

REPORT NUMBER: RAB03222

ISSUE DATE: 04/20/17

CATALOG NUMBER: RTLED2X2-19NW/D10

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DATE SAMPLE TESTED: 04/20/17

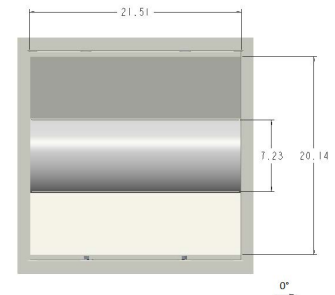
LUMINAIRE: WHITE PAINTED SHEET METAL HOUSING, 2 WHITE CIRCUIT BOARDS  
EACH WITH 40 LEDS, MATTE WHITE POLYCARBONATE LENS IN THE CENTER,  
ROUGH SURFACE FACING OUT. FIXTURE WAS MOUNTED IN Lithonia Lighting  
Model #2GT8 2 U316 A12 MVOLT GEB10IS HOUSING.

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	831	831	831	831	831	
5	826	826	827	829	830	79
15	793	794	799	803	805	225
25	729	730	739	748	752	341
35	639	643	656	671	678	411
45	529	536	554	575	584	429
55	411	418	444	472	485	398
65	287	298	332	359	372	325
75	161	175	205	240	259	219
85	47	59	80	87	94	79
90	1	0	0	0	0	



### ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	645	25.7
0- 40	1056	42.1
0- 60	1883	75.1
0- 90	2507	100.0
90-180	0	0.0
0-180	2507	100.0

TOTAL INPUT WATTS = 19.1

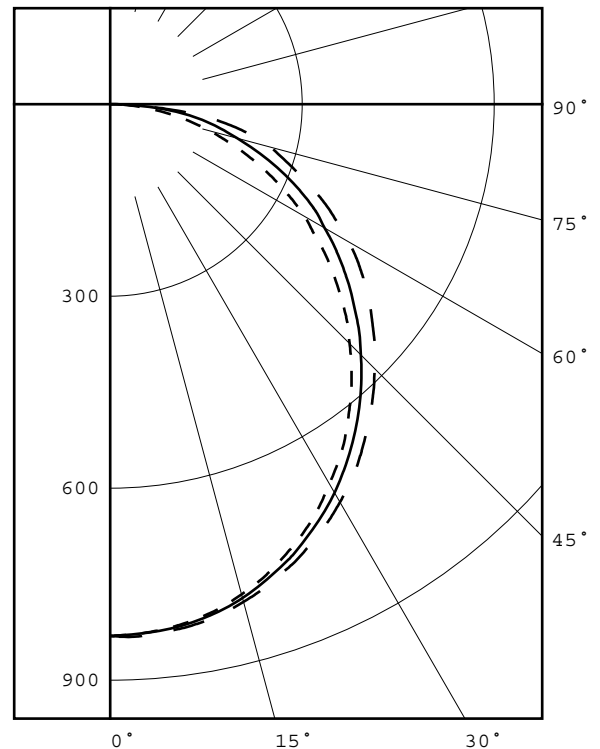
EFFICACY = 131.3 Lm/W

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	2676.	2802.	2954.
55	2563.	2769.	3024.
65	2429.	2810.	3148.
75	2225.	2833.	3579.
85	1929.	3283.	3858.



LEGEND:

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

Checked P. ALBERS  
Approved D. WANG-MUNSON

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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 = 19.075 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: 24.3

ACCREDITED LABORATORY CODE 201058-0

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PLANE : 0-DEG 90-DEG  
BEAM ANGLE (50%) : 109.1 X 122.3 DEGREES  
FIELD ANGLE (10%) : 163.2 X 170.9 DEGREES

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## CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0.0	831	831	831	831	831
2.5	829	828	829	832	833
5.0	826	826	827	829	830
7.5	821	821	823	826	827
10.0	814	814	817	821	822
12.5	805	805	809	814	815
15.0	793	794	799	803	805
17.5	780	780	786	791	794
20.0	764	765	772	778	781
22.5	747	749	757	764	768
25.0	729	730	739	748	752
27.5	708	711	721	731	736
30.0	685	689	701	712	718
32.5	663	667	679	692	699
35.0	639	643	656	671	678
37.5	612	619	632	648	655
40.0	586	592	607	624	632
42.5	558	565	581	600	609
45.0	529	536	554	575	584
47.5	502	508	528	551	561
50.0	471	478	499	524	535
52.5	441	449	472	499	511
55.0	411	418	444	472	485
57.5	378	387	416	444	459
60.0	351	360	387	416	431
62.5	319	329	362	386	400
65.0	287	298	332	359	372
67.5	255	267	301	327	341
70.0	223	236	269	295	311
72.5	191	205	237	266	284
75.0	161	175	205	240	259
77.5	131	145	177	212	228
80.0	102	115	150	177	192
82.5	73	86	118	136	148
85.0	47	59	80	87	94
87.5	21	28	34	30	32
90.0	1	0	0	0	0

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ZONAL LUMEN SUMMARY

0- 5	20.
5- 10	59.
10- 15	96.
15- 20	129.
20- 25	159.
25- 30	182.
30- 35	200.
35- 40	211.
40- 45	215.
45- 50	214.
50- 55	206.
55- 60	193.
60- 65	175.
65- 70	151.
70- 75	124.
75- 80	95.
80- 85	61.
85- 90	18.

