

REPORT NUMBER: RAB03226

ISSUE DATE: 04/19/17

CATALOG NUMBER: RTLED2X2-19YNW/D10

PAGE: 1 OF 8

DATE SAMPLE TESTED: 04/19/17

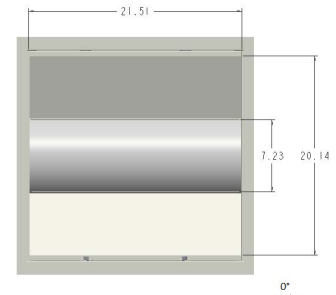
LUMINAIRE: WHITE PAINTED SHEET METAL HOUSING, 2 WHITE CIRCUIT BOARDS  
EACH WITH 40 LEDS, MATTE WHITE POLYCARBONATE LENS IN THE CENTER,  
ROUGH SURFACE FACING OUT. FIXTURE WAS MOUNTED IN Lithonia Lighting  
Model #2GT8 2 U316 A12 MVOLT GEB10IS HOUSING.

LAMPS: EIGHTY WHITE LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP  
POSITION.

\*(SEE PAGE 2 FOR MORE INFORMATION)\*

### CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0	FLUX
0	780	780	780	780	780	
5	775	775	776	778	778	74
15	744	744	749	753	754	211
25	685	686	694	701	705	320
35	603	606	618	629	635	387
45	503	507	523	541	548	404
55	388	396	418	443	455	377
65	274	284	314	338	350	309
75	154	167	194	226	243	207
85	45	57	77	86	90	76
90	1	1	0	0	0	



### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	605	25.6
0- 40	992	41.9
0- 60	1773	75.0
0- 90	2365	100.0
90-180	0	0.0
0-180	2365	100.0

TOTAL INPUT WATTS = 19.4

EFFICACY = 121.9 Lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG

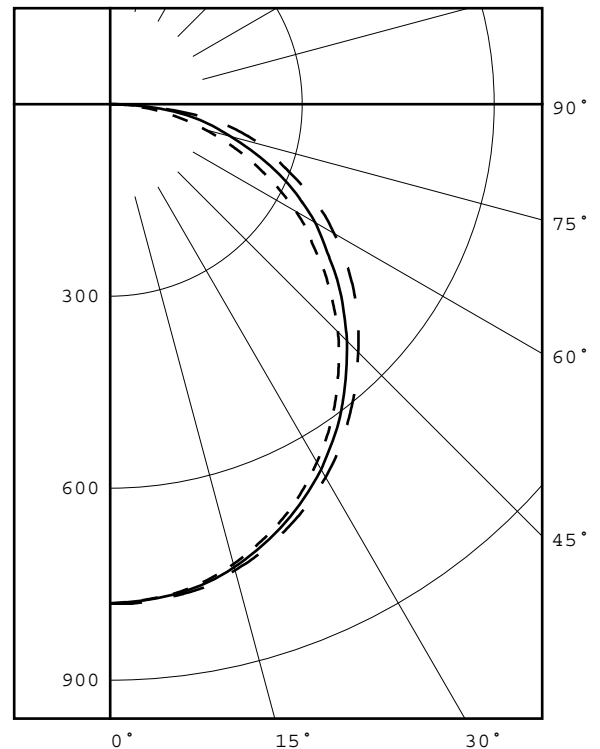
SPACING CRITERIA : 1.2 1.3

PLANE : 0-DEG 90-DEG

LUMINOUS LENGTH : 21.510 20.140

### LUMINANCE DATA IN CANDELA/SQ METER

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	2544.	2645.	2772.
55	2419.	2607.	2837.
65	2319.	2657.	2962.
75	2128.	2681.	3358.
85	1847.	3160.	3693.



LEGEND:

0-deg: - - - - -  
45-deg: \_\_\_\_\_  
90-deg: - - - - -

Checked P. ALBERS  
Approved D. WANG-MUNSON

REPORT NUMBER: RAB03226

ISSUE DATE: 04/19/17

CATALOG NUMBER: RTLED2X2-19YNW/D10

PAGE: 2 OF 8

DATE SAMPLE TESTED: 04/19/17

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 = 19.429 W AT 277.0 VAC.

