

REPORT NUMBER: RAB04486

PAGE: 1 OF 10

ISSUE DATE: 09/21/18

DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISMS32L-730

LUMINAIRE: CAST BROWN PAINTED METAL HOUSING, FORMED SPECULAR PAINTED REFLECTOR, 1 WHITE CIRCUIT BOARD WITH 54 LEDS, MOLDED FROSTED PLASTIC LENS.

LAMPS: FIFTY FOUR 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 = 22.576 W AT 277.0 VAC.

LED DRIVER: LED DRIVER: RDF25U7-39

PROCEDURE: TEST PROCEDURE: IESNA LM-79-08

NOTE: LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE
AMBIENT: 25.5

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: RAB04486

PAGE: 2 OF 10

ISSUE DATE: 09/21/18

DATE SAMPLE TESTED: 07/18/18

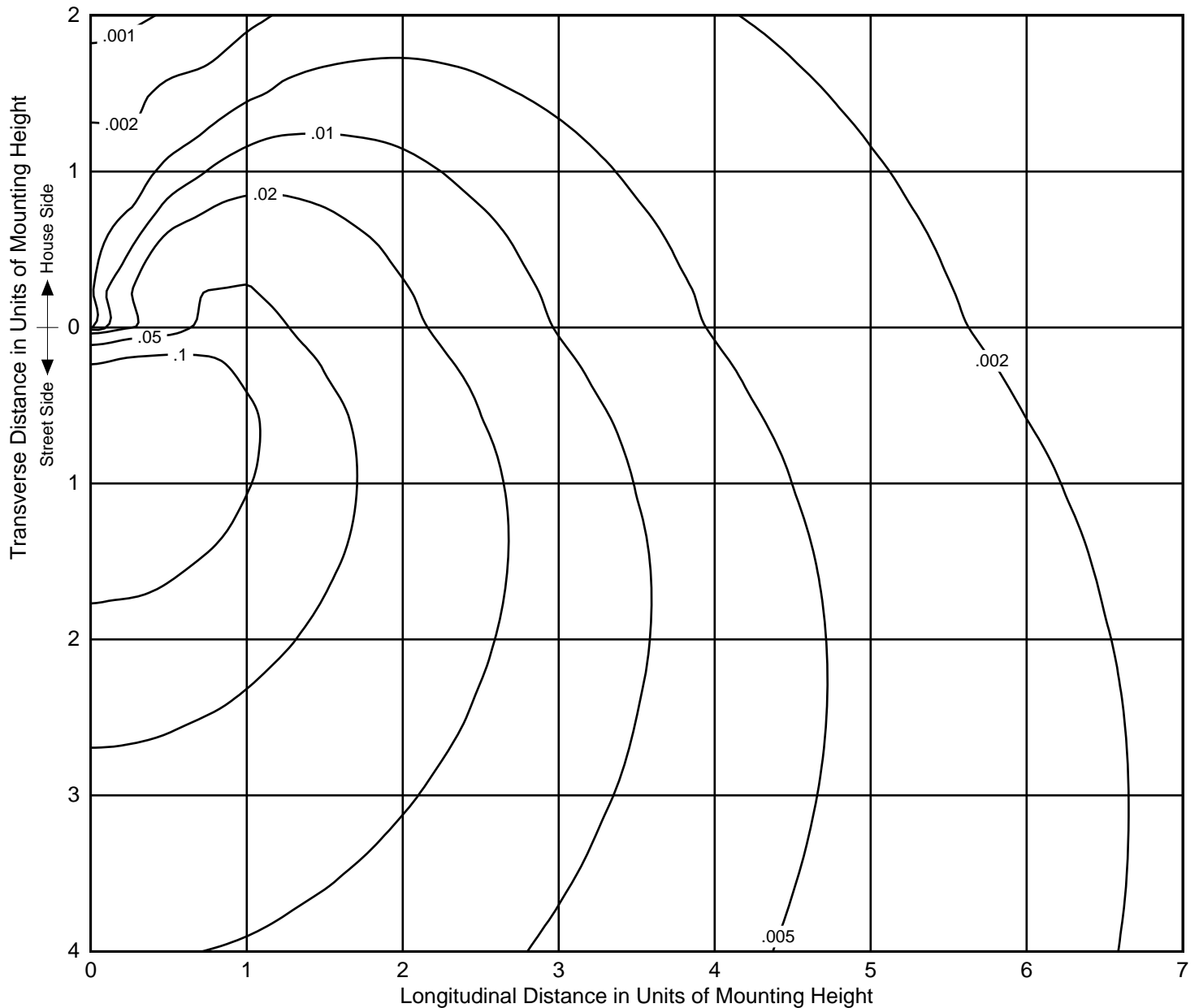
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKS32L-730