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### 5-DEGREE ZONAL LUMEN SUMMARY

0- 5	20
5- 10	59
10- 15	96
15- 20	129
20- 25	159
25- 30	182
30- 35	200
35- 40	211
40- 45	215
45- 50	214
50- 55	206
55- 60	193
60- 65	175
65- 70	151
70- 75	124
75- 80	95
80- 85	61
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	79
0- 20	304
0- 30	645
0- 40	1056
0- 50	1485
0- 60	1883
0- 70	2209
0- 80	2428
0- 90	2507
0-100	2507
0-110	2507
0-120	2507
0-130	2507
0-140	2507
0-150	2507
0-160	2507
0-170	2507
0-180	2507

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## 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	93	89	92	89	87	88	86	84	82
2	98	89	82	75	95	87	80	75	83	78	73	80	75	71	77	73	70	67
3	89	78	69	62	86	76	68	62	73	66	61	70	64	59	68	63	58	56
4	81	69	59	52	79	67	59	52	65	57	51	62	56	51	60	54	50	48
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	39	50	44	38	49	43	38	36
7	64	50	41	34	62	49	40	34	47	40	34	46	39	34	45	38	34	32
8	59	45	37	31	58	45	36	31	43	36	30	42	35	30	41	35	30	28
9	55	42	33	28	54	41	33	28	40	33	27	39	32	27	38	32	27	25
10	52	38	30	25	51	38	30	25	37	30	25	36	29	25	35	29	25	23

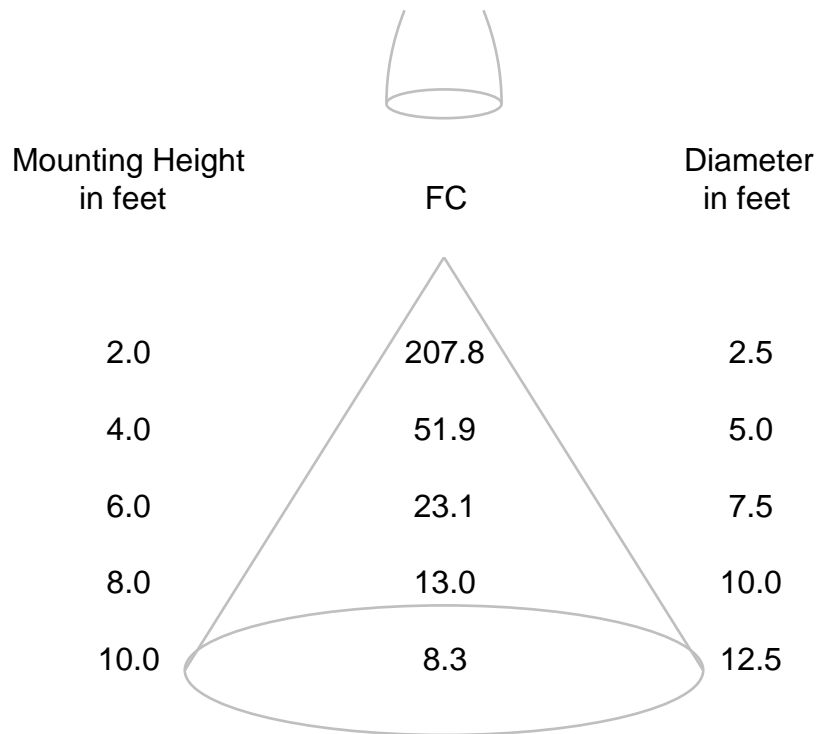
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

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## 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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CATALOG NUMBER: RTLED2X2-19NW/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

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### RESULTS:

