

REPORT NUMBER: ITL87585-GONIOPHOTOMETRY

PAGE: 1 OF 9

ISSUE DATE: 06/20/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: FSLEDV3NB/120 - FSLEDV3NB/120/TL

LUMINAIRE: CAST BLACK PAINTED METAL HOUSING/FACEPLATE, CAST BLACK PAINTED METAL CIRCUIT BOARD MOUNTING BASE WITH UNFINISHED CIRCUIT BOARD MOUNTING SURFACE, 1 WHITE CIRCUIT BOARD WITH 3 LEDS, CLEAR FLAT GLASS LENS.

LAMPS: THREE WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDs), VERTICAL BASE-UP POSITION.

INPUT ELECTRICAL: 120.0 VOLTS, 3.09 WATTS, 0.0271 AMPS

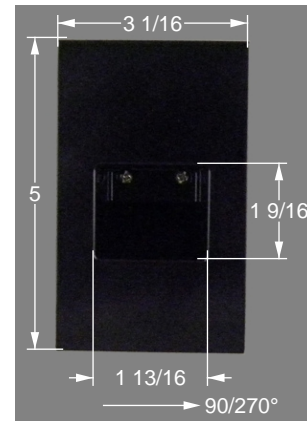
MOUNTING: RECESSED WALL

LED DRIVER: INTEGRAL TO CIRCUIT BOARD

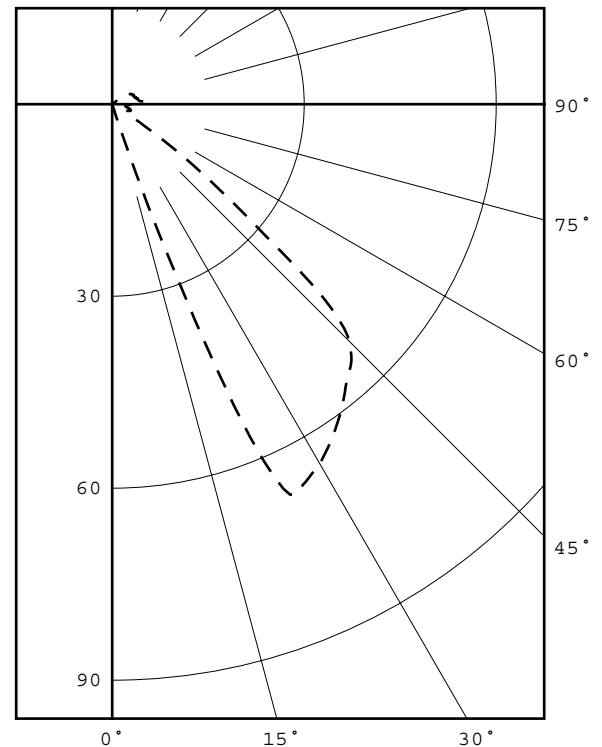
NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE LUMINAIRE.

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 20.0 FEET



CANDELA DISTRIBUTION						FLUX
	0.0	45.0	90.0	135.0	180.0	
0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
15	0.4	0.0	0.0	0.0	0.0	0.1
25	67.3	1.1	0.0	0.0	0.0	5.5
35	61.2	46.7	0.0	0.0	0.0	10.8
45	52.4	38.8	0.0	0.0	0.0	11.3
55	9.1	28.8	0.0	0.0	0.0	5.8
65	2.5	3.4	0.0	0.0	0.0	1.2
75	2.8	0.7	0.0	0.0	0.0	0.5
85	2.1	0.5	0.0	0.0	0.0	0.4
90	3.8	0.5	0.0	0.0	0.0	0.0
95	4.8	0.4	0.0	0.0	0.0	0.7
105	3.8	0.3	0.0	0.0	0.0	0.6
115	3.5	0.2	0.0	0.0	0.0	0.5
125	2.2	0.1	0.0	0.0	0.0	0.2
135	0.2	0.0	0.0	0.0	0.0	0.0
145	0.1	0.0	0.0	0.0	0.0	0.0
155	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
175	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	0.0



LEGEND:  
0-deg -----  
90-deg =====  
180-deg - - - - -

ZONAL LUMEN ZONE	SUMMARY LUMENS	%FIXT
0- 30	5.6	14.9
0- 40	16.4	43.5
0- 60	33.4	88.9
0- 90	35.6	94.6
90-120	1.8	4.7
90-130	2.0	5.3
90-150	2.0	5.4
90-180	2.0	5.4
0-180	37.6	100.0