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION ABOVE LUMINAIRE

Values based on 15-foot mounting height

Cutoff Classification (deprecated): Noncutoff



REPORT NUMBER: RAB04486

PAGE: 3 OF 10

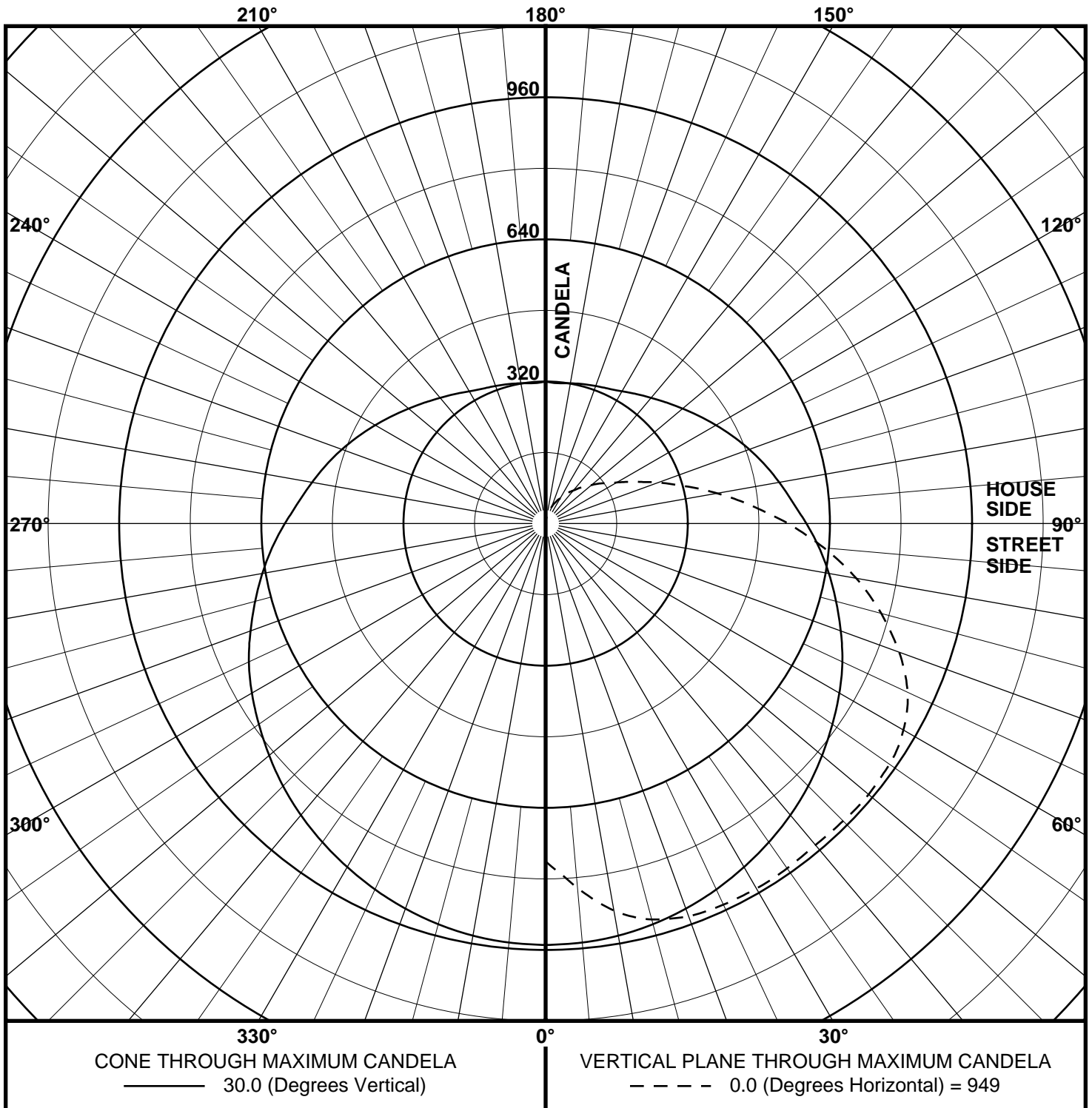
ISSUE DATE: 09/21/18

DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKS32L-730

MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA



REPORT NUMBER: RAB04486

PAGE: 4 OF 10

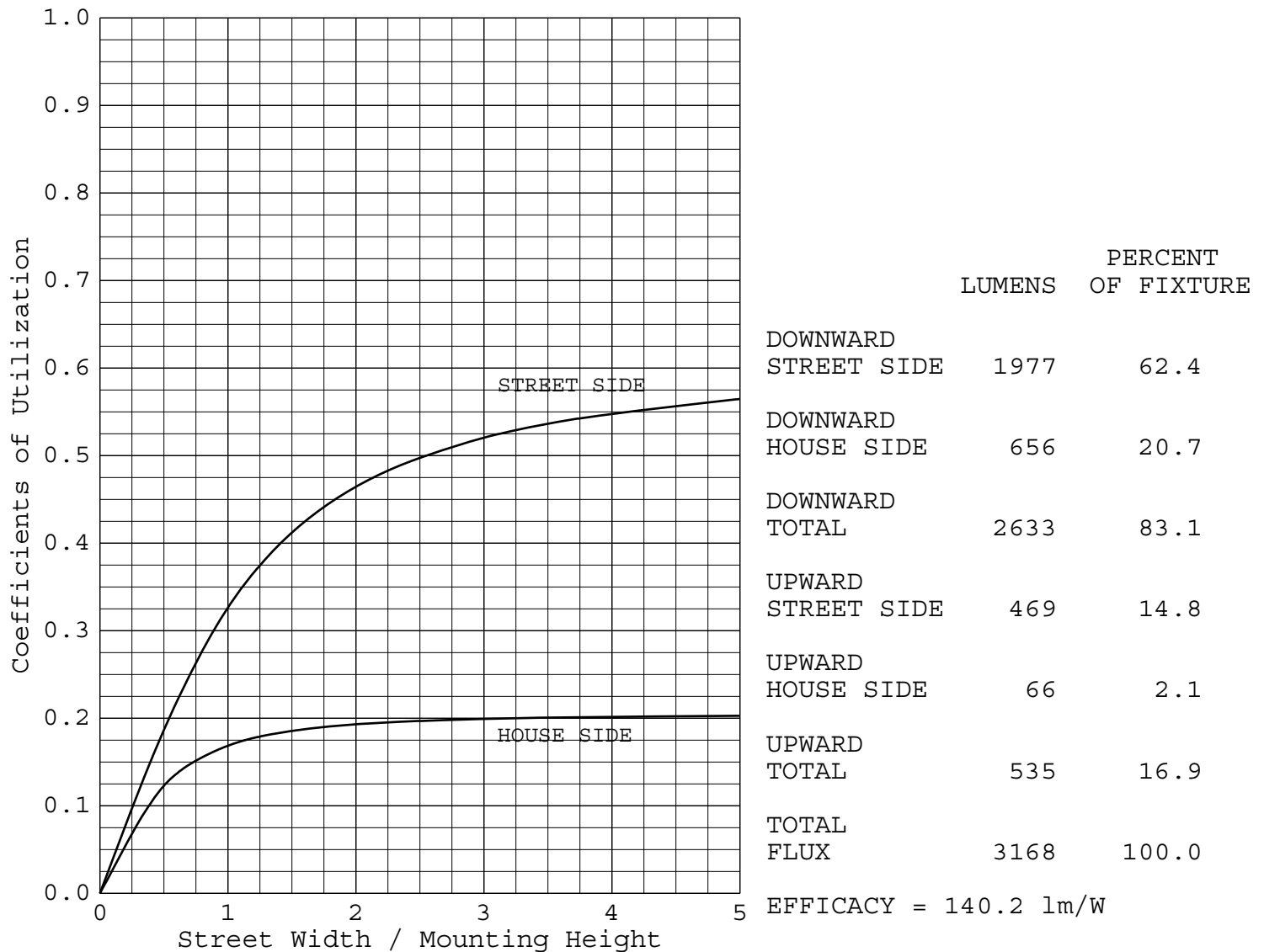
ISSUE DATE: 09/21/18

DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKS32L-730

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: RAB04486

PAGE: 5 OF 10

ISSUE DATE: 09/21/18

DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKS32L-730

BUG Rating			B1 U3 G2		
Zonal Summary			Zone Ratings		
			B	U	G
Forward					
FL	(0° – 30°)	1977			
FM	(30° – 60°)	351.7			
FH	(60° – 80°)	830.0			
FVH	(80° – 90°)	576.0			G0
		218.8			G2
Backward					
BL	(0° – 30°)	656			
BM	(30° – 60°)	225.6	B1		
BH	(60° – 80°)	294.0	B1		
BVH	(80° – 90°)	109.7	B0		G0
		26.8			G1
Upward					
UL	(90° – 100°)	535			
UH	(100° – 180°)	179.5		U3	
		356.0		U3	
Trapped Light					
Total Flux					
		0			
		3168			
		100.0			