<b>PHOTOMETRIC</b>	
Total Integrated Flux (lumens)	2507 *
<b>SPECTRORADIOMETRIC</b>	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3796
Chromaticity Ordinate y	0.3802
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2231
Chromaticity Ordinate v'	0.5030
Correlated Color Temp CCT (K)	4049
ANSI C78.377-2008 Duv	0.002
Total Radiant Flux (milliWatts)	7625 *
<b>ELECTRICAL</b>	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.077
Input Power (Watts)	19.1
Input Power Factor (%)	89.3
Input Current THD (%)	13.6
Input Voltage THD (%)	0.2
<b>EFFICACY (Lumens/Watt)</b>	
	131.3
<b>ELECTRICAL AT MAX NONIMAL INPUT</b>	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.155
Input Power (Watts)	18.4
Input Power Factor (%)	98.7
Input Current THD (%)	11.5
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	96
R4 Moderate yellowish green	84
R5 Light bluish green	83
R6 Light blue	86
R7 Light violet	87
R8 Light reddish purple	66
R9 Strong red	13
R10 Strong yellow	76
R11 Strong green	83
R12 Strong blue	67
R13 Light yellowish pink (skin)	84
R14 Moderate olive green (leaf)	98

### \*NOTE:

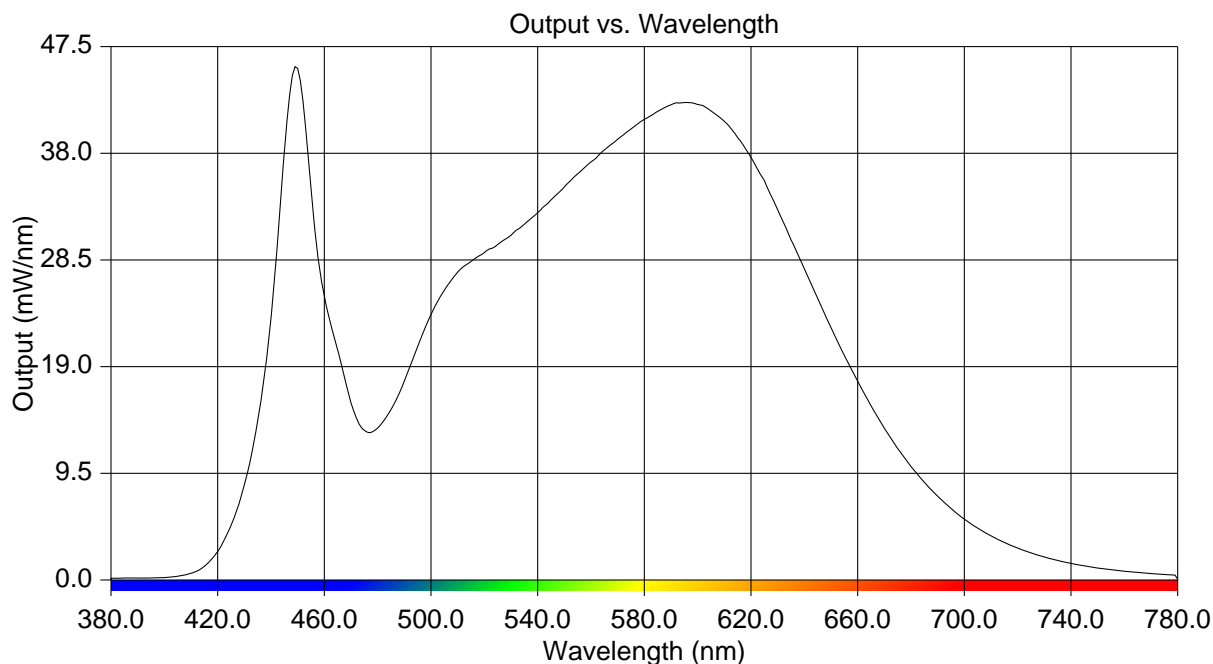
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even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

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### RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.147	515	28.378	650	22.509
385	0.157	520	29.158	655	20.000
390	0.162	525	29.885	660	17.706
395	0.190	530	30.699	665	15.523
400	0.232	535	31.681	670	13.523
405	0.331	540	32.688	675	11.744
410	0.570	545	33.849	680	10.109
415	1.215	550	35.009	685	8.712
420	2.525	555	36.169	690	7.453
425	4.848	560	37.237	695	6.378
430	8.487	565	38.297	700	5.436
435	14.069	570	39.257	705	4.622
440	23.415	575	40.168	710	3.922
445	38.042	580	41.024	715	3.339
450	45.567	585	41.746	720	2.838
455	34.911	590	42.322	725	2.408
460	25.262	595	42.504	730	2.048
465	20.458	600	42.344	735	1.736
470	15.769	605	41.773	740	1.482
475	13.334	610	40.849	745	1.260
480	13.530	615	39.402	750	1.074
485	15.178	620	37.646	755	0.913
490	17.719	625	35.582	760	0.781
495	20.816	630	32.971	765	0.666
500	23.672	635	30.304	770	0.569
505	25.809	640	27.720	775	0.490
510	27.415	645	25.049	780	0.074



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## CIE Chromaticity Diagram

