

REPORT NUMBER: RAB03264

ISSUE DATE: 04/28/17

CATALOG NUMBER: RTLED2X4-39NWHC/D10

LUMINAIRE: WHITE PAINTED SHEET METAL HOUSING, 2 WHITE CIRCUIT BOARDS

EACH WITH 77 LEDS, MATTE WHITE POLYCARBONATE LENS IN THE CENTER, ROUGH SURFACE FACING OUT. FIXTURE WAS MOUNTED IN Lithonia Lighting Model #2GT8 4 32 A12 MVOLT 1/4 MVISPWS1836LP741 HOUSING.

LAMPS: ONE HUNDRED AND FIFTY-FOUR LIGHT EMITTING DIODES (LEDs), VERTICAL BASE-UP POSITION.

(SEE PAGE 2 FOR MORE INFORMATION)

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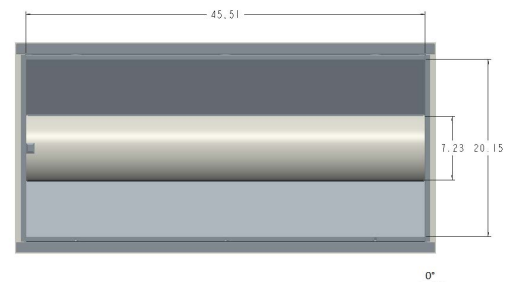
DATE SAMPLE TESTED: 04/28/17

CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0	1398	1398	1398	1398	1398
5	1375	1382	1399	1404	1403
15	1323	1333	1353	1360	1361
25	1222	1232	1256	1268	1274
35	1079	1094	1121	1141	1150
45	904	920	952	985	996
55	707	725	767	812	827
65	496	518	572	614	630
75	279	314	360	416	441
85	84	115	154	177	180
90	6	12	8	5	2

FLUX

132
380
577
699
734
686
561
383
151



ZONAL LUMEN SUMMARY

ZONE	LUMENS	%FIXT
0- 30	1089	25.3
0- 40	1789	41.6
0- 60	3209	74.6
0- 90	4304	100.0
90-180	0	0.0
0-180	4304	100.0

TOTAL INPUT WATTS = 39.4

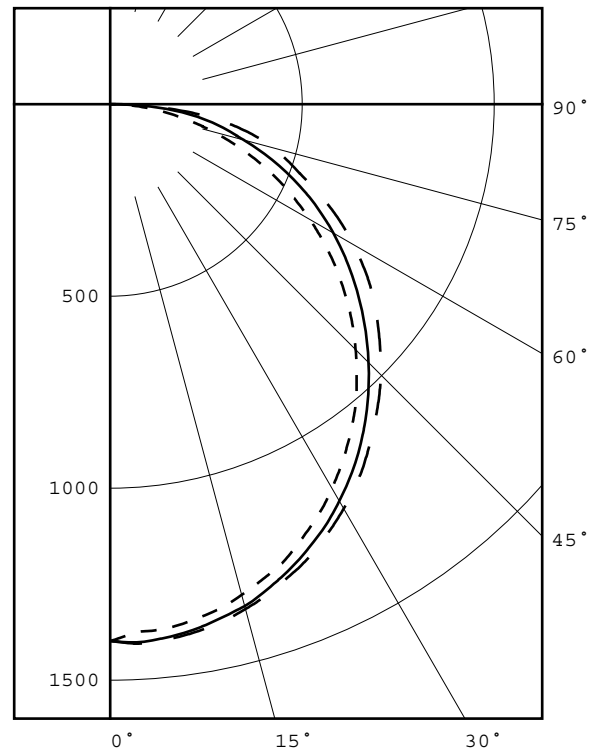
EFFICACY = 109.2 Lm/W

CIE TYPE - DIRECT

PLANE : 0-DEG 90-DEG
SPACING CRITERIA : 1.2 1.3
PLANE : 0-DEG 90-DEG
LUMINOUS LENGTH : 45.510 20.150

LUMINANCE DATA IN CANDELA/SQ METER

ANGLE IN DEG	AVERAGE 0-DEG	AVERAGE 45-DEG	AVERAGE 90-DEG
45	2160.	2275.	2380.
55	2083.	2259.	2436.
65	1983.	2287.	2519.
75	1821.	2350.	2879.
85	1628.	2986.	3490.