EFFICACY = 12.2 lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG

BEAM ANGLE (50%) : 28.3 X N/A DEGREES

FIELD ANGLE (10%) : 37.9 X N/A DEGREES

Checked J. VILLANUEVA  
Approved R. BEATTIE  
Lighting Engineer



**itl boulder**  
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



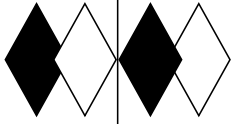
INDEPENDENT TESTING LABORATORIES, INC.  
 4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL87585-GONIOPHOTOMETRY  
 ISSUE DATE: 06/20/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 2 OF 9

LUMINANCE DATA IN CANDELA/SQ M			
ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	40610.	42957.	0.
55	6133.	27900.	0.
65	1490.	2928.	0.
75	1607.	571.	0.
85	1163.	388.	0.



**itl boulder**  
 THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



INDEPENDENT TESTING LABORATORIES, INC.  
 4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

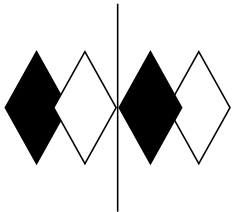
PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

REPORT NUMBER: ITL87585-GONIOPHOTOMETRY  
 ISSUE DATE: 06/20/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 3 OF 9

CANDELA DISTRIBUTION  
 LATERAL ANGLE

	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0	112.5	135.0	157.5
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.5	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.0	0.4	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.5	0.8	0.8	0.7	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.0	22.8	21.0	9.9	1.5	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.5	56.3	55.6	48.2	34.7	3.7	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25.0	67.3	67.5	67.1	60.9	39.6	1.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
27.5	66.1	66.4	66.6	67.0	63.6	15.8	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
30.0	64.8	65.1	65.1	65.5	67.5	33.1	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0
32.5	63.1	63.4	63.4	63.8	65.6	46.4	10.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0
35.0	61.2	61.5	61.6	62.0	63.6	46.7	20.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0
37.5	59.1	59.4	59.5	59.9	61.2	45.5	21.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0
40.0	56.9	57.1	57.2	57.6	58.6	43.3	21.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0
42.5	55.2	55.3	55.0	55.0	55.9	41.1	21.2	0.6	0.1	0.0	0.0	0.0	0.0	0.0
45.0	52.4	52.7	53.0	52.6	53.0	38.8	20.0	0.8	0.1	0.0	0.0	0.0	0.0	0.0
47.5	44.7	45.3	47.6	49.9	49.9	36.3	18.7	1.1	0.1	0.0	0.0	0.0	0.0	0.0
50.0	28.1	28.8	34.8	43.4	46.6	33.9	17.4	1.5	0.1	0.0	0.0	0.0	0.0	0.0
52.5	17.7	18.0	20.3	29.2	41.1	31.4	16.2	1.6	0.1	0.0	0.0	0.0	0.0	0.0
55.0	9.1	9.4	12.6	16.9	28.4	28.8	14.9	1.5	0.1	0.0	0.0	0.0	0.0	0.0
57.5	3.6	3.7	4.6	8.9	15.6	24.0	13.5	1.4	0.1	0.0	0.0	0.0	0.0	0.0
60.0	2.6	2.6	2.6	3.0	8.4	15.9	12.0	1.2	0.1	0.0	0.0	0.0	0.0	0.0
62.5	2.5	2.5	2.4	1.9	2.3	10.1	9.9	1.1	0.1	0.0	0.0	0.0	0.0	0.0
65.0	2.5	2.4	2.3	1.7	1.2	3.4	4.9	1.0	0.1	0.0	0.0	0.0	0.0	0.0
67.5	2.7	2.6	2.4	1.7	1.1	1.0	1.3	0.8	0.1	0.0	0.0	0.0	0.0	0.0
70.0	3.0	2.9	2.7	1.8	1.1	0.9	0.7	0.6	0.1	0.0	0.0	0.0	0.0	0.0
72.5	3.0	3.0	2.6	1.7	1.0	0.8	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0
75.0	2.8	2.8	2.4	1.5	0.9	0.7	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
77.5	2.5	2.5	2.2	1.3	0.8	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0
80.0	2.2	2.2	2.0	1.2	0.7	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
82.5	2.1	2.1	1.9	1.1	0.6	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
85.0	2.1	2.1	1.9	1.1	0.6	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
87.5	2.4	2.5	2.3	1.2	0.7	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
90.0	3.8	3.6	3.4	1.6	0.7	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
92.5	4.8	4.8	4.2	2.2	0.6	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
95.0	4.8	4.7	4.3	2.2	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
97.5	4.2	4.3	4.1	2.0	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
100.0	4.1	4.2	3.9	1.8	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102.5	4.0	4.0	3.7	1.8	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105.0	3.8	3.9	3.6	1.7	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
107.5	3.7	3.7	3.4	1.6	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110.0	3.6	3.6	3.3	1.7	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
112.5	3.6	3.6	3.3	1.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
115.0	3.5	3.5	3.2	1.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
117.5	3.4	3.4	3.1	1.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120.0	3.2	3.1	2.9	1.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
122.5	2.9	2.9	2.5	1.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
125.0	2.2	2.1	1.5	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
127.5	0.9	0.9	0.5	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130.0	0.4	0.4	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135.0	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
137.5	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



