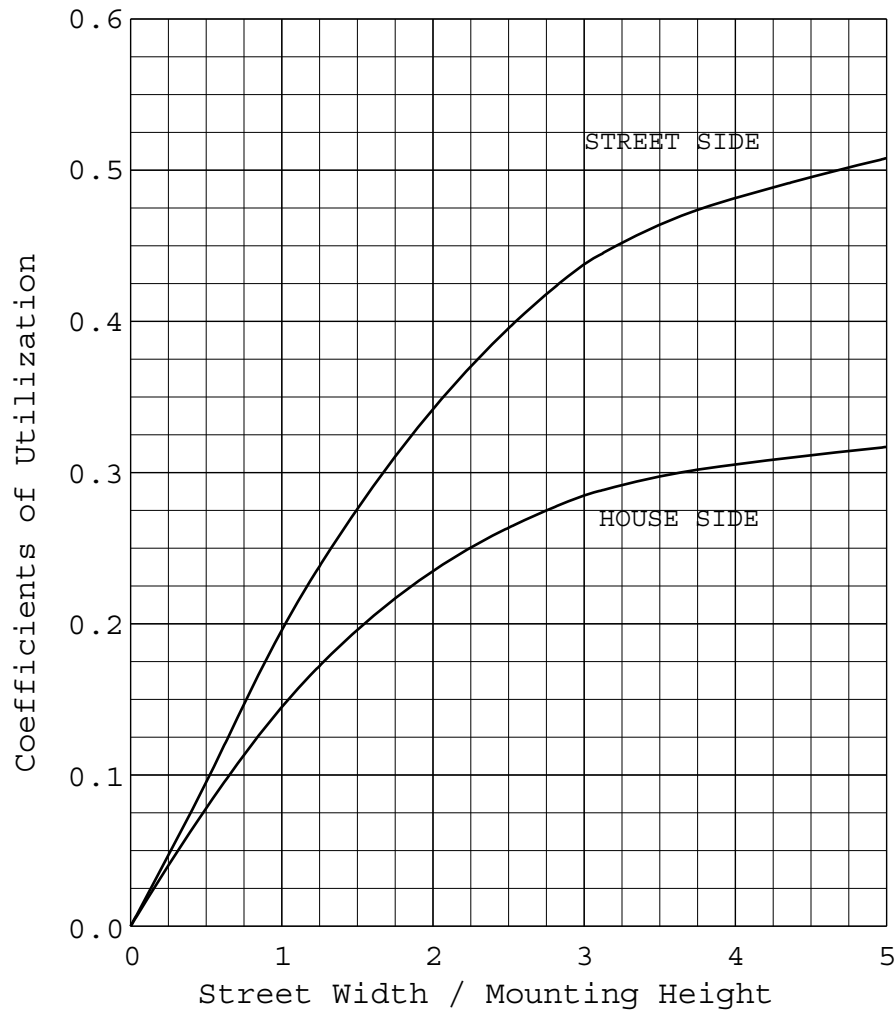
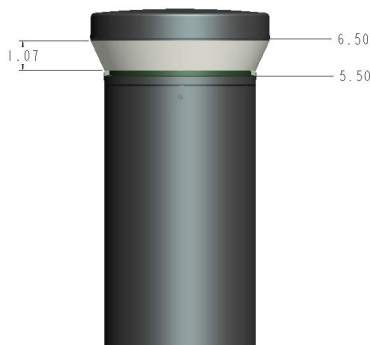


COEFFICIENTS OF UTILIZATION AND FLUX DISTRIBUTION

REPORT NUMBER: RAB03689
 ISSUE DATE: 08/14/17 PAGE: 1 OF 11
 DATE SAMPLE TESTED: 08/14/17
 PREPARED FOR: RAB LIGHTING INC. RC
 LIGHTING
 CATALOG NUMBER: BLEDR12Y, BLEDR12Y/D10,
 BDLEDR12Y, BDLEDR12Y/D10 (42" ROUND
 BOLLARD W/LED @ 90-DEGREES)
 (SEE PAGE 2 FOR MORE INFORMATION)



	LUMENS	PERCENT OF FIXTURE
DOWNWARD STREET SIDE	628.	56.1
DOWNWARD HOUSE SIDE	384.	34.3
DOWNWARD TOTAL	1012.	90.4
UPWARD STREET SIDE	64.	5.7
UPWARD HOUSE SIDE	43.	3.9
UPWARD TOTAL	107.	9.6
TOTAL FLUX	1119.	100.0

TOTAL INPUT WATTS = 11.8
 EFFICACY = 94.8 Lm/W
 Checked X.CAO
 Approved D.WANG-MUNSON

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: RAB03689

PAGE: 2 OF 11

ISSUE DATE: 08/14/17

DATE SAMPLE TESTED: 08/14/17

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

ADDITIONAL INFORMATION

LUMINAIRE: EXTRUDED BROWN PAINTED CYLINDRICAL METAL LOWER HOUSING, CAST METAL TOP, CAST FINNED METAL HEAT SINK WITH WHITE PAINTED INTERIOR, MOLDED SPECULAR FINISHED PLASTIC REFLECTOR, 2 WHITE CIRCUIT BOARDS EACH WITH 3 LEDS, 2 WHITE CIRCUIT BOARDS EACH WITH 2 LEDS, FROSTED PLASTIC LENS, CAST BROWN PAINTED METAL BOTTOM.

LAMP: TEN LIGHT EMITTING DIODES (LEDs).

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 = 11.844 W AT 277.0 VAC.

