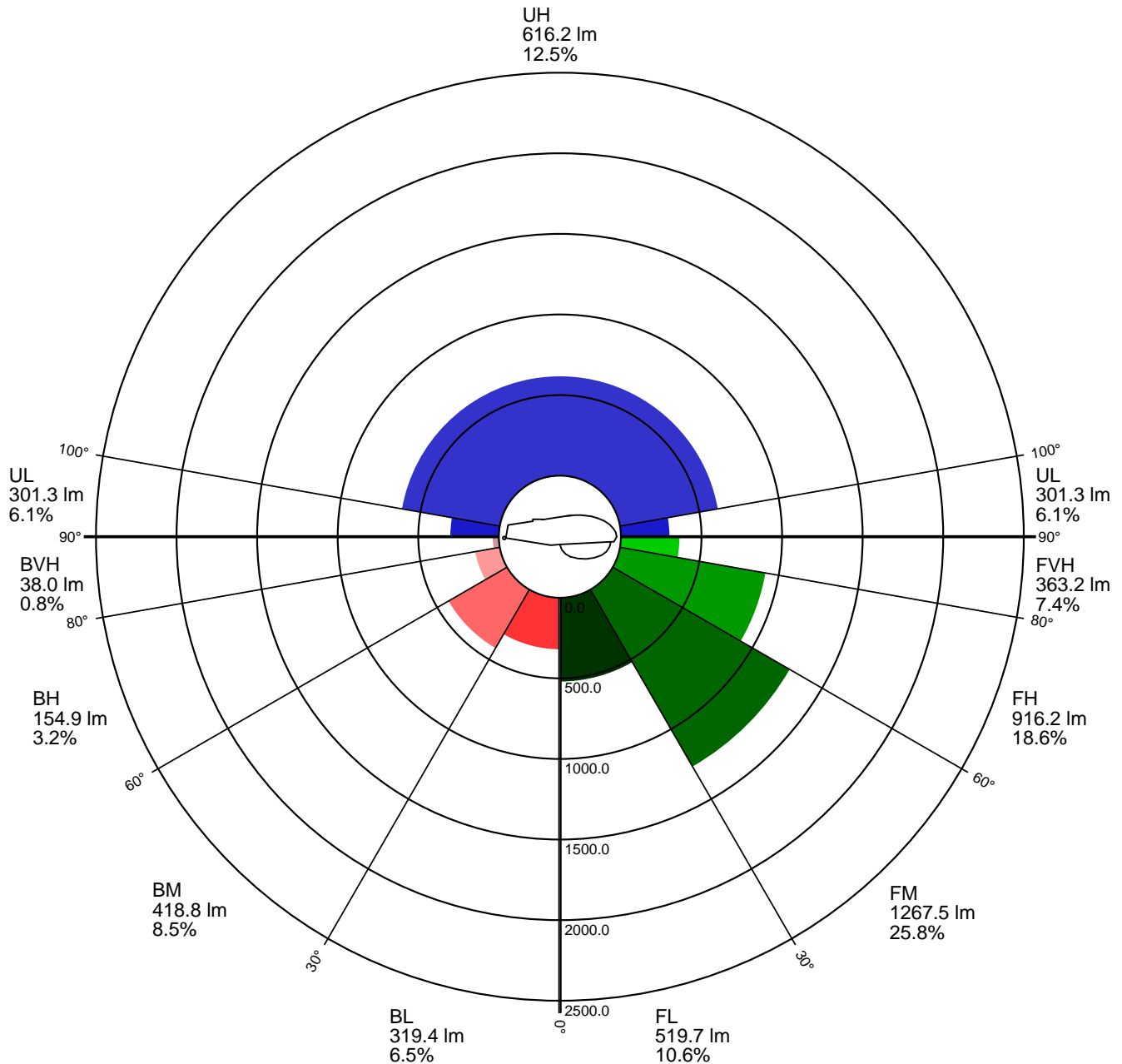
CATALOG NUMBER: BRISKM48L

PAGE: 6 OF 10

DATE SAMPLE TESTED: 07/18/18

## Zonal Lumen Summary

(Linear scale)