REPORT NUMBER: RAB04486

PAGE: 6 OF 10

ISSUE DATE: 09/21/18

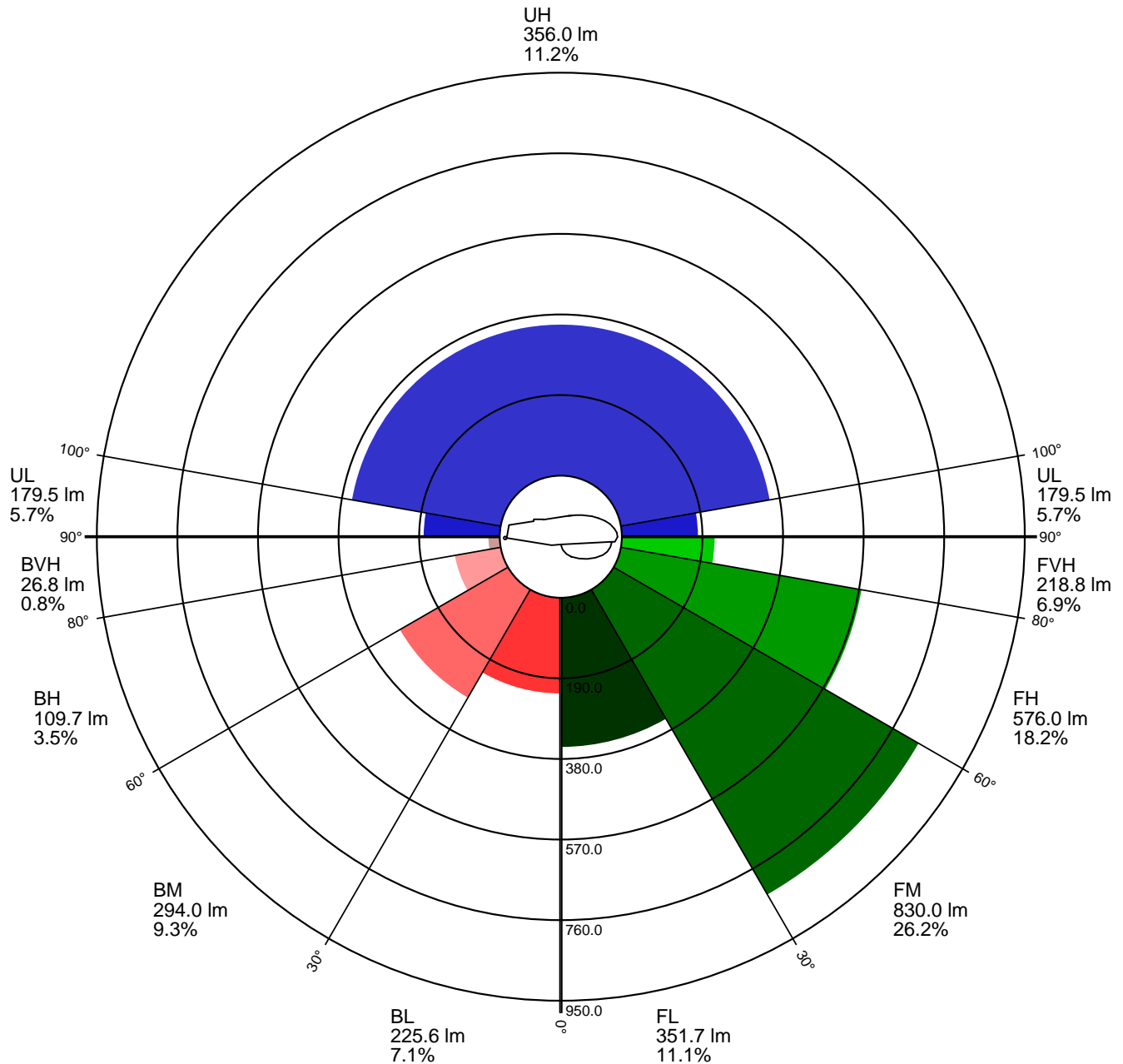
DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKS32L-730

Zonal Lumen Summary

(Linear scale)