LED DRIVER: RDD-15W-032SE-A0350

TEST PROCEDURE: IESNA LM-79-08

LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE

AMBIENT: 24.4

ACCREDITED LABORATORY CODE 201058-0

REPORT NUMBER: RAB03689

ISSUE DATE: 08/14/17

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

PAGE: 3 OF 11

DATE SAMPLE TESTED: 08/14/17

BUG Rating:

Zonal Summary

Lumens

% of Fixture

B1 U3 G1

Zone Ratings

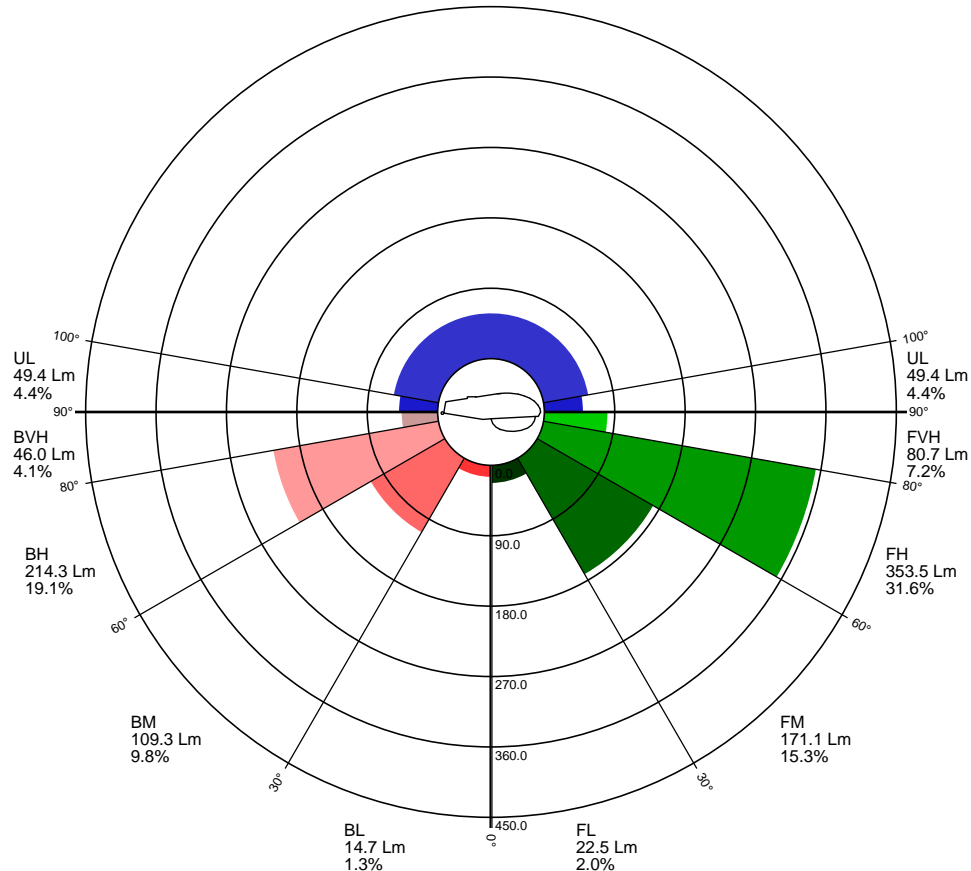
B U G

Forward		628	56.1			
FL	(0° - 30°)	22.5	2.0			
FM	(30° - 60°)	171.1	15.3			
FH	(60° - 80°)	353.5	31.6			G0
FVH	(80° - 90°)	80.7	7.2			G1
Backward		384	34.3			
BL	(0° - 30°)	14.7	1.3	B0		
BM	(30° - 60°)	109.3	9.8	B0		
BH	(60° - 80°)	214.3	19.1	B1		G1
BVH	(80° - 90°)	46.0	4.1			G1
Upward		107	9.6			
UL	(90° - 100°)	49.4	4.4		U2	
UH	(100° - 180°)	57.9	5.2		U3	
Trapped Light		0	0.0			
Total Flux		1119	100.0			

Zonal Lumen Summary

(Linear scale)

UH
57.9 Lm
5.2%



REPORT NUMBER: RAB03689

ISSUE DATE: 08/14/17

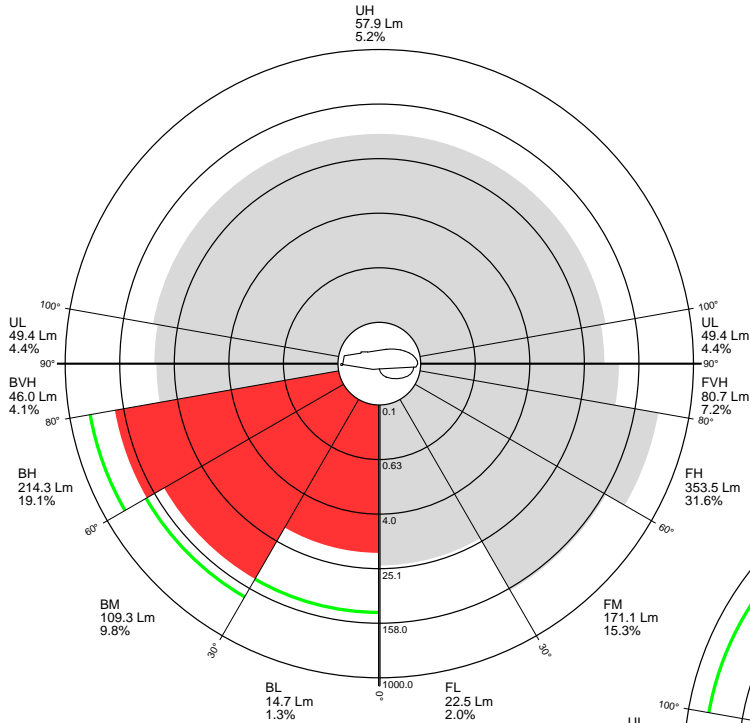
PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