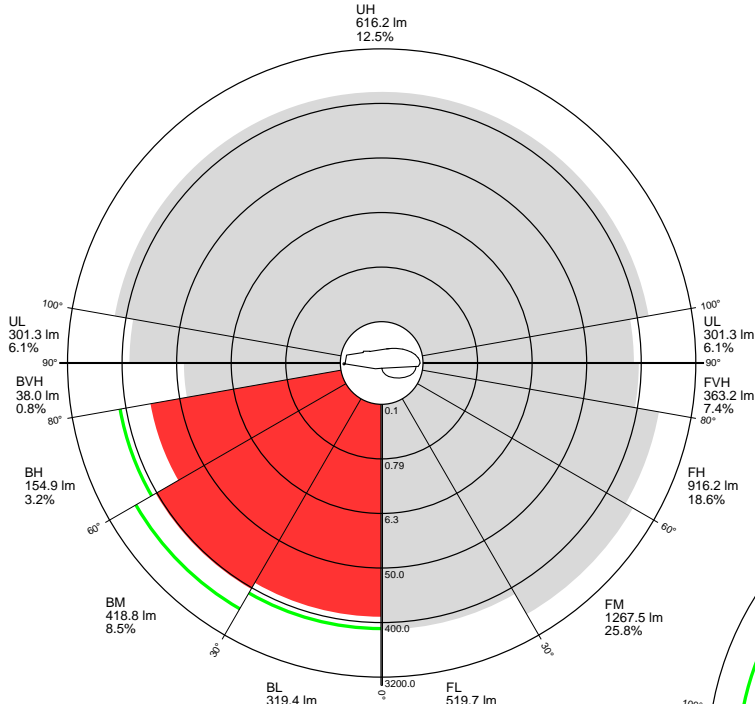


**REPORT NUMBER:** RAB04488  
**ISSUE DATE:** 09/14/18  
**PREPARED FOR:** RAB LIGHTING INC. RC LIGHTING  
**CATALOG NUMBER:** BRISKM48L

**PAGE:** 7 OF 10  
**DATE SAMPLE TESTED:** 07/18/18

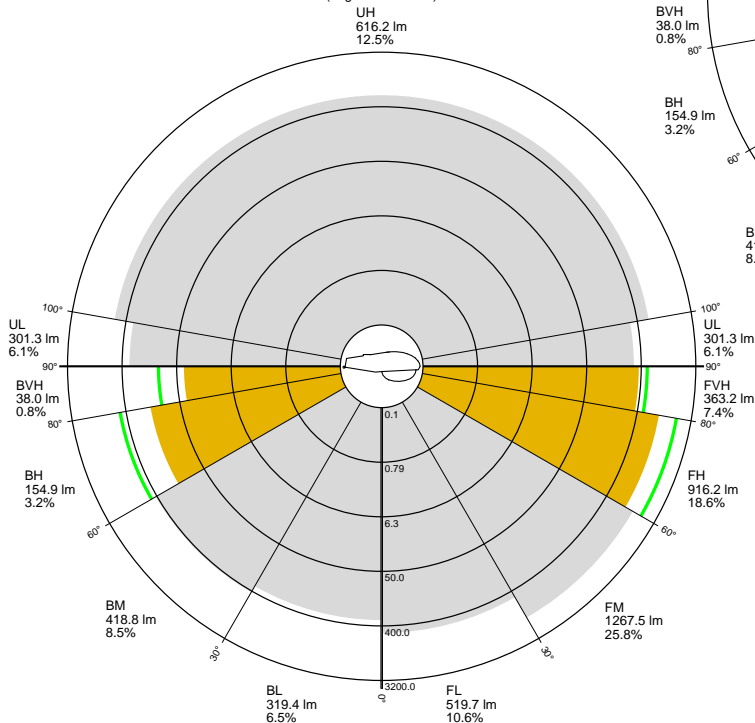
## Backlight Rating Details

(Logarithmic scale)