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 = 39.409 W AT 120.0 VAC.

LED DRIVER: RD-050-EUH-A1050

TEST PROCEDURE: IESNA LM-79-08

LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE

AMBIENT: 24.1

ACCREDITED LABORATORY CODE 201058-0

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PLANE : 0-DEG 90-DEG
BEAM ANGLE (50%) : 110.4 X 122.9 DEGREES
FIELD ANGLE (10%) : 163.9 X 172.0 DEGREES

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CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0.0	1398	1398	1398	1398	1398
2.5	1379	1386	1403	1405	1406
5.0	1375	1382	1399	1404	1403
7.5	1368	1374	1392	1398	1398
10.0	1356	1362	1381	1388	1389
12.5	1343	1351	1367	1375	1377
15.0	1323	1333	1353	1360	1361
17.5	1302	1310	1332	1340	1343
20.0	1281	1287	1309	1319	1321
22.5	1253	1263	1284	1296	1300
25.0	1222	1232	1256	1268	1274
27.5	1191	1202	1227	1242	1246
30.0	1155	1169	1193	1212	1216
32.5	1118	1132	1159	1177	1184
35.0	1079	1094	1121	1141	1150
37.5	1039	1053	1081	1104	1112
40.0	997	1011	1040	1067	1074
42.5	950	966	996	1026	1036
45.0	904	920	952	985	996
47.5	857	873	906	942	954
50.0	808	825	860	899	912
52.5	757	775	813	855	869
55.0	707	725	767	812	827
57.5	654	673	719	765	780
60.0	601	621	671	717	731
62.5	547	569	622	666	682
65.0	496	518	572	614	630
67.5	442	469	520	559	576
70.0	387	417	468	509	525
72.5	332	365	414	461	482
75.0	279	314	360	416	441
77.5	227	263	312	369	390
80.0	178	209	267	314	331
82.5	130	160	214	251	264
85.0	84	115	154	177	180
87.5	40	64	76	81	81
90.0	6	12	8	5	2

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ZONAL LUMEN SUMMARY

0- 5	33.
5- 10	99.
10- 15	162.
15- 20	218.
20- 25	268.
25- 30	309.
30- 35	340.
35- 40	360.
40- 45	368.
45- 50	366.
50- 55	354.
55- 60	332.
60- 65	300.
65- 70	260.
70- 75	215.
75- 80	167.
80- 85	111.
85- 90	40.

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5-DEGREE ZONAL LUMEN SUMMARY

0- 5	33
5- 10	99
10- 15	162
15- 20	218
20- 25	268
25- 30	309
30- 35	340
35- 40	360
40- 45	368
45- 50	366
50- 55	354
55- 60	332
60- 65	300
65- 70	260
70- 75	215
75- 80	167
80- 85	111
85- 90	40
90- 95	1
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	132
0- 20	512
0- 30	1089
0- 40	1789
0- 50	2523
0- 60	3209
0- 70	3770
0- 80	4152
0- 90	4303
0-100	4304
0-110	4304
0-120	4304
0-130	4304
0-140	4304
0-150	4304
0-160	4304
0-170	4304
0-180	4304

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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	102	98	93	105	100	96	92	96	92	89	92	89	86	88	86	84	81
2	97	89	81	75	95	87	80	74	83	77	72	80	75	71	77	73	69	67
3	88	77	69	62	86	76	68	61	73	66	60	70	64	59	67	62	58	56
4	81	68	59	52	78	67	58	52	64	57	51	62	55	50	60	54	49	47
5	74	61	51	45	72	60	51	44	57	50	44	55	49	43	54	48	43	41
6	68	55	45	39	66	54	45	39	52	44	38	50	43	38	49	42	37	35
7	63	49	40	34	62	49	40	34	47	39	34	46	39	33	44	38	33	31
8	59	45	36	30	57	44	36	30	43	35	30	42	35	30	41	34	30	28
9	55	41	33	27	54	41	33	27	40	32	27	38	32	27	37	31	27	25
10	52	38	30	25	50	38	30	25	37	29	25	36	29	24	35	29	24	22