PAGE: 4 OF 11

DATE SAMPLE TESTED: 08/14/17

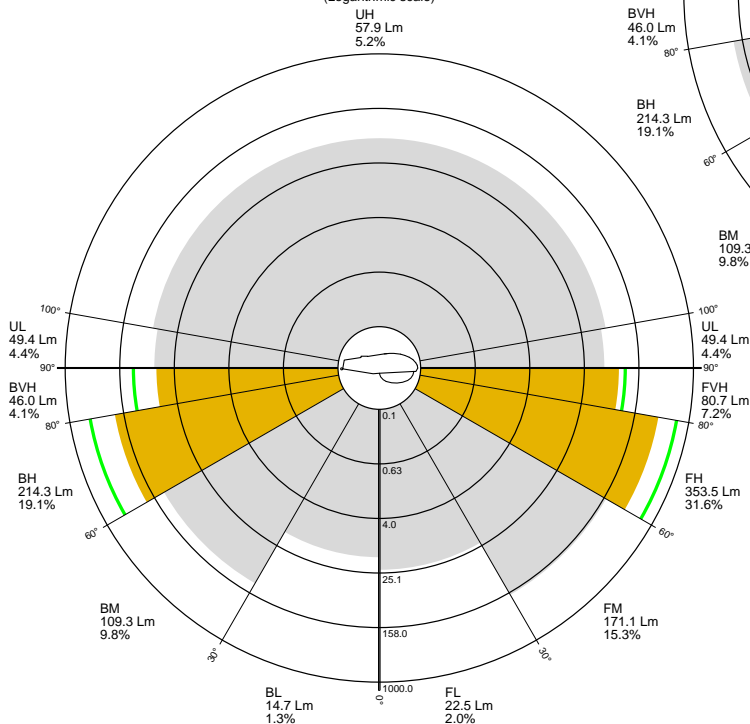
Backlight Rating Details

(Logarithmic scale)



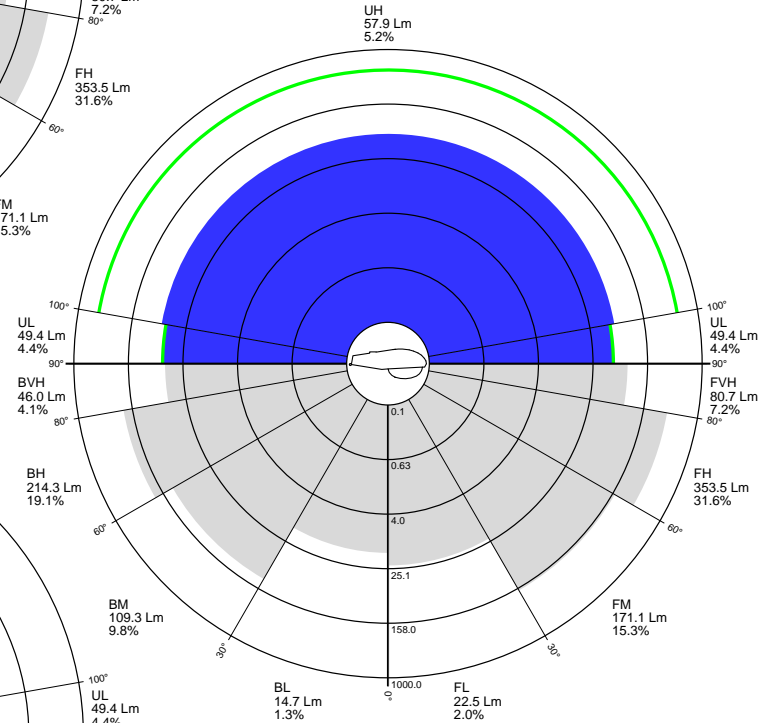
Glare Rating Details

(Logarithmic scale)