LED DRIVER: RDF25U7-39

TEST PROCEDURE: IESNA LM-79-08

LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE

AMBIENT: 24.7

ACCREDITED LABORATORY CODE 201058-0

REPORT NUMBER: RAB03226  
ISSUE DATE: 04/19/17  
CATALOG NUMBER: RTLED2X2-19YNW/D10

PAGE: 3 OF 8  
DATE SAMPLE TESTED: 04/19/17

PLANE : 0-DEG 90-DEG  
BEAM ANGLE (50%) : 109.6 X 122.7 DEGREES  
FIELD ANGLE (10%) : 163.7 X 171.0 DEGREES

REPORT NUMBER: RAB03226  
 ISSUE DATE: 04/19/17  
 CATALOG NUMBER: RTLED2X2-19YNW/D10

PAGE: 4 OF 8  
 DATE SAMPLE TESTED: 04/19/17

### CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0.0	780	780	780	780	780
2.5	778	777	778	780	781
5.0	775	775	776	778	778
7.5	771	770	772	774	775
10.0	764	763	767	770	771
12.5	755	755	759	763	765
15.0	744	744	749	753	754
17.5	731	732	737	742	744
20.0	717	718	724	730	732
22.5	702	702	710	716	719
25.0	685	686	694	701	705
27.5	666	668	677	685	690
30.0	646	649	659	668	673
32.5	625	627	638	649	655
35.0	603	606	618	629	635
37.5	579	583	595	608	614
40.0	554	558	571	587	593
42.5	529	533	547	565	570
45.0	503	507	523	541	548
47.5	475	480	497	517	526
50.0	447	453	472	493	503
52.5	419	425	446	469	480
55.0	388	396	418	443	455
57.5	365	372	393	419	431
60.0	335	343	370	394	404
62.5	305	314	342	368	379
65.0	274	284	314	338	350
67.5	244	255	286	308	320
70.0	214	225	255	278	291
72.5	183	196	224	251	266
75.0	154	167	194	226	243
77.5	126	139	168	200	214
80.0	98	110	143	168	181
82.5	71	83	113	131	140
85.0	45	57	77	86	90
87.5	21	28	33	32	31
90.0	1	1	0	0	0

REPORT NUMBER: RAB03226  
ISSUE DATE: 04/19/17  
CATALOG NUMBER: RTLED2X2-19YNW/D10

PAGE: 5 OF 8  
DATE SAMPLE TESTED: 04/19/17

## ZONAL LUMEN SUMMARY

0- 5	19.
5- 10	55.
10- 15	90.
15- 20	121.
20- 25	149.
25- 30	171.
30- 35	188.
35- 40	199.
40- 45	203.
45- 50	201.
50- 55	194.
55- 60	182.
60- 65	166.
65- 70	143.
70- 75	117.
75- 80	90.
80- 85	58.
85- 90	18.

REPORT NUMBER: RAB03226  
 ISSUE DATE: 04/19/17  
 CATALOG NUMBER: RTLED2X2-19YNW/D10

PAGE: 6 OF 8  
 DATE SAMPLE TESTED: 04/19/17

### 5-DEGREE ZONAL LUMEN SUMMARY

0- 5	19
5- 10	55
10- 15	90
15- 20	121
20- 25	149
25- 30	171
30- 35	188
35- 40	199
40- 45	203
45- 50	201
50- 55	194
55- 60	182
60- 65	166
65- 70	143
70- 75	117
75- 80	90
80- 85	58
85- 90	18
90- 95	0
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
140-145	0
145-150	0
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	74
0- 20	285
0- 30	605
0- 40	992
0- 50	1396
0- 60	1773
0- 70	2081
0- 80	2289
0- 90	2365
0-100	2365
0-110	2365
0-120	2365
0-130	2365
0-140	2365
0-150	2365
0-160	2365
0-170	2365
0-180	2365

REPORT NUMBER: RAB03226  
ISSUE DATE: 04/19/17

PAGE: 7 OF 8  
DATE SAMPLE TESTED: 04/19/17

CATALOG NUMBER: RTLED2X2-19YNW/D10

## 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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	108	103	98	94	105	100	96	92	96	92	89	92	89	86	88	86	84	82
2	98	89	81	75	95	87	80	74	83	78	73	80	75	71	77	73	69	67
3	89	78	69	62	86	76	68	62	73	66	60	70	64	59	67	63	58	56
4	81	68	59	52	79	67	59	52	65	57	51	62	56	50	60	54	50	47
5	74	61	52	45	72	60	51	45	58	50	44	56	49	44	54	48	43	41
6	69	55	46	39	67	54	45	39	52	44	38	50	43	38	49	43	38	36
7	64	50	41	34	62	49	40	34	47	40	34	46	39	34	44	38	33	31
8	59	45	37	31	58	45	36	30	43	36	30	42	35	30	41	35	30	28
9	55	42	33	27	54	41	33	27	40	32	27	39	32	27	38	31	27	25
10	52	38	30	25	50	38	30	25	37	30	25	36	29	25	35	29	24	23