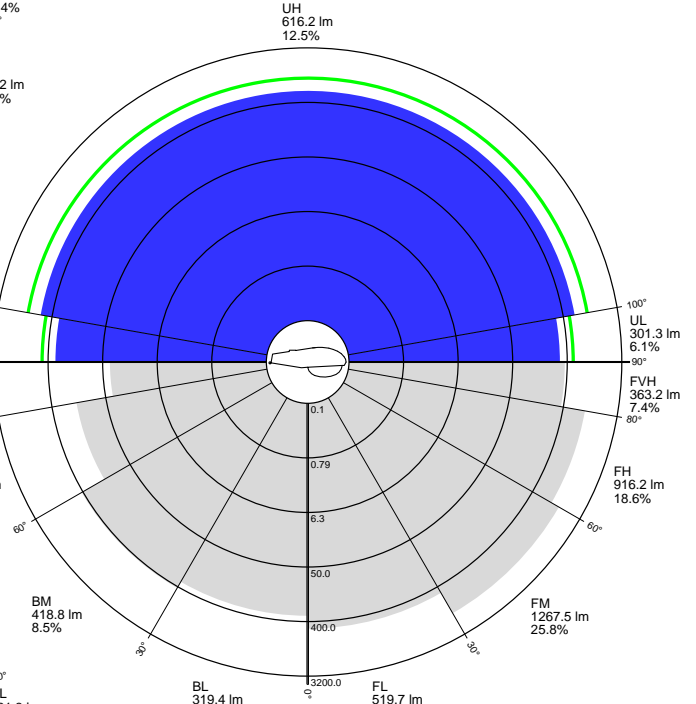
## Glare Rating Details

(Logarithmic scale)



## Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB04488

PAGE: 8 OF 10

ISSUE DATE: 09/14/18

DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKM48L

### CANDELA TABULATION

	STREET SIDE										
	0.0	2.5	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0
	180.0	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
	175.0	12.	13.	14.	10.	11.	10.	9.	8.	7.	5.
	165.0	56.	57.	57.	55.	54.	51.	47.	42.	34.	25.
	155.0	98.	99.	98.	96.	93.	89.	84.	76.	66.	51.
	145.0	146.	147.	146.	142.	137.	131.	122.	110.	95.	79.
	135.0	203.	205.	205.	198.	188.	176.	163.	145.	125.	102.
	125.0	280.	281.	280.	269.	253.	232.	210.	183.	155.	126.
	115.0	397.	399.	397.	378.	350.	313.	275.	234.	195.	154.
	105.0	576.	578.	576.	543.	492.	431.	370.	308.	251.	194.
	95.0	802.	805.	800.	754.	680.	586.	495.	405.	327.	250.
	92.5	866.	867.	864.	816.	738.	636.	532.	437.	350.	266.
	90.0	931.	934.	930.	879.	795.	686.	576.	471.	379.	288.
	87.5	996.	998.	993.	940.	852.	735.	619.	509.	412.	317.
	85.0	1058.	1059.	1055.	1000.	909.	785.	664.	549.	446.	347.
V	82.5	1119.	1121.	1116.	1060.	963.	834.	708.	587.	481.	375.
E	80.0	1176.	1178.	1172.	1112.	1015.	885.	751.	626.	516.	407.
R	77.5	1229.	1231.	1226.	1165.	1063.	928.	792.	663.	551.	438.
T	75.0	1277.	1278.	1271.	1210.	1105.	969.	831.	700.	585.	468.
I	72.5	1320.	1322.	1315.	1253.	1148.	1009.	868.	735.	618.	498.
C	70.0	1362.	1362.	1355.	1294.	1187.	1045.	903.	769.	650.	530.
A	67.5	1398.	1399.	1392.	1329.	1222.	1080.	937.	803.	682.	559.
L	65.0	1426.	1426.	1419.	1358.	1249.	1109.	967.	832.	711.	587.
	62.5	1446.	1445.	1438.	1377.	1270.	1133.	992.	859.	737.	612.
A	60.0	1458.	1458.	1452.	1392.	1287.	1152.	1015.	884.	763.	638.
N	57.5	1465.	1464.	1458.	1401.	1298.	1168.	1035.	907.	787.	662.
G	55.0<<	1466.	1464.	1459.	1404.	1305.	1181.	1054.	929.	810.	686.
L	52.5	1464.	1462.	1456.	1404.	1310.	1194.	1072.	952.	834.	712.
E	50.0	1460.	1459.	1454.	1405.	1318.	1208.	1092.	976.	861.	739.
	47.5	1457.	1455.	1451.	1405.	1325.	1223.	1113.	1000.	888.	768.
	45.0	1452.	1451.	1447.	1405.	1331.	1237.	1133.	1026.	916.	798.
	42.5	1449.	1447.	1444.	1406.	1339.	1252.	1156.	1052.	944.	830.
	40.0	1446.	1445.	1441.	1407.	1347.	1268.	1178.	1079.	974.	863.
	37.5	1445.	1444.	1442.	1411.	1356.	1285.	1200.	1107.	1007.	897.
	35.0	1446.	1445.	1443.	1415.	1367.	1301.	1224.	1135.	1037.	932.
	32.5	1445.	1445.	1442.	1418.	1375.	1317.	1245.	1161.	1067.	965.
	30.0	1441.	1441.	1439.	1418.	1381.	1328.	1262.	1183.	1093.	996.
	25.0	1428.	1427.	1427.	1412.	1383.	1340.	1284.	1216.	1135.	1049.
	20.0	1408.	1407.	1406.	1395.	1373.	1338.	1291.	1233.	1165.	1092.
	15.0	1368.	1365.	1365.	1357.	1340.	1312.	1275.	1230.	1178.	1121.
	10.0	1295.	1293.	1293.	1288.	1274.	1257.	1232.	1201.	1166.	1128.
	5.0	1193.	1190.	1190.	1190.	1183.	1177.	1163.	1150.	1133.	1115.
	0.0	1091.	1091.	1091.	1091.	1091.	1091.	1091.	1091.	1091.	1091.