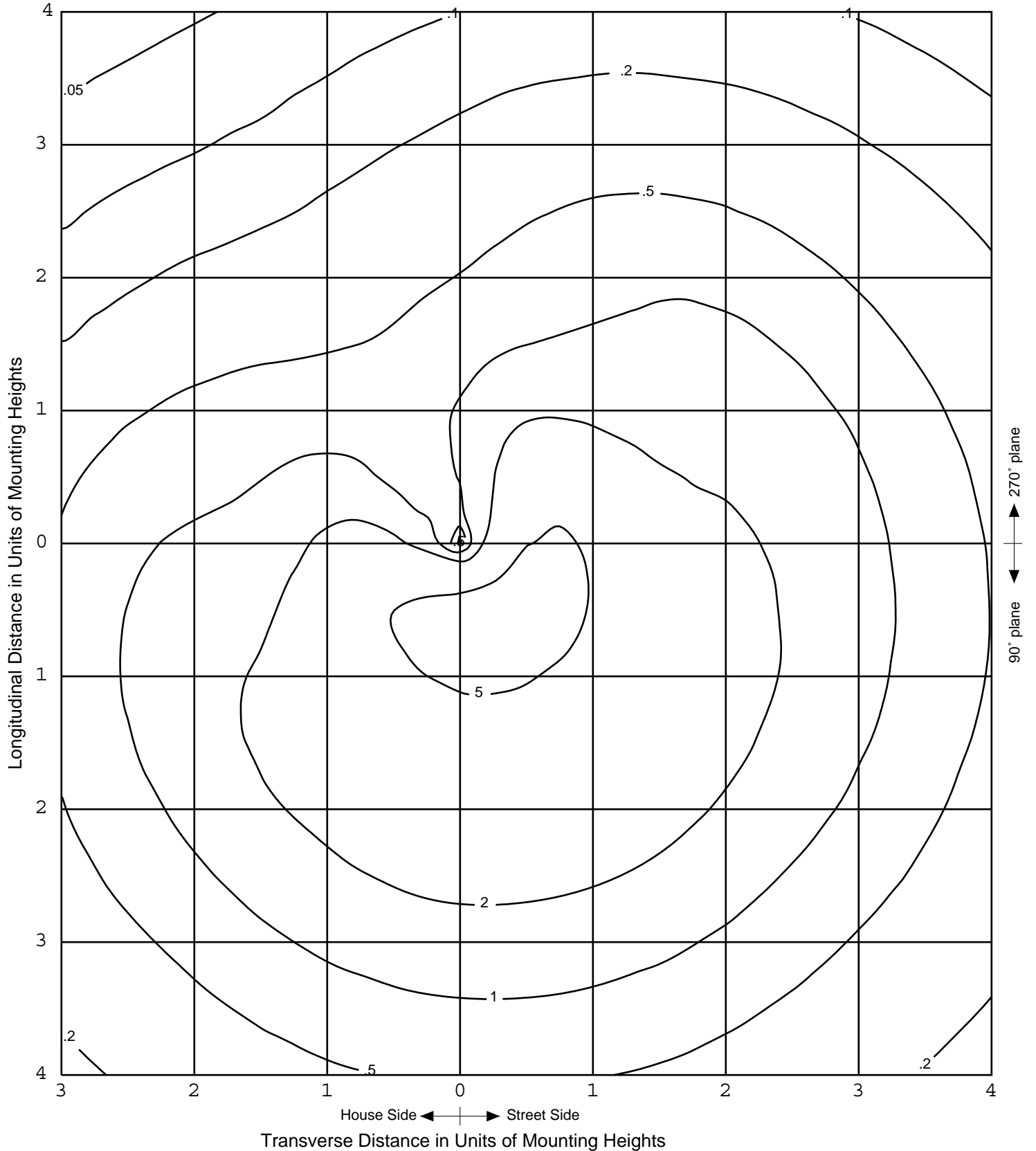
Uplight Rating Details

(Logarithmic scale)



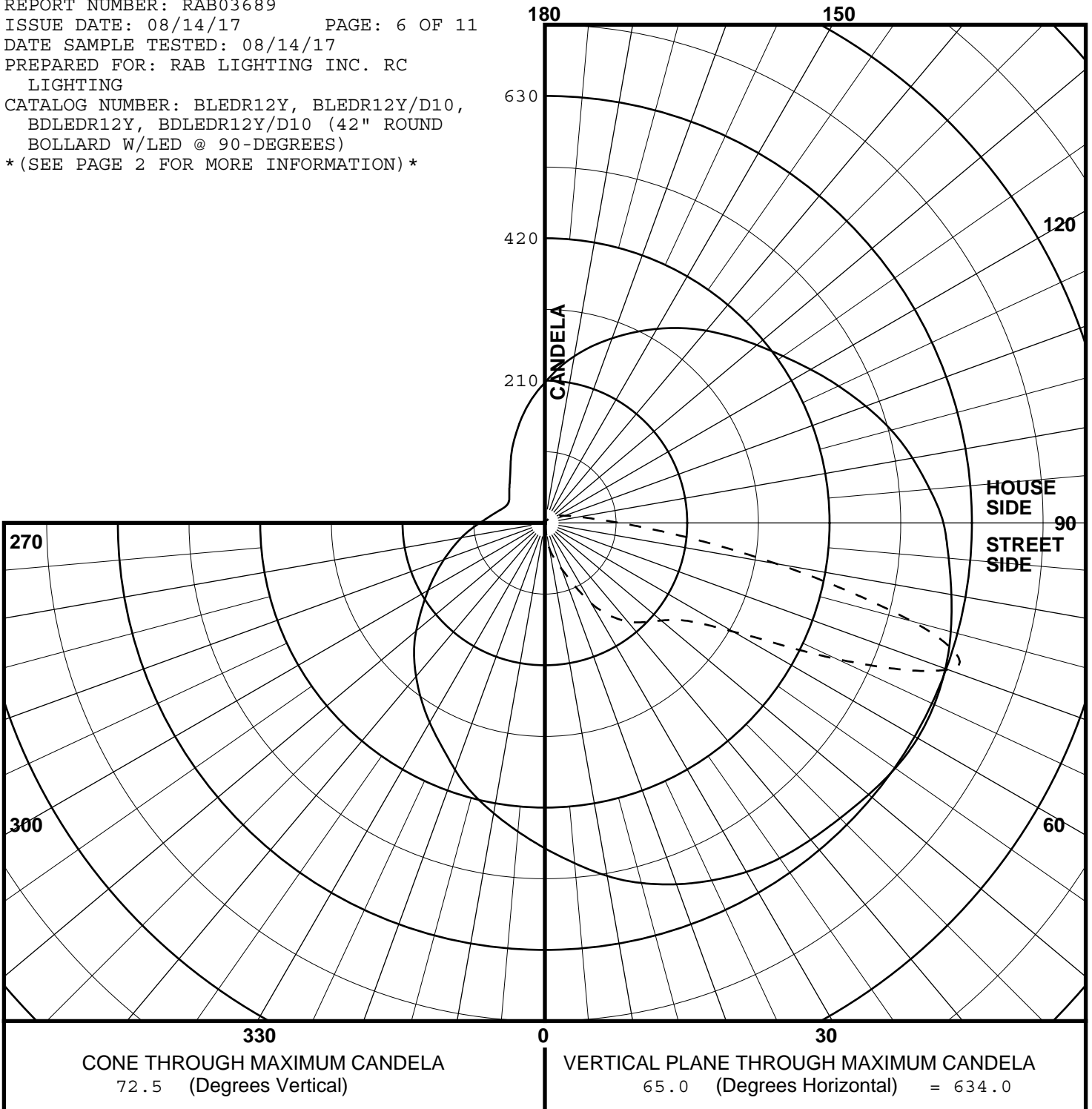
ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINATION

Values based on 3.5 foot mounting height.