**itl boulder**  
 THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



INDEPENDENT TESTING LABORATORIES, INC.  
 4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

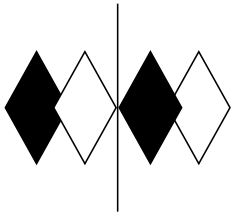
PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL87585-GONIOPHOTOMETRY  
 ISSUE DATE: 06/20/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 4 OF 9

CANDELA DISTRIBUTION  
 LATERAL ANGLE

	0.0	5.0	15.0	25.0	35.0	45.0	55.0	65.0	75.0	85.0	90.0	112.5	135.0	157.5
160.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



**itl boulder**  
 THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



INDEPENDENT TESTING LABORATORIES, INC.  
 4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL87585-GONIOPHOTOMETRY  
 ISSUE DATE: 06/20/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 5 OF 9

CANDELA DISTRIBUTION  
 LATERAL ANGLE

	180.0
0.0	0.0
2.5	0.0
5.0	0.0
7.5	0.0
10.0	0.0
12.5	0.0
15.0	0.0
17.5	0.0
20.0	0.0
22.5	0.0
25.0	0.0
27.5	0.0
30.0	0.0
32.5	0.0
35.0	0.0
37.5	0.0
40.0	0.0
42.5	0.0
45.0	0.0
47.5	0.0
50.0	0.0
52.5	0.0
55.0	0.0
57.5	0.0
60.0	0.0
62.5	0.0
65.0	0.0
67.5	0.0
70.0	0.0
72.5	0.0
75.0	0.0
77.5	0.0
80.0	0.0
82.5	0.0
85.0	0.0
87.5	0.0
90.0	0.0
92.5	0.0
95.0	0.0
97.5	0.0
100.0	0.0
102.5	0.0
105.0	0.0
107.5	0.0
110.0	0.0
112.5	0.0
115.0	0.0
117.5	0.0
120.0	0.0
122.5	0.0
125.0	0.0
127.5	0.0
130.0	0.0
132.5	0.0
135.0	0.0
137.5	0.0
140.0	0.0
142.5	0.0
145.0	0.0
147.5	0.0
150.0	0.0
152.5	0.0
155.0	0.0
157.5	0.0



**itl boulder**  
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



INDEPENDENT TESTING LABORATORIES, INC.  
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL87585-GONIOPHOTOMETRY  
ISSUE DATE: 06/20/16  
PREPARED FOR: RAB LIGHTING INC.

PAGE: 6 OF 9

CANDELA DISTRIBUTION  
LATERAL ANGLE

	180.0
160.0	0.0
162.5	0.0
165.0	0.0
167.5	0.0
170.0	0.0
172.5	0.0
175.0	0.0
177.5	0.0
180.0	0.0



INDEPENDENT TESTING LABORATORIES, INC.  
 4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

REPORT NUMBER: ITL87585-GONIOPHOTOMETRY  
 ISSUE DATE: 06/20/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 7 OF 9