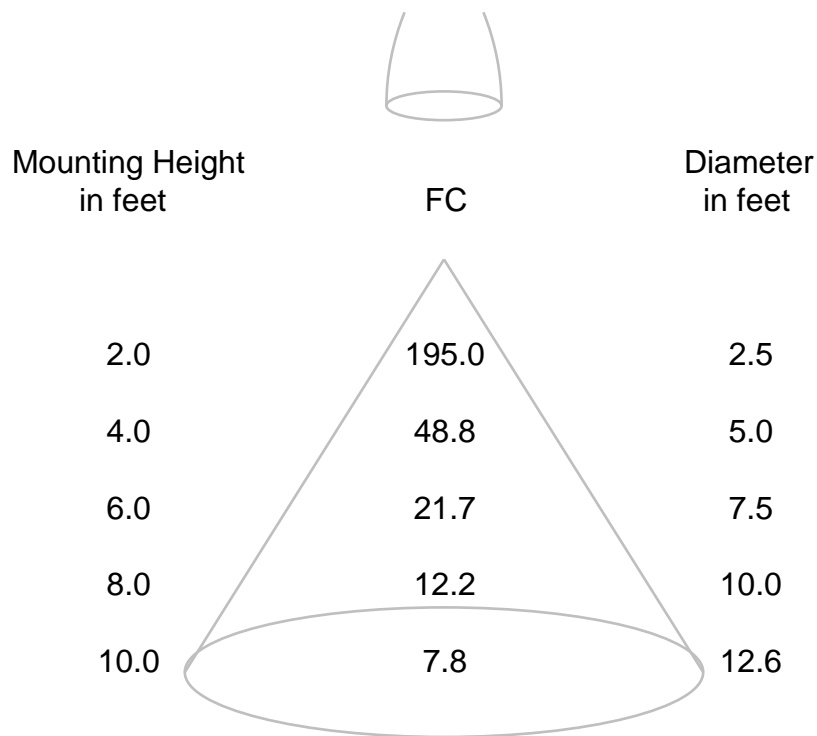
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

REPORT NUMBER: RAB03226  
ISSUE DATE: 04/19/17  
CATALOG NUMBER: RTLED2X2-19YNW/D10

PAGE: 8 OF 8  
DATE SAMPLE TESTED: 04/19/17

## CONE OF LIGHT DIAGRAM

(diameter shown is where fc value is half the fc at nadir)



Note: The candela values used to generate this diagram were obtained by averaging the photometric data into a single plane.



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DATE: 4/21/2017  
PREPARED FOR: RAB LIGHTING INC.  
CATALOG NUMBER: RTLED2X2-19YNW/D10

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: WHITE PAINTED SHEET METAL HOUSING, 2 WHITE CIRCUIT BOARDS EACH WITH 40 LEDS, MATTE WHITE POLYCARBONATE LENS IN THE CENTER, ROUGH SURFACE FACING OUT. FIXTURE WAS MOUNTED IN Lithonia Lighting Model #2GT8 2 U316 A12 MVOLT GEB10IS HOUSING.

LAMP: EIGHTY WHITE LIGHT EMITTING DIODES (LEDs), 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	N/A
	CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202	3/01/18
	OCEAN OPTICS QE65PRO Spectroradiometer	04/10/18
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	04/10/18

Calibration Due:

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: RAB03227  
 DATE: 4/21/2017  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: RTLED2X2-19YNW/D10

Page 2 of 4

### RESULTS:

<b>PHOTOMETRIC</b>	
Total Integrated Flux (lumens)	2365 *
<b>SPECTRORADIOMETRIC</b>	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4083
Chromaticity Ordinate y	0.3936
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2365
Chromaticity Ordinate v'	0.5129
Correlated Color Temp CCT (K)	3459
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	7145 *
<b>ELECTRICAL</b>	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.078
Input Power (Watts)	19.4
Input Power Factor (%)	89.6
Input Current THD (%)	12.6
Input Voltage THD (%)	0.2
<b>EFFICACY (Lumens/Watt)</b>	
	121.9
<b>ELECTRICAL AT MAX NONIMAL INPUT</b>	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.159
Input Power (Watts)	18.7
Input Power Factor (%)	98.6
Input Current THD (%)	13.2
Input Voltage THD (%)	0.2
<b>Off-State Power (Watts)</b>	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	84
R1 Light greyish red	82
R2 Dark greyish yellow	90
R3 Strong yellowish green	97
R4 Moderate yellowish green	84
R5 Light bluish green	83
R6 Light blue	88
R7 Light violet	85
R8 Light reddish purple	63
R9 Strong red	10
R10 Strong yellow	78
R11 Strong green	84
R12 Strong blue	71
R13 Light yellowish pink (skin)	84
R14 Moderate olive green (leaf)	99