REPORT NUMBER: RAB04486

ISSUE DATE: 09/21/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

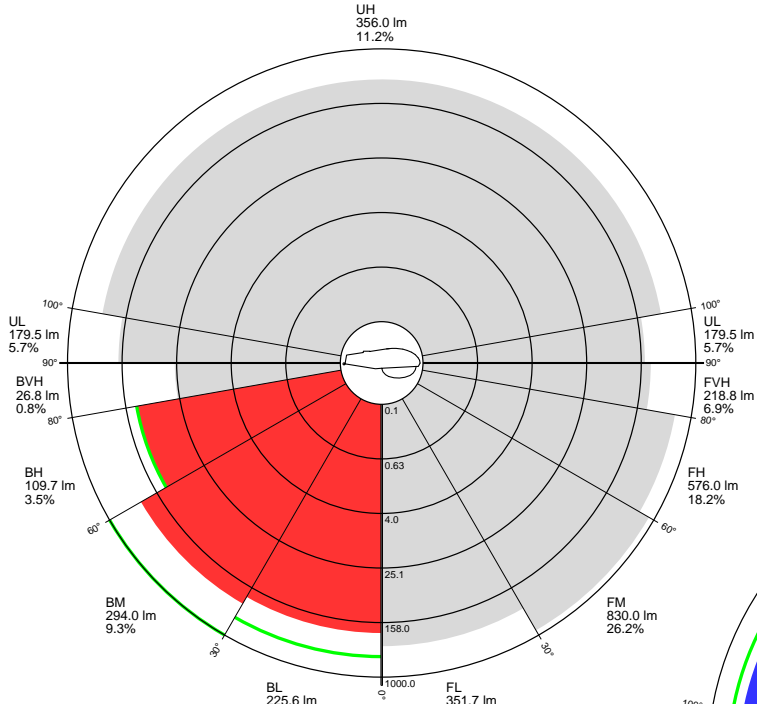
CATALOG NUMBER: BRISMS32L-730

PAGE: 7 OF 10

DATE SAMPLE TESTED: 07/18/18

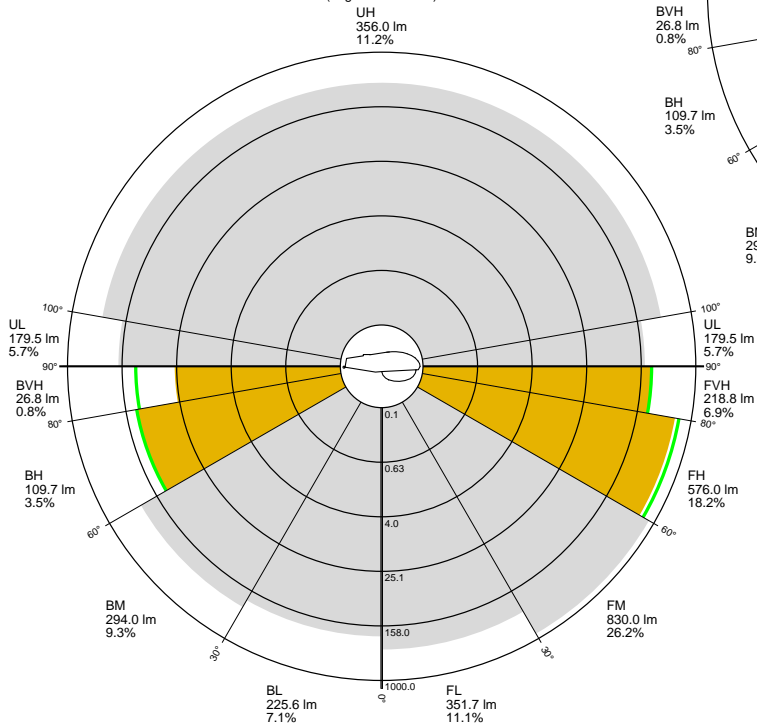
Backlight Rating Details

(Logarithmic scale)



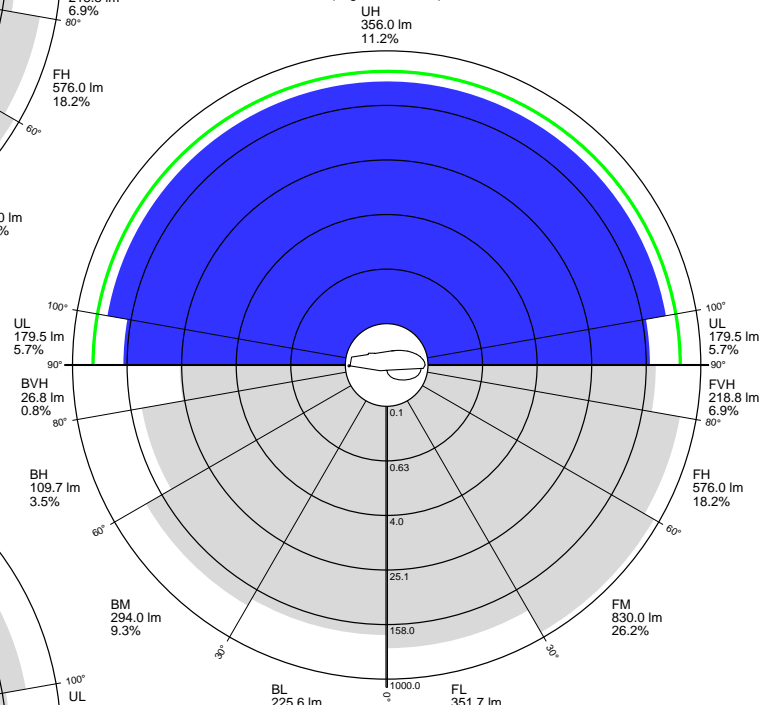
Glare Rating Details

(Logarithmic scale)



Uplight Rating Details

(Logarithmic scale)