5-DEGREE  
 ZONAL LUMEN SUMMARY

0- 5	0.0
5- 10	0.0
10- 15	0.0
15- 20	0.1
20- 25	1.7
25- 30	3.9
30- 35	5.1
35- 40	5.7
40- 45	5.8
45- 50	5.5
50- 55	3.8
55- 60	1.9
60- 65	0.8
65- 70	0.4
70- 75	0.3
75- 80	0.2
80- 85	0.2
85- 90	0.2
90- 95	0.4
95-100	0.3
100-105	0.3
105-110	0.3
110-115	0.3
115-120	0.2
120-125	0.2
125-130	0.1
130-135	0.0
135-140	0.0
140-145	0.0
145-150	0.0
150-155	0.0
155-160	0.0
160-165	0.0
165-170	0.0
170-175	0.0
175-180	0.0

10-DEGREE  
 ZONAL LUMEN SUMMARY

0- 10	0.0
0- 20	0.1
0- 30	5.6
0- 40	16.4
0- 50	27.7
0- 60	33.4
0- 70	34.6
0- 80	35.1
0- 90	35.6
0-100	36.3
0-110	36.9
0-120	37.3
0-130	37.6
0-140	37.6
0-150	37.6
0-160	37.6
0-170	37.6
0-180	37.6



INDEPENDENT TESTING LABORATORIES, INC.  
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: itl@itlboulder.com • WEBSITE: www.itlboulder.com

REPORT NUMBER: ITL87585-GONIOPHOTOMETRY

PAGE: 8 OF 9

ISSUE DATE: 06/20/16

PREPARED FOR: RAB LIGHTING INC.

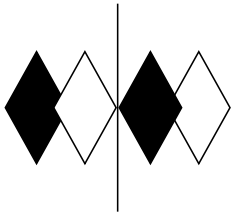
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0	
	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	118	118	118	118	118	114	114	114	114	108	108	108	102	102	102	97	97	97	95
1	109	105	101	98	98	106	102	98	95	97	94	91	92	90	88	88	86	84	82
2	100	92	86	81	81	97	90	84	80	86	81	77	82	78	74	78	75	72	70
3	91	81	74	68	68	88	79	72	67	76	70	65	72	67	63	69	65	61	59
4	83	72	63	57	57	80	70	62	56	67	60	55	64	58	53	61	56	52	50
5	76	63	54	48	48	73	62	54	47	59	52	46	57	50	45	54	49	45	42
6	69	56	47	41	41	67	55	46	40	52	45	40	50	44	39	48	43	38	36
7	63	50	41	35	35	61	49	40	35	47	39	34	45	38	33	43	37	33	31
8	58	45	36	30	30	56	44	35	30	42	34	29	40	33	29	39	33	28	26
9	54	40	31	26	26	52	39	31	26	38	30	25	36	29	25	35	29	24	22
10	50	36	28	22	22	48	35	27	22	34	27	22	33	26	21	31	25	21	19

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS TEST SAMPLE.

NOTE: THE ZONAL CAVITY CALCULATION TECHNIQUE IS ACCURATE WHEN LUMINAIRES WITH SYMMETRIC CANDELA DISTRIBUTIONS ARE EMPLOYED AND WHEN THE LUMINAIRES ARE LOCATED SYMMETRICALLY THROUGHOUT THE ROOM. THIS UNIT HAS SPECIAL CHARACTERISTICS AND THEREFORE THESE COEFFICIENTS SHOULD BE USED WITH CAUTION.



**itl boulder**  
THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



INDEPENDENT TESTING LABORATORIES, INC.  
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303) 442-1255 • FAX: (970) 535-3114 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL87585-GONIOPHOTOMETRY  
ISSUE DATE: 06/20/16  
PREPARED FOR: RAB LIGHTING INC.

PAGE: 9 OF 9

ADDRESS: 170 LUDLOW AVE.  
NORTHVALE, NJ 07647

THIS ITL 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.



INDEPENDENT TESTING LABORATORIES, INC.  
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303)442-1255 • FAX: (970)535-3114 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL87585-SPHERE  
DATE: 06/21/16  
PREPARED FOR: RAB LIGHTING INC.  
CATALOG NUMBER: FSLEDV3NB/120 - FSLEDV3NB/120/TL

ADDRESS: 170 LUDLOW AVE.  
NORTHVALE, NJ 07647

LUMINAIRE: CAST BLACK PAINTED METAL HOUSING/FACEPLATE, CAST BLACK PAINTED METAL CIRCUIT BOARD MOUNTING BASE WITH UNFINISHED CIRCUIT BOARD MOUNTING SURFACE, 1 WHITE CIRCUIT BOARD WITH 3 LEDS, CLEAR FLAT GLASS LENS.