### \*NOTE:

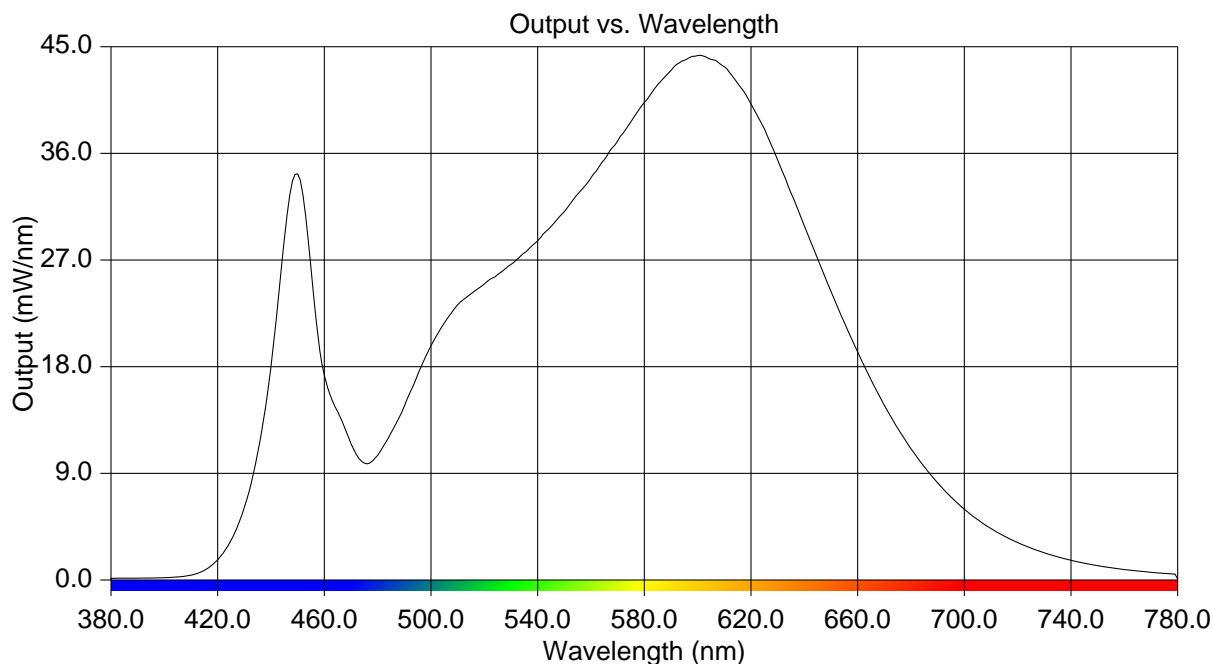
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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.

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Page 3 of 4

### RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.138	515	24.153	650	24.365
385	0.150	520	24.976	655	21.731
390	0.161	525	25.769	660	19.215
395	0.166	530	26.624	665	16.883
400	0.193	535	27.603	670	14.744
405	0.253	540	28.614	675	12.828
410	0.404	545	29.822	680	11.059
415	0.815	550	31.073	685	9.550
420	1.698	555	32.558	690	8.181
425	3.326	560	33.943	695	7.007
430	6.137	565	35.471	700	5.974
435	10.650	570	37.049	705	5.098
440	18.037	575	38.675	710	4.350
445	28.712	580	40.295	715	3.697
450	34.268	585	41.779	720	3.148
455	26.319	590	42.994	725	2.675
460	17.254	595	43.853	730	2.287
465	14.177	600	44.245	735	1.944
470	11.497	605	43.926	740	1.653
475	9.870	610	43.308	745	1.414
480	10.518	615	41.900	750	1.218
485	12.385	620	40.181	755	1.035
490	14.668	625	38.078	760	0.883
495	17.293	630	35.433	765	0.759
500	19.776	635	32.646	770	0.649
505	21.701	640	29.857	775	0.557
510	23.227	645	27.108	780	0.084



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Page 4 of 4

## CIE Chromaticity Diagram