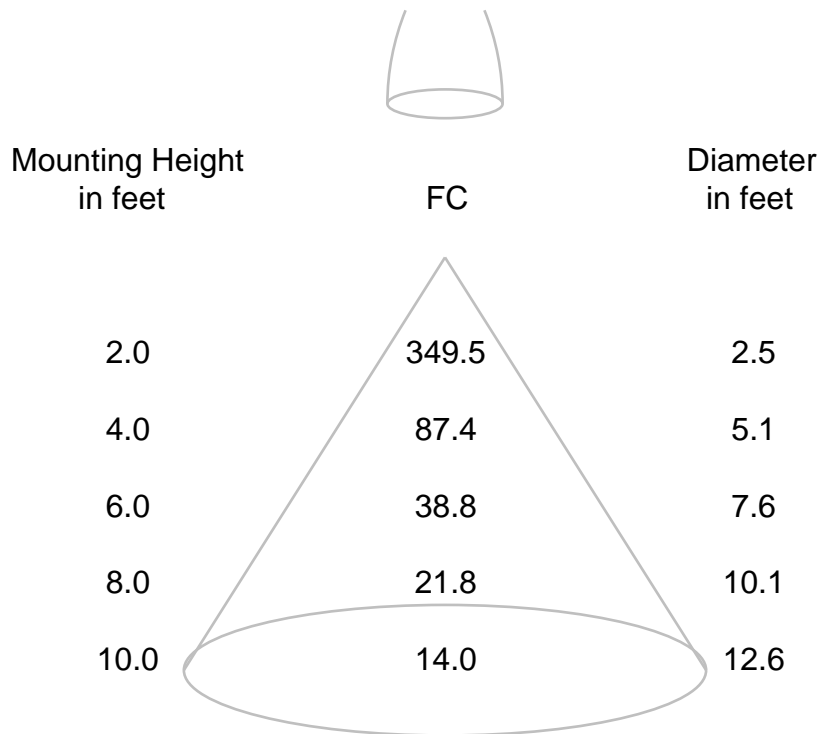
ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

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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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ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: WHITE PAINTED SHEET METAL HOUSING, 2 WHITE CIRCUIT BOARDS EACH WITH 77 LEDS, MATTE WHITE POLYCARBONATE LENS IN THE CENTER, ROUGH SURFACE FACING OUT. FIXTURE WAS MOUNTED IN Lithonia Lighting Model #2GT8 4 32 A12 MVOLT 1/4 MVISPWS1836LP741 HOUSING.

LAMP: ONE HUNDRED AND FIFTY-FOUR LIGHT EMITTING DIODES (LEDS), VERTICAL BASE-UP POSITION.

DRIVER: RD-050-EUH-A1050

OBJECT OF TEST: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT THE RATED INPUT VOLTAGES (120.0 AND 277.0 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	04/10/18
	RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry	04/10/18

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 (277.0 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:

PHOTOMETRIC	
Total Integrated Flux (lumens)	4304 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3758
Chromaticity Ordinate y	0.3707
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2245
Chromaticity Ordinate v'	0.4982
Correlated Color Temp CCT (K)	4085
ANSI C78.377-2008 Duv	-0.001
Total Radiant Flux (milliWatts)	15288 *
ELECTRICAL	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.331
Input Power (Watts)	39.4
Input Power Factor (%)	99.4
Input Current THD (%)	7.9
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	109.2
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.150
Input Power (Watts)	39.0
Input Power Factor (%)	93.5
Input Current THD (%)	9.5
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	94
R1 Light greyish red	95
R2 Dark greyish yellow	94
R3 Strong yellowish green	91
R4 Moderate yellowish green	94
R5 Light bluish green	94
R6 Light blue	90
R7 Light violet	95
R8 Light reddish purple	95
R9 Strong red	84
R10 Strong yellow	85
R11 Strong green	93
R12 Strong blue	72
R13 Light yellowish pink (skin)	95
R14 Moderate olive green (leaf)	94