LAMP: THREE WHITE MULTI-CHIP LIGHT EMITTING DIODES (LEDs), VERTICAL BASE-UP POSITION.

DRIVER: INTEGRAL TO CIRCUIT BOARD

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT RATED INPUT VOLTAGE (120VAC, 60Hz) TO THE LUMINAIRE.

Calibration Due:

INSTRUMENTS:	Associated Power Technologies APT5020 AC Power Source	N/A
	Yokogawa WT210 Digital Power Meter #4	04/07/17
	Ocean Optics QE65000 Spectroradiometer	04/19/17
	ITL 1.5m Diameter Integrating Sphere S15-2, 4PI Geometry	04/19/17

OBJECT OF TEST: Measure the Absolute Flux in lumens\*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Index (CRIa,1-14), Chromaticity Coordinates (x,y; u',v'), ANSI C78.377 Duv, Total Radiant Flux\*, Scotopic / Photopic Lumen Ratio, and electrical data including ANSI C82.77-2002 Power Factor (PF) and Total Harmonic Distortion (THD) to the test sample.

PROCEDURE: The test sample was provided by the customer and had an unknown number of operating hours. The test sample was mounted inside the integrating sphere 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 120VAC input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. All data are traceable to the National Institute of Standards and Technology.

RESULTS: (continued subsequent pages)

THIS ITL 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	<i>N WHITE</i>
Approved	<i>P O'CONNOR</i> Sphere Lab Supervisor



INDEPENDENT TESTING LABORATORIES, INC.  
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

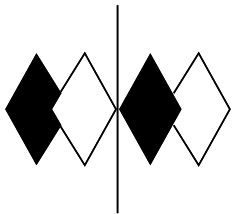
PHONE: (303)442-1255 • FAX: (970)535-3114 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)  
 REPORT NUMBER: ITL87585-SPHERE  
 DATE: 06/21/16  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: FSLEDV3NB/120 - FSLEDV3NB/120/TL

RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	37.6 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3721
Chromaticity Ordinate y	0.3716
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2216
Chromaticity Ordinate v'	0.4981
Correlated Color Temp CCT (K)	4200
ANSI C78.377-2008 Duv	0.000
Total Radiant Flux (milliWatts)	116 *
Scotopic / Photopic Lumen Ratio	1.782
ELECTRICAL	
Input Voltage (Volts AC )	120.0
Input Current (Amps AC )	0.027
Input Power (Watts)	3.09
Input Power Factor (%)	95.4
Input Current THD (%)	31.3
Input Voltage THD (%)	0.3
EFFICACY (lumens/Watt)	12.2

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	83
R1 Light greyish red	81
R2 Dark greyish yellow	89
R3 Strong yellowish green	94
R4 Moderate yellowish green	82
R5 Light bluish green	82
R6 Light blue	85
R7 Light violet	86
R8 Light reddish purple	66
R9 Strong red	10
R10 Strong yellow	73
R11 Strong green	81
R12 Strong blue	65
R13 Light yellowish pink (skin)	83
R14 Moderate olive green (leaf)	97

\*NOTE: The total lumen output shown on this report was obtained from photometric test ITL87585-GONIOPHOTOMETRY



# itl boulder

THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



NVLAP LAB CODE: 200925-0

INDEPENDENT TESTING LABORATORIES, INC.  
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303)442-1255 • FAX: (970)535-3114 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)