||  
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA



REPORT NUMBER: RAB04488

PAGE: 9 OF 10

ISSUE DATE: 09/14/18

DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKM48L

### 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  A N G L E	180.0	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
	175.0	5.	5.	4.	4.	3.	3.	2.	2.	1.	1.	1.
	165.0	13.	10.	7.	6.	6.	5.	4.	2.	2.	2.	2.
	155.0	23.	15.	15.	18.	16.	11.	7.	4.	3.	2.	2.
	145.0	49.	40.	32.	33.	27.	18.	10.	5.	3.	2.	2.
	135.0	69.	63.	53.	45.	34.	23.	12.	6.	4.	2.	2.
	125.0	82.	75.	65.	54.	41.	27.	14.	6.	4.	3.	3.
	115.0	98.	90.	77.	62.	47.	31.	16.	7.	5.	4.	4.
	105.0	120.	109.	91.	72.	54.	35.	18.	8.	6.	5.	5.
	95.0	151.	135.	109.	84.	60.	39.	19.	9.	7.	6.	6.
	92.5	160.	143.	114.	86.	62.	39.	20.	9.	7.	6.	6.
	90.0	171.	151.	119.	90.	64.	41.	21.	10.	8.	7.	7.
	87.5	189.	167.	129.	94.	66.	42.	21.	10.	8.	7.	7.
	85.0	210.	186.	142.	105.	73.	45.	23.	10.	8.	7.	7.
	82.5	233.	206.	158.	118.	84.	54.	30.	16.	13.	11.	12.
	80.0	257.	227.	175.	131.	95.	64.	39.	25.	21.	19.	20.
	77.5	281.	250.	193.	146.	109.	76.	50.	35.	31.	28.	29.
	75.0	308.	274.	214.	163.	123.	88.	61.	45.	41.	39.	39.
	72.5	333.	298.	235.	181.	138.	103.	74.	58.	53.	50.	51.
	70.0	360.	323.	256.	200.	155.	118.	89.	71.	67.	63.	64.
	67.5	386.	349.	279.	220.	173.	134.	104.	86.	81.	77.	78.
	65.0	412.	374.	302.	241.	191.	151.	120.	101.	96.	92.	93.
	62.5	438.	398.	325.	262.	210.	168.	136.	118.	111.	108.	109.
	60.0	463.	424.	349.	284.	231.	187.	154.	134.	129.	124.	125.
	57.5	489.	449.	374.	307.	252.	206.	173.	152.	145.	141.	141.
	55.0<<	514.	474.	398.	331.	274.	227.	193.	172.	164.	159.	160.
	52.5	540.	501.	424.	355.	298.	250.	214.	192.	184.	178.	179.
	50.0	568.	529.	452.	383.	324.	274.	237.	214.	206.	199.	200.
	47.5	600.	560.	483.	412.	350.	300.	262.	238.	229.	222.	223.
	45.0	631.	592.	514.	440.	378.	327.	289.	264.	253.	246.	247.
	42.5	665.	624.	546.	471.	409.	356.	316.	292.	281.	273.	273.
	40.0	700.	660.	580.	504.	442.	388.	348.	321.	309.	301.	301.
37.5	738.	698.	617.	541.	479.	422.	381.	354.	341.	330.	333.	
35.0	776.	733.	656.	580.	515.	459.	417.	388.	376.	366.	367.	
32.5	813.	772.	695.	619.	554.	497.	455.	427.	412.	403.	402.	
30.0	851.	810.	732.	659.	594.	537.	494.	466.	451.	440.	443.	
25.0	919.	880.	809.	741.	678.	627.	586.	556.	543.	532.	532.	
20.0	981.	948.	886.	826.	771.	724.	687.	660.	644.	635.	634.	
15.0	1034.	1007.	958.	910.	866.	828.	797.	775.	761.	754.	752.	
10.0	1070.	1052.	1018.	985.	955.	930.	910.	892.	882.	879.	876.	
5.0	1089.	1079.	1062.	1046.	1032.	1020.	1010.	1002.	997.	992.	994.	
0.0	1091.	1091.	1091.	1091.	1091.	1091.	1091.	1091.	1091.	1091.	1091.	