REPORT NUMBER: RAB04486

PAGE: 8 OF 10

ISSUE DATE: 09/21/18

DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKS32L-730

CANDELA TABULATION

	STREET SIDE	LATERAL ANGLE										
		0.0	2.5	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.	1.	1.
	175.0	1.	1.	1.	3.	3.	4.	4.	3.	3.	3.	3.
	165.0	28.	28.	28.	28.	27.	26.	24.	20.	15.	10.	7.
	155.0	53.	53.	53.	52.	51.	49.	46.	42.	35.	24.	14.
	145.0	82.	81.	81.	79.	77.	74.	69.	62.	54.	42.	30.
	135.0	116.	115.	115.	111.	107.	101.	93.	84.	72.	59.	46.
	125.0	158.	158.	157.	152.	144.	133.	121.	107.	91.	73.	56.
	115.0	223.	222.	221.	212.	197.	178.	159.	138.	116.	92.	69.
	105.0	325.	325.	324.	307.	280.	248.	215.	181.	150.	117.	87.
	95.0	465.	465.	462.	440.	397.	345.	291.	243.	198.	154.	113.
	92.5	503.	502.	501.	474.	430.	373.	316.	261.	213.	165.	121.
	90.0	546.	543.	543.	514.	467.	406.	342.	283.	230.	179.	131.
	87.5	587.	587.	584.	556.	504.	438.	369.	307.	252.	196.	146.
	85.0	629.	628.	626.	594.	542.	472.	398.	333.	274.	217.	161.
V	82.5	670.	667.	667.	634.	579.	504.	429.	358.	296.	236.	177.
E	80.0	710.	707.	706.	672.	615.	537.	457.	385.	320.	257.	195.
R	77.5	747.	746.	743.	710.	649.	571.	486.	411.	344.	279.	214.
T	75.0	782.	779.	778.	743.	682.	599.	513.	436.	367.	300.	233.
I	72.5	815.	812.	811.	775.	712.	627.	541.	460.	390.	320.	251.
C	70.0	847.	844.	843.	805.	741.	655.	566.	485.	414.	342.	272.
A	67.5	875.	873.	870.	834.	769.	681.	591.	508.	435.	364.	291.
L	65.0	899.	897.	895.	858.	790.	704.	613.	530.	457.	382.	308.
	62.5	917.	915.	913.	875.	810.	723.	632.	550.	475.	401.	326.
A	60.0	930.	929.	926.	890.	824.	738.	650.	567.	493.	418.	344.
N	57.5	940.	938.	935.	900.	835.	752.	666.	585.	511.	436.	362.
G	55.0	945.	944.	941.	906.	843.	764.	680.	601.	528.	453.	379.
L	52.5	947.	946.	943.	910.	850.	774.	694.	617.	545.	471.	399.
E	50.0	949.	947.	945.	913.	857.	785.	709.	635.	564.	490.	419.
	47.5	949.	947.	945.	915.	862.	795.	724.	653.	584.	511.	440.
	45.0	947.	946.	944.	917.	868.	806.	739.	671.	604.	533.	463.
	42.5	946.	945.	942.	918.	874.	817.	755.	690.	625.	555.	487.
	40.0	945.	944.	942.	920.	880.	829.	771.	709.	647.	579.	512.
	37.5	946.	945.	943.	923.	888.	842.	789.	730.	671.	604.	538.
	35.0	948.	947.	946.	928.	897.	855.	806.	752.	694.	630.	565.
	32.5	949.	948.	947.	931.	904.	866.	822.	771.	716.	654.	592.
	30.0<<	949.	948.	947.	934.	909.	876.	836.	788.	737.	677.	618.
	25.0	947.	947.	946.	935.	917.	891.	858.	817.	771.	718.	663.
	20.0	941.	941.	940.	932.	918.	898.	870.	837.	797.	752.	706.
	15.0	923.	924.	922.	917.	906.	890.	868.	842.	810.	776.	739.
	10.0	885.	886.	884.	882.	874.	863.	847.	829.	807.	784.	759.
	5.0	824.	826.	824.	824.	819.	815.	807.	798.	788.	777.	764.
	0.0	761.	761.	761.	761.	761.	761.	761.	761.	761.	761.	761.