REPORT NUMBER: ITL87585-SPHERE

Page 3 of 4

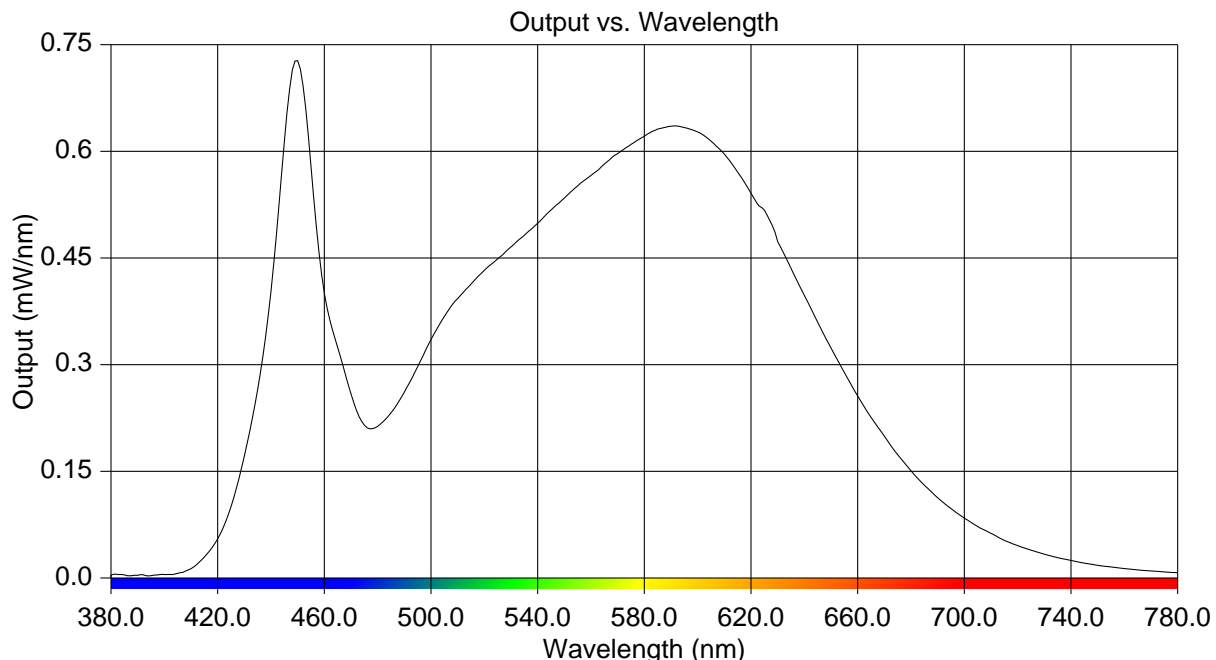
DATE: 06/21/16

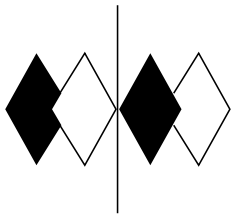
PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: FSLEDV3NB/120 - FSLEDV3NB/120/TL

## RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.004	515	0.413	650	0.324
385	0.004	520	0.433	655	0.289
390	0.004	525	0.449	660	0.256
395	0.003	530	0.466	665	0.226
400	0.005	535	0.482	670	0.199
405	0.006	540	0.499	675	0.173
410	0.013	545	0.517	680	0.151
415	0.029	550	0.534	685	0.131
420	0.055	555	0.551	690	0.113
425	0.100	560	0.566	695	0.098
430	0.171	565	0.582	700	0.084
435	0.265	570	0.597	705	0.072
440	0.403	575	0.610	710	0.063
445	0.613	580	0.621	715	0.053
450	0.727	585	0.631	720	0.046
455	0.579	590	0.635	725	0.039
460	0.400	595	0.633	730	0.033
465	0.324	600	0.627	735	0.029
470	0.259	605	0.614	740	0.025
475	0.215	610	0.596	745	0.021
480	0.213	615	0.571	750	0.018
485	0.232	620	0.541	755	0.016
490	0.261	625	0.517	760	0.013
495	0.297	630	0.473	765	0.011
500	0.335	635	0.436	770	0.010
505	0.368	640	0.397	775	0.008
510	0.393	645	0.360	780	0.007





# itl boulder

THE LIGHT CENTER OF THE INDUSTRY SINCE 1955



INDEPENDENT TESTING LABORATORIES, INC.  
4066 CAMELOT CIRCLE, LONGMONT, CO 80504 USA

PHONE: (303)442-1255 • FAX: (970)535-3114 • E-MAIL: [itl@itlboulder.com](mailto:itl@itlboulder.com) • WEBSITE: [www.itlboulder.com](http://www.itlboulder.com)  
REPORT NUMBER: ITL87585-SPHERE  
DATE: 06/21/16  
PREPARED FOR: RAB LIGHTING INC.  
CATALOG NUMBER: FSLEDV3NB/120 - FSLEDV3NB/120/TL

## CIE Chromaticity Diagram