CONE OF MAXIMUM CANDELA

**REPORT NUMBER:** RAB04488

**PAGE:** 10 OF 10

**ISSUE DATE:** 09/14/18

**DATE SAMPLE TESTED:** 07/18/18

**PREPARED FOR:** RAB LIGHTING INC. RC LIGHTING

**CATALOG NUMBER:** BRISKM48L

### 5-DEGREE ZONAL LUMEN SUMMARY

0- 5	26
5- 10	78
10- 15	126
15- 20	169
20- 25	205
25- 30	234
30- 35	256
35- 40	272
40- 45	282
45- 50	289
50- 55	293
55- 60	294
60- 65	290
65- 70	279
70- 75	262
75- 80	240
80- 85	214
85- 90	187
90- 95	162
95-100	139
100-105	119
105-110	100
110-115	83
115-120	69
120-125	57
125-130	47
130-135	39
135-140	31
140-145	24
145-150	18
150-155	12
155-160	8
160-165	5
165-170	2
170-175	1
175-180	0

### 10-DEGREE ZONAL LUMEN SUMMARY

0- 10	104
0- 20	399
0- 30	839
0- 40	1367
0- 50	1938
0- 60	2525
0- 70	3095
0- 80	3597
0- 90	3998
0-100	4299
0-110	4518
0-120	4670
0-130	4775
0-140	4845
0-150	4887
0-160	4907
0-170	4914
0-180	4915

REPORT NUMBER: RAB04489  
DATE: 7/18/2018  
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING  
CATALOG NUMBER: BRISKM48L

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: CAST BROWN PAINTED METAL HOUSING, FORMED SPECULAR PAINTED REFLECTOR, 1 WHITE CIRCUIT BOARD WITH 77 LEDS, MOLDED FROSTED PLASTIC LENS.

LAMP: SEVENTY SEVEN WHITE LIGHT EMITTING DIODES (LEDS), TILTED 30-DEGREE FROM VERTICAL BASE-UP POSITION.

DRIVER: RDD-DBFE-030-A0901-02

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	3/08/19
	OCEAN OPTICS QE65PRO Spectroradiometer	05/24/19
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	05/24/19

OBJECT OF TEST: Measure the Absolute Flux in lumens\*, Total Radiant Flux\*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRIa,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: RAB04489  
DATE: 7/18/2018  
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING  
CATALOG NUMBER: BRISKM48L

Page 2 of 4

### RESULTS:

<b>PHOTOMETRIC</b>	
Total Integrated Flux (lumens)	4915 *
<b>SPECTRORADIOMETRIC</b>	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3422
Chromaticity Ordinate y	0.3483
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2107
Chromaticity Ordinate v'	0.4826
Correlated Color Temp CCT (K)	5103
ANSI C78.377-2008 Duv	0.000
Total Radiant Flux (milliWatts)	14781 *
<b>ELECTRICAL</b>	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.288
Input Power (Watts)	34.5
Input Power Factor (%)	99.7
Input Current THD (%)	6.5
Input Voltage THD (%)	0.2
<b>EFFICACY (Lumens/Watt)</b>	
	142.5
<b>ELECTRICAL AT MAX NONIMAL INPUT</b>	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.128
Input Power (Watts)	34.0
Input Power Factor (%)	96.0
Input Current THD (%)	10.8
Input Voltage THD (%)	0.2
<b>Off-State Power (Watts)</b>	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	75
R1 Light greyish red	72
R2 Dark greyish yellow	80
R3 Strong yellowish green	85
R4 Moderate yellowish green	75
R5 Light bluish green	74
R6 Light blue	73
R7 Light violet	81
R8 Light reddish purple	57
R9 Strong red	-26
R10 Strong yellow	53
R11 Strong green	74
R12 Strong blue	50
R13 Light yellowish pink (skin)	74
R14 Moderate olive green (leaf)	92