||
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB04486

PAGE: 9 OF 10

ISSUE DATE: 09/21/18

DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKS32L-730

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	3.	3.	2.	2.	2.	2.	1.	1.	1.	1.
	165.0	5.	5.	4.	5.	4.	4.	2.	2.	1.	1.
	155.0	9.	8.	12.	13.	11.	7.	4.	3.	2.	1.
	145.0	24.	22.	19.	17.	16.	11.	6.	3.	2.	1.
	135.0	41.	39.	33.	26.	21.	14.	7.	4.	2.	2.
	125.0	50.	47.	41.	33.	25.	16.	8.	4.	2.	2.
	115.0	60.	56.	48.	39.	29.	19.	10.	4.	3.	2.
	105.0	74.	69.	57.	46.	34.	22.	11.	5.	4.	3.
	95.0	96.	87.	70.	54.	39.	25.	13.	6.	5.	5.
	92.5	102.	92.	73.	56.	41.	26.	14.	7.	6.	5.
	90.0	110.	98.	78.	59.	43.	28.	15.	8.	6.	6.
	87.5	122.	110.	85.	64.	46.	30.	16.	8.	7.	6.
	85.0	137.	122.	95.	72.	52.	35.	20.	12.	10.	10.
V	82.5	152.	136.	106.	81.	60.	41.	26.	17.	16.	15.
E	80.0	167.	151.	118.	91.	68.	49.	32.	24.	22.	21.
R	77.5	184.	165.	131.	102.	77.	57.	40.	31.	28.	27.
T	75.0	201.	181.	145.	113.	87.	66.	48.	39.	36.	34.
I	72.5	220.	198.	159.	126.	98.	75.	57.	47.	44.	43.
C	70.0	238.	215.	174.	139.	110.	86.	67.	57.	54.	52.
A	67.5	256.	232.	189.	153.	123.	98.	78.	66.	63.	61.
L	65.0	274.	250.	205.	165.	136.	109.	89.	76.	73.	71.
	62.5	291.	266.	221.	181.	149.	121.	101.	89.	84.	82.
A	60.0	309.	283.	237.	195.	162.	135.	113.	99.	95.	93.
N	57.5	327.	301.	253.	211.	177.	149.	126.	112.	107.	104.
G	55.0	345.	317.	270.	228.	192.	162.	140.	125.	120.	117.
L	52.5	363.	337.	290.	246.	209.	178.	155.	140.	134.	130.
E	50.0	383.	357.	309.	264.	227.	194.	170.	155.	149.	145.
	47.5	405.	377.	330.	285.	247.	213.	188.	171.	165.	160.
	45.0	428.	400.	352.	306.	266.	232.	207.	189.	182.	177.
	42.5	452.	424.	376.	330.	288.	253.	227.	209.	201.	195.
	40.0	478.	448.	401.	354.	311.	276.	249.	230.	221.	216.
	37.5	505.	476.	427.	380.	337.	301.	273.	253.	244.	238.
	35.0	532.	504.	456.	408.	365.	328.	299.	279.	270.	263.
	32.5	559.	531.	483.	436.	393.	355.	327.	305.	296.	289.
	30.0<<	587.	558.	511.	465.	422.	385.	356.	335.	325.	317.
	25.0	636.	611.	565.	523.	483.	447.	421.	399.	389.	382.
	20.0	683.	660.	620.	583.	547.	517.	491.	471.	463.	456.
	15.0	720.	703.	669.	639.	612.	587.	567.	550.	541.	537.
	10.0	747.	734.	711.	689.	670.	654.	640.	630.	623.	619.
	5.0	759.	752.	741.	729.	720.	711.	705.	698.	695.	692.
	0.0	761.	761.	761.	761.	761.	761.	761.	761.	761.	761.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB04486

PAGE: 10 OF 10

ISSUE DATE: 09/21/18

DATE SAMPLE TESTED: 07/18/18

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CATALOG NUMBER: BRISKS32L-730

5-DEGREE ZONAL LUMEN SUMMARY

0- 5	18
5- 10	54
10- 15	88
15- 20	117
20- 25	141
25- 30	160
30- 35	174
35- 40	183
40- 45	189
45- 50	192
50- 55	194
55- 60	193
60- 65	189
65- 70	180
70- 75	167
75- 80	150
80- 85	132
85- 90	113
90- 95	97
95-100	83
100-105	70
105-110	58
110-115	48
115-120	40
120-125	33
125-130	28
130-135	23
135-140	18
140-145	14
145-150	10
150-155	7
155-160	4
160-165	2
165-170	1
170-175	0
175-180	0

10-DEGREE ZONAL LUMEN SUMMARY

0- 10	72
0- 20	277
0- 30	577
0- 40	934
0- 50	1315
0- 60	1701
0- 70	2070
0- 80	2387
0- 90	2633
0-100	2812
0-110	2940
0-120	3028
0-130	3089
0-140	3130
0-150	3153
0-160	3164
0-170	3168
0-180	3168

REPORT NUMBER: RAB04487
DATE: 7/17/2018
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
CATALOG NUMBER: BRISKSM32L-730

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: CAST BROWN PAINTED METAL HOUSING, FORMED SPECULAR PAINTED REFLECTOR, 1 WHITE CIRCUIT BOARD WITH 54 LEDS, MOLDED FROSTED PLASTIC LENS.

LAMP: FIFTY FOUR WHITE LIGHT EMITTING DIODES (LEDs), TILTED 30-DEGREE FROM VERTICAL BASE-UP POSITION.