MAXIMUM PLANE AND MAXIMUM CONE PLOTS OF CANDELA

REPORT NUMBER: RAB03689
 ISSUE DATE: 08/14/17 PAGE: 6 OF 11
 DATE SAMPLE TESTED: 08/14/17
 PREPARED FOR: RAB LIGHTING INC. RC
 LIGHTING
 CATALOG NUMBER: BLEDR12Y, BLEDR12Y/D10,
 BDLEDR12Y, BDLEDR12Y/D10 (42" ROUND
 BOLLARD W/LED @ 90-DEGREES)
 (SEE PAGE 2 FOR MORE INFORMATION)



REPORT NUMBER: RAB03689

PAGE: 7 OF 11

ISSUE DATE: 08/14/17

DATE SAMPLE TESTED: 08/14/17

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

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	2.	2.	2.	2.	2.	2.	2.	2.	2.
	175.0	0.	0.	0.	1.	1.	1.	2.	2.	3.
	165.0	0.	0.	0.	1.	1.	1.	1.	2.	2.
	155.0	1.	1.	1.	1.	1.	1.	2.	2.	2.
	145.0	3.	3.	3.	4.	4.	4.	4.	4.	4.
	135.0	7.	7.	7.	8.	8.	8.	9.	9.	9.
	125.0	12.	13.	14.	14.	15.	15.	15.	15.	15.
	115.0	20.	21.	22.	23.	24.	24.	24.	25.	24.
	105.0	32.	34.	35.	36.	38.	39.	39.	39.	38.
	95.0	59.	61.	65.	68.	71.	72.	72.	71.	69.
	90.0	92.	96.	104.	107.	111.	111.	112.	111.	107.
	87.5	119.	122.	135.	139.	145.	145.	145.	144.	139.
	85.0	156.	161.	175.	184.	192.	192.	192.	192.	184.
V	82.5	210.	221.	235.	247.	258.	257.	259.	259.	249.
E	80.0	278.	294.	314.	331.	345.	343.	348.	347.	335.
R	77.5	360.	378.	406.	427.	447.	444.	451.	451.	437.
T	75.0	437.	454.	499.	526.	547.	550.	560.	561.	545.
I	72.5<<	480.	504.	550.	582.	604.	616.	631.	634.	620.
C	70.0	466.	490.	531.	566.	588.	613.	629.	633.	625.
A	67.5	408.	430.	461.	495.	517.	546.	561.	564.	562.
L	65.0	340.	358.	378.	406.	427.	451.	463.	475.	470.
	62.5	276.	291.	309.	332.	350.	366.	374.	385.	382.
A	60.0	230.	242.	259.	278.	293.	308.	313.	321.	321.
N	57.5	201.	211.	227.	244.	257.	269.	272.	278.	279.
G	55.0	183.	191.	206.	222.	234.	244.	247.	251.	251.
L	52.5	172.	179.	193.	208.	220.	229.	233.	235.	233.
E	50.0	164.	171.	184.	198.	210.	219.	222.	224.	221.
	47.5	158.	165.	178.	191.	203.	211.	214.	215.	212.
	45.0	154.	160.	172.	185.	196.	204.	206.	207.	204.
	42.5	149.	155.	166.	179.	189.	196.	198.	199.	197.
	40.0	143.	149.	159.	171.	180.	187.	189.	190.	188.
	37.5	136.	142.	152.	162.	170.	176.	179.	179.	179.
	35.0	127.	133.	143.	151.	158.	164.	168.	167.	167.
	30.0	103.	108.	118.	123.	128.	133.	137.	137.	137.
	25.0	74.	78.	85.	90.	93.	97.	100.	100.	101.
	20.0	53.	55.	60.	63.	66.	69.	71.	72.	71.
	15.0	41.	42.	45.	48.	50.	53.	53.	54.	53.
	10.0	29.	29.	32.	34.	35.	37.	38.	38.	38.
	5.0	3.	6.	5.	6.	4.	5.	4.	4.	3.
	0.0	1.	1.	1.	1.	1.	1.	1.	1.	1.

||
PLANE OF MAXIMUM CANDELA

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB03689

PAGE: 8 OF 11

ISSUE DATE: 08/14/17

DATE SAMPLE TESTED: 08/14/17

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

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	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
	175.0	3.	3.	4.	4.	4.	4.	4.	4.	4.	4.
	165.0	2.	2.	3.	3.	3.	3.	3.	3.	3.	3.
	155.0	2.	3.	2.	3.	3.	3.	3.	3.	3.	3.
	145.0	4.	5.	4.	4.	4.	4.	4.	4.	3.	3.
	135.0	9.	9.	8.	8.	8.	7.	7.	6.	5.	4.
	125.0	15.	15.	14.	14.	13.	12.	11.	10.	8.	8.
	115.0	24.	24.	22.	21.	20.	18.	17.	15.	14.	12.
	105.0	37.	37.	35.	33.	30.	28.	26.	23.	21.	19.
	95.0	66.	65.	61.	57.	52.	48.	43.	39.	34.	30.
	90.0	100.	99.	92.	87.	77.	70.	61.	55.	48.	42.
	87.5	130.	129.	116.	111.	100.	89.	78.	69.	60.	52.
	85.0	172.	170.	153.	143.	132.	118.	101.	89.	77.	67.
V	82.5	233.	229.	212.	198.	179.	158.	135.	118.	101.	88.
E	80.0	315.	310.	286.	259.	233.	212.	182.	158.	135.	117.
R	77.5	413.	405.	373.	341.	307.	279.	242.	211.	182.	153.
T	75.0	506.	496.	465.	425.	377.	347.	305.	268.	231.	194.
I	72.5<<	588.	570.	529.	478.	429.	389.	351.	310.	270.	229.
C	70.0	596.	584.	541.	490.	446.	403.	364.	322.	279.	239.
A	67.5	543.	537.	509.	458.	428.	384.	346.	302.	263.	221.
L	65.0	458.	455.	439.	399.	382.	345.	305.	263.	227.	187.
	62.5	374.	373.	363.	344.	326.	291.	257.	220.	189.	155.
A	60.0	319.	313.	305.	288.	272.	243.	214.	184.	158.	131.
N	57.5	273.	268.	260.	245.	230.	205.	182.	158.	137.	115.
G	55.0	243.	238.	229.	214.	199.	179.	160.	140.	123.	105.
L	52.5	224.	218.	208.	193.	178.	162.	146.	128.	114.	98.
E	50.0	211.	206.	195.	179.	165.	150.	136.	120.	107.	93.
	47.5	202.	197.	185.	169.	156.	142.	129.	114.	101.	88.
	45.0	194.	189.	177.	162.	149.	136.	123.	109.	97.	84.
	42.5	187.	182.	170.	156.	143.	129.	117.	104.	92.	80.
	40.0	179.	174.	163.	150.	137.	124.	112.	99.	88.	76.
	37.5	171.	167.	156.	143.	131.	118.	106.	94.	83.	71.
	35.0	161.	157.	148.	135.	124.	111.	100.	88.	77.	65.
	30.0	134.	130.	125.	116.	107.	96.	86.	75.	64.	52.
	25.0	99.	96.	93.	88.	82.	74.	66.	57.	48.	39.
	20.0	69.	68.	66.	62.	58.	52.	47.	41.	35.	30.
	15.0	51.	50.	48.	46.	42.	39.	35.	31.	28.	24.
	10.0	36.	35.	33.	31.	28.	26.	24.	21.	19.	16.
	5.0	4.	4.	3.	4.	5.	3.	5.	4.	4.	3.
	0.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB03689