*NOTE:

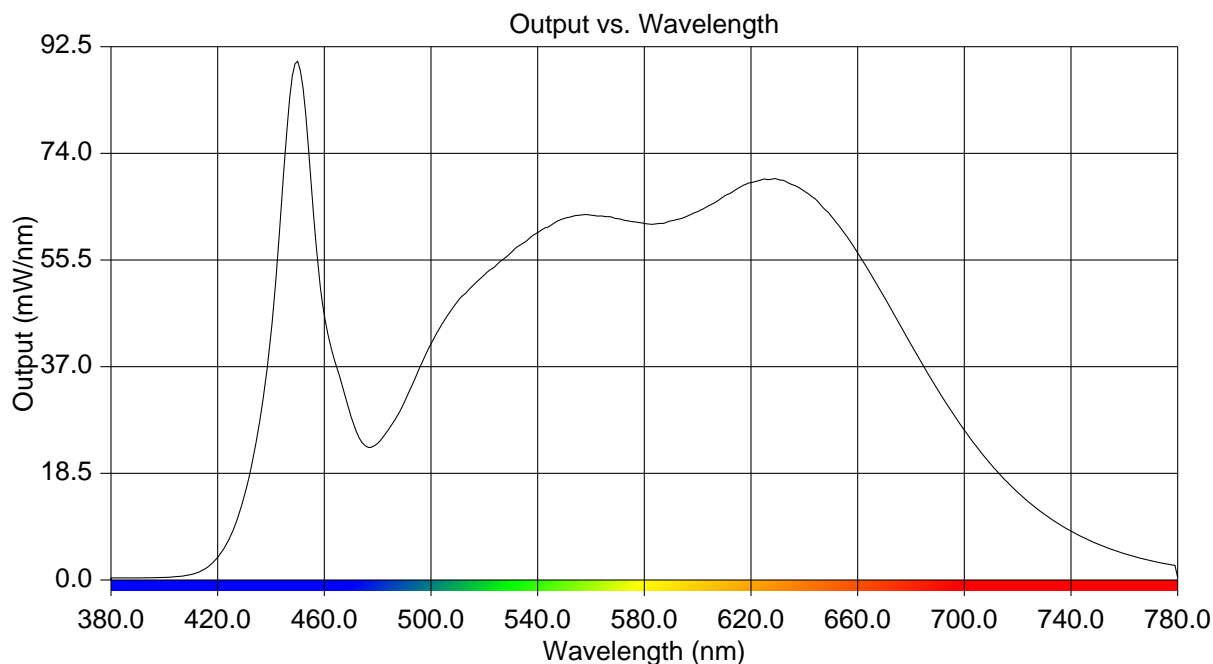
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RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.338	515	50.788	650	63.169
385	0.368	520	52.909	655	60.181
390	0.370	525	54.842	660	56.735
395	0.382	530	56.748	665	52.992
400	0.447	535	58.541	670	49.015
405	0.590	540	60.262	675	45.005
410	0.945	545	61.521	680	40.837
415	1.863	550	62.709	685	36.896
420	3.905	555	63.242	690	32.995
425	7.784	560	63.276	695	29.406
430	14.606	565	63.057	700	25.973
435	25.388	570	62.664	705	22.843
440	42.860	575	62.179	710	20.037
445	71.889	580	61.806	715	17.518
450	89.957	585	61.803	720	15.206
455	69.140	590	62.287	725	13.180
460	45.889	595	62.853	730	11.404
465	36.331	600	63.892	735	9.834
470	28.361	605	65.072	740	8.437
475	23.443	610	66.587	745	7.262
480	23.700	615	67.894	750	6.261
485	26.725	620	68.951	755	5.328
490	30.820	625	69.564	760	4.575
495	36.034	630	69.495	765	3.904
500	41.017	635	68.653	770	3.346
505	45.027	640	67.451	775	2.854
510	48.333	645	65.683	780	0.426



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CIE Chromaticity Diagram