DRIVER: RDF25U7-39

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: 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 (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	<u>X.CAO</u>
Approved	<u>D.WANG-MUNSON</u> Lighting Engineer

REPORT NUMBER: RAB04487
DATE: 7/17/2018
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
CATALOG NUMBER: BRISKS32L-730

Page 2 of 4

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	3168 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4350
Chromaticity Ordinate y	0.4016
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2504
Chromaticity Ordinate v'	0.5201
Correlated Color Temp CCT (K)	3012
ANSI C78.377-2008 Duv	-0.001
Total Radiant Flux (milliWatts)	8858 *
ELECTRICAL	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.089
Input Power (Watts)	22.6
Input Power Factor (%)	91.6
Input Current THD (%)	12.0
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	140.2
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.185
Input Power (Watts)	21.9
Input Power Factor (%)	98.9
Input Current THD (%)	12.2
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	71
R1 Light greyish red	66
R2 Dark greyish yellow	83
R3 Strong yellowish green	94
R4 Moderate yellowish green	66
R5 Light bluish green	67
R6 Light blue	78
R7 Light violet	74
R8 Light reddish purple	37
R9 Strong red	-45
R10 Strong yellow	62
R11 Strong green	61
R12 Strong blue	53
R13 Light yellowish pink (skin)	69
R14 Moderate olive green (leaf)	97

*NOTE:

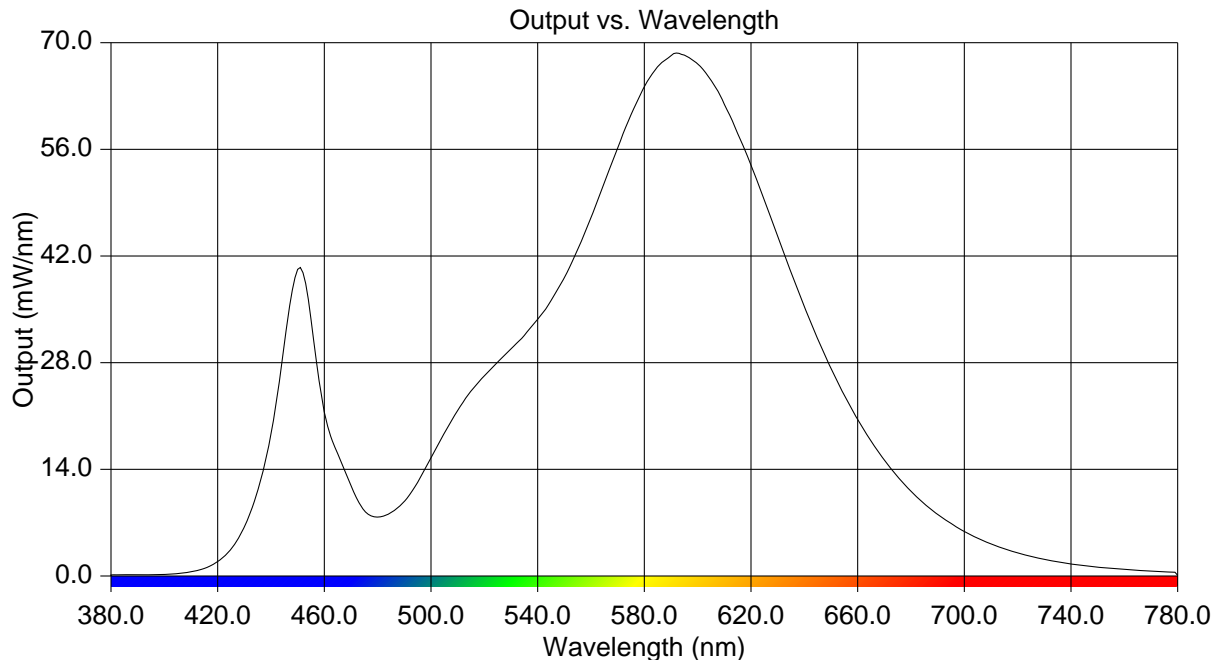
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB04487
DATE: 7/17/2018
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
CATALOG NUMBER: BRISKS32L-730

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.138	515	24.285	650	27.284
385	0.158	520	26.278	655	23.751
390	0.157	525	28.027	660	20.561
395	0.173	530	29.811	665	17.716
400	0.211	535	31.576	670	15.218
405	0.320	540	33.746	675	12.988
410	0.531	545	36.143	680	11.097
415	0.993	550	39.127	685	9.458
420	1.894	555	42.876	690	8.056
425	3.525	560	47.023	695	6.909
430	6.441	565	51.572	700	5.823
435	11.154	570	56.223	705	4.961
440	18.708	575	60.538	710	4.213
445	30.454	580	64.221	715	3.580
450	40.248	585	66.825	720	3.021
455	33.694	590	68.259	725	2.565
460	21.523	595	68.368	730	2.179
465	16.070	600	67.204	735	1.852
470	11.851	605	65.039	740	1.591
475	8.611	610	61.906	745	1.358
480	7.717	615	58.072	750	1.164
485	8.345	620	53.864	755	1.003
490	9.774	625	49.335	760	0.859
495	12.291	630	44.540	765	0.737
500	15.534	635	39.900	770	0.635
505	18.714	640	35.380	775	0.548
510	21.741	645	31.178	780	0.084



REPORT NUMBER: RAB04487
DATE: 7/17/2018
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
CATALOG NUMBER: BRISKSM32L-730

Page 4 of 4

CIE Chromaticity Diagram