PAGE: 9 OF 11

ISSUE DATE: 08/14/17

DATE SAMPLE TESTED: 08/14/17

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CANDELA TABULATION

HOUSE SIDE		LATERAL ANGLE								
		180.0	185.0	195.0	205.0	215.0	225.0	235.0	245.0	255.0 265.0
	180.0	2.	2.	2.	2.	2.	2.	2.	2.	2.
	175.0	4.	4.	4.	3.	3.	3.	2.	2.	1. 1.
	165.0	3.	3.	3.	3.	3.	2.	2.	2.	1. 1.
	155.0	3.	3.	2.	2.	2.	2.	2.	2.	1. 1.
	145.0	3.	3.	2.	2.	2.	2.	2.	1.	1. 1.
	135.0	4.	4.	3.	3.	3.	2.	2.	2.	2. 2.
	125.0	7.	6.	5.	5.	4.	4.	3.	3.	3. 4.
	115.0	11.	10.	9.	8.	7.	6.	6.	6.	6. 6.
	105.0	17.	16.	14.	13.	11.	10.	10.	10.	10. 11.
	95.0	28.	26.	23.	20.	18.	17.	17.	16.	17. 18.
	90.0	39.	37.	32.	28.	26.	24.	23.	23.	24. 25.
	87.5	48.	46.	39.	35.	32.	30.	28.	28.	30. 31.
	85.0	62.	58.	49.	44.	38.	37.	35.	34.	37. 38.
V	82.5	80.	75.	65.	55.	48.	45.	42.	41.	45. 48.
E	80.0	106.	98.	83.	69.	58.	54.	49.	48.	54. 59.
R	77.5	138.	126.	105.	85.	70.	62.	56.	55.	62. 71.
T	75.0	174.	159.	127.	101.	80.	69.	60.	59.	67. 80.
I	72.5<<	207.	188.	149.	116.	89.	74.	64.	62.	70. 85.
C	70.0	219.	198.	159.	122.	95.	77.	65.	63.	71. 83.
A	67.5	203.	182.	149.	116.	93.	76.	64.	62.	68. 78.
L	65.0	171.	153.	126.	101.	84.	70.	61.	58.	62. 70.
	62.5	141.	126.	104.	86.	74.	62.	56.	53.	55. 62.
A	60.0	119.	108.	90.	76.	65.	54.	49.	47.	49. 56.
N	57.5	106.	96.	82.	70.	59.	48.	43.	42.	44. 52.
G	55.0	97.	89.	77.	65.	53.	43.	37.	36.	39. 47.
L	52.5	91.	84.	72.	60.	49.	39.	32.	31.	35. 43.
E	50.0	87.	80.	68.	56.	45.	35.	28.	27.	32. 39.
	47.5	82.	76.	64.	52.	41.	32.	25.	24.	29. 36.
	45.0	78.	72.	60.	48.	37.	29.	23.	22.	26. 33.
	42.5	74.	67.	55.	44.	34.	26.	21.	20.	23. 30.
	40.0	69.	62.	50.	39.	30.	23.	19.	19.	21. 27.
	37.5	64.	57.	46.	35.	26.	21.	17.	17.	19. 24.
	35.0	59.	52.	41.	31.	23.	19.	16.	16.	17. 21.
	30.0	47.	42.	33.	25.	19.	16.	14.	14.	15. 18.
	25.0	36.	32.	26.	20.	17.	14.	13.	13.	13. 15.
	20.0	27.	25.	21.	17.	14.	13.	11.	11.	12. 13.
	15.0	22.	21.	18.	15.	13.	11.	10.	10.	11. 12.
	10.0	14.	13.	11.	8.	7.	5.	4.	4.	5. 6.
	5.0	3.	2.	2.	2.	2.	1.	1.	1.	1. 1.
	0.0	1.	1.	1.	1.	1.	1.	1.	1.	1. 1.