### \*NOTE:

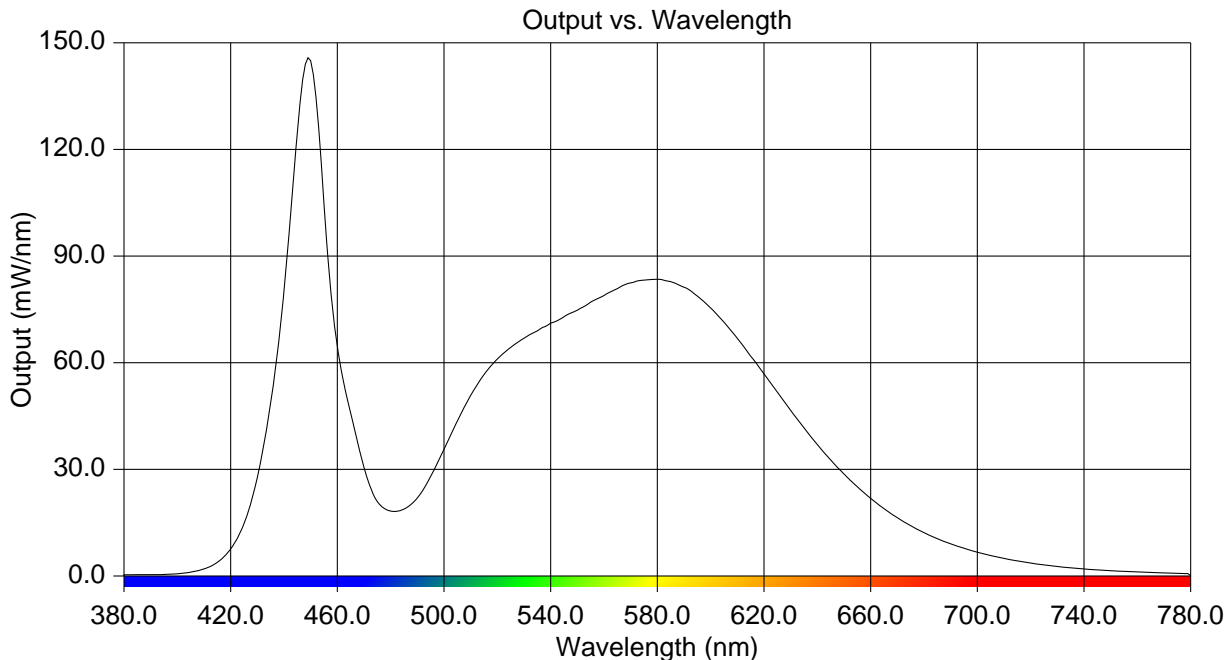
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB04489  
DATE: 7/18/2018  
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING  
CATALOG NUMBER: BRISKM48L

Page 3 of 4

### RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.315	515	56.640	650	28.623
385	0.324	520	60.998	655	25.095
390	0.374	525	64.282	660	21.833
395	0.461	530	66.877	665	18.917
400	0.631	535	68.937	670	16.387
405	1.055	540	71.126	675	14.150
410	1.980	545	72.906	680	12.177
415	3.846	550	74.761	685	10.477
420	7.589	555	77.040	690	9.026
425	14.738	560	78.916	695	7.819
430	27.708	565	80.822	700	6.670
435	48.580	570	82.441	705	5.722
440	80.394	575	83.218	710	4.931
445	125.016	580	83.430	715	4.238
450	144.918	585	82.777	720	3.621
455	104.533	590	81.233	725	3.101
460	64.530	595	78.739	730	2.667
465	45.810	600	75.384	735	2.301
470	30.516	605	71.340	740	1.982
475	20.986	610	66.813	745	1.718
480	18.242	615	61.824	750	1.491
485	18.858	620	56.865	755	1.292
490	21.950	625	51.746	760	1.125
495	27.998	630	46.584	765	0.978
500	35.682	635	41.626	770	0.846
505	43.532	640	36.970	775	0.737
510	50.796	645	32.664	780	0.112



REPORT NUMBER: RAB04489  
DATE: 7/18/2018  
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING  
CATALOG NUMBER: BRISKM48L

Page 4 of 4

## CIE Chromaticity Diagram