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB03689

PAGE: 10 OF 11

ISSUE DATE: 08/14/17

DATE SAMPLE TESTED: 08/14/17

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

CANDELA TABULATION

STREET SIDE		LATERAL ANGLE										
		270.0	275.0	285.0	295.0	305.0	315.0	325.0	335.0	345.0	355.0	360.0
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	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.
	165.0	1.	1.	1.	0.	0.	0.	0.	0.	0.	0.	0.
	155.0	1.	1.	1.	1.	1.	0.	0.	0.	0.	0.	1.
	145.0	1.	1.	1.	1.	1.	2.	2.	2.	2.	3.	3.
	135.0	2.	2.	2.	3.	3.	4.	4.	5.	6.	6.	7.
	125.0	4.	4.	5.	6.	6.	7.	9.	10.	11.	12.	12.
	115.0	7.	7.	8.	10.	11.	13.	14.	16.	18.	19.	20.
	105.0	12.	12.	14.	16.	18.	21.	24.	26.	29.	31.	32.
	95.0	19.	21.	24.	28.	33.	37.	42.	47.	52.	57.	59.
	90.0	27.	29.	34.	40.	48.	55.	64.	72.	81.	87.	92.
	87.5	34.	36.	42.	50.	61.	70.	82.	92.	104.	113.	119.
	85.0	41.	44.	53.	64.	78.	91.	106.	120.	136.	150.	156.
	82.5	52.	56.	68.	82.	101.	119.	139.	158.	180.	199.	210.
	80.0	64.	70.	86.	105.	130.	155.	181.	207.	237.	262.	278.
	77.5	78.	87.	109.	134.	167.	199.	233.	266.	306.	339.	360.
	75.0	90.	102.	130.	162.	202.	244.	285.	326.	372.	411.	437.
	72.5<<	96.	110.	141.	178.	222.	273.	318.	362.	413.	457.	480.
	70.0	93.	106.	136.	173.	218.	271.	314.	362.	406.	447.	466.
	67.5	85.	95.	120.	153.	192.	240.	278.	322.	360.	392.	408.
	65.0	75.	83.	102.	128.	159.	198.	228.	264.	295.	327.	340.
	62.5	67.	73.	88.	108.	132.	160.	184.	213.	237.	265.	276.
	60.0	61.	66.	80.	96.	115.	136.	155.	178.	197.	220.	230.
	57.5	56.	61.	74.	89.	105.	122.	138.	157.	173.	193.	201.
	55.0	51.	57.	69.	83.	98.	112.	128.	145.	160.	176.	183.
	52.5	47.	52.	65.	79.	92.	106.	120.	137.	151.	166.	172.
	50.0	43.	49.	61.	75.	88.	101.	115.	130.	145.	158.	164.
	47.5	40.	45.	57.	71.	83.	97.	110.	125.	140.	153.	158.
	45.0	37.	42.	53.	67.	79.	92.	105.	120.	135.	148.	154.
	42.5	33.	38.	49.	62.	75.	87.	100.	115.	129.	143.	149.
	40.0	30.	34.	44.	57.	70.	82.	95.	109.	122.	136.	143.
	37.5	27.	31.	40.	52.	64.	76.	89.	102.	115.	130.	136.
	35.0	24.	27.	36.	46.	58.	70.	82.	95.	107.	121.	127.
30.0	20.	22.	28.	36.	45.	56.	66.	77.	88.	99.	103.	
25.0	17.	18.	23.	28.	34.	42.	49.	58.	65.	71.	74.	
20.0	14.	16.	19.	23.	27.	31.	37.	42.	46.	51.	53.	
15.0	13.	14.	16.	19.	22.	25.	29.	33.	36.	39.	41.	
10.0	7.	8.	10.	12.	14.	17.	20.	23.	25.	28.	29.	
5.0	1.	1.	1.	2.	2.	3.	3.	5.	4.	5.	3.	
0.0	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	

CONE OF MAXIMUM CANDELA

REPORT NUMBER: RAB03689

PAGE: 11 OF 11

ISSUE DATE: 08/14/17

DATE SAMPLE TESTED: 08/14/17

PREPARED FOR: RAB LIGHTING INC. RC LIGHTING

5-DEGREE

ZONAL LUMEN SUMMARY

0- 5	0
5- 10	1
10- 15	3
15- 20	6
20- 25	10
25- 30	17
30- 35	25
35- 40	33
40- 45	41
45- 50	49
50- 55	59
55- 60	75
60- 65	107
65- 70	155
70- 75	173
75- 80	132
80- 85	80
85- 90	47
90- 95	29
95-100	20
100-105	15
105-110	12
110-115	9
115-120	7
120-125	5
125-130	4
130-135	3
135-140	2
140-145	1
145-150	1
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	1
0- 20	10
0- 30	37
0- 40	95
0- 50	184
0- 60	318
0- 70	580
0- 80	885
0- 90	1012
0-100	1062
0-110	1088
0-120	1104
0-130	1112
0-140	1116
0-150	1118
0-160	1119
0-170	1119
0-180	1119

REPORT NUMBER: RAB03662
 DATE: 7/27/2017
 PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
 CATALOG NUMBER: BLEDR12Y, BLEDR12Y/D10, BDLEDR12Y, BDLEDR12Y/D10 (42" ROUND BOLLARD W/LED @ 90-DEGREES)

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: EXTRUDED BROWN PAINTED CYLINDRICAL METAL LOWER HOUSING, CAST METAL TOP, CAST FINNED METAL HEAT SINK WITH WHITE PAINTED INTERIOR, MOLDED SPECULAR FINISHED PLASTIC REFLECTOR, 2 WHITE CIRCUIT BOARDS EACH WITH 3 LEDS, 2 WHITE CIRCUIT BOARDS EACH WITH 2 LEDS, FROSTED PLASTIC LENS, CAST BROWN PAINTED METAL BOTTOM.

LAMP: TEN LIGHT EMITTING DIODES (LEDS).

DRIVER: RDD-15W-032SE-A0350

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	3/01/18
	OCEAN OPTICS QE65PRO Spectroradiometer	06/22/18
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	06/22/18

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: RAB03662
 DATE: 7/27/2017
 PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
 CATALOG NUMBER: BLEDR12Y, BLEDR12Y/D10, BDLEDR12Y, BDLEDR12Y/D10 (42" ROUND BOLLARD W/LED @ 90-DEGREES)

Page 2 of 4

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	1119 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4385
Chromaticity Ordinate y	0.4084
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2497
Chromaticity Ordinate v'	0.5233
Correlated Color Temp CCT (K)	3008
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	3407 *
ELECTRICAL	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.049
Input Power (Watts)	11.8
Input Power Factor (%)	88.1
Input Current THD (%)	22.5
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	94.8
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.096
Input Power (Watts)	11.3
Input Power Factor (%)	98.3
Input Current THD (%)	12.9
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	84
R1 Light greyish red	82
R2 Dark greyish yellow	92
R3 Strong yellowish green	96
R4 Moderate yellowish green	82
R5 Light bluish green	83
R6 Light blue	92
R7 Light violet	83
R8 Light reddish purple	60
R9 Strong red	12
R10 Strong yellow	83
R11 Strong green	81
R12 Strong blue	74
R13 Light yellowish pink (skin)	85
R14 Moderate olive green (leaf)	98

*NOTE:

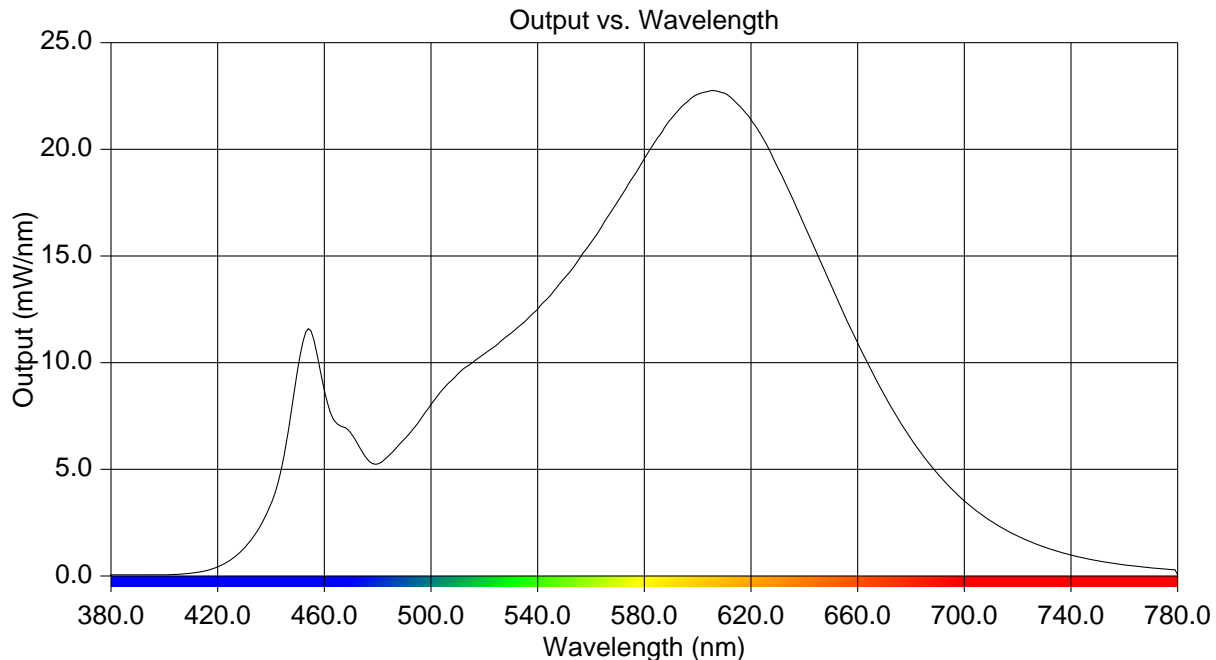
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB03662
 DATE: 7/27/2017
 PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
 CATALOG NUMBER: BLEDR12Y, BLEDR12Y/D10, BDLEDR12Y, BDLEDR12Y/D10 (42" ROUND BOLLARD W/LED @ 90-DEGREES)

Page 3 of 4

RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.050	515	9.951	650	13.647
385	0.051	520	10.412	655	12.238
390	0.052	525	10.859	660	10.934
395	0.054	530	11.385	665	9.650
400	0.058	535	11.905	670	8.493
405	0.081	540	12.511	675	7.408
410	0.126	545	13.195	680	6.441
415	0.226	550	13.952	685	5.550
420	0.426	555	14.751	690	4.790
425	0.766	560	15.636	695	4.114
430	1.316	565	16.594	700	3.524
435	2.132	570	17.558	705	3.008
440	3.376	575	18.561	710	2.568
445	5.723	580	19.564	715	2.200
450	9.696	585	20.544	720	1.872
455	11.487	590	21.421	725	1.588
460	8.702	595	22.115	730	1.356
465	7.114	600	22.586	735	1.151
470	6.691	605	22.753	740	0.978
475	5.662	610	22.636	745	0.834
480	5.254	615	22.113	750	0.718
485	5.739	620	21.386	755	0.611
490	6.411	625	20.420	760	0.520
495	7.149	630	19.149	765	0.446
500	8.029	635	17.851	770	0.382
505	8.827	640	16.455	775	0.327
510	9.464	645	15.059	780	0.049



REPORT NUMBER: RAB03662
 DATE: 7/27/2017
 PREPARED FOR: RAB LIGHTING INC. RC LIGHTING
 CATALOG NUMBER: BLEDR12Y, BLEDR12Y/D10, BDLEDR12Y, BDLEDR12Y/D10 (42" ROUND BOLLARD W/LED @ 90-DEGREES)

Page 4 of 4

CIE Chromaticity Diagram

