

**REPORT NUMBER:** RAB04597

**PAGE:** 1 OF 6

**ISSUE DATE:** 09/06/18

**DATE SAMPLE TESTED:** 09/06/18

**PREPARED FOR:** RAB LIGHTING INC. RC LIGHTING

**CATALOG NUMBER:** CDL6 [WD, S, PC, PS] -26W80D927-ODLENS

**LUMINAIRE:** EXTRUDED BLACK PAINTED METAL HOUSING, CAST FINNED METAL HEAT SINK, 1 WHITE CIRCUIT BOARD WITH 1 LED, MOLDED PLASTIC UPPER REFLECTOR, HOLOGRAPHIC PLASTIC LENS OVER UPPER APERTURE OF LOWER REFLECTOR, ALUMINUM TRIM DOOR WITH GLASS LENS.

**LAMP:** ONE WHITE 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.

**ABSOLUTE:** NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

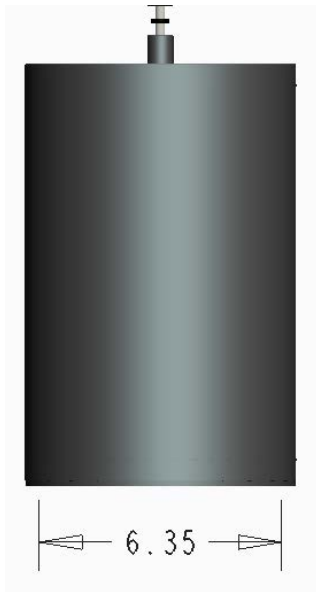
**WATT:** TOTAL INPUT WATTS = 27.8 W AT 120.0 VAC.

**LED DRIVER:** LED DRIVER: RDD-30W-042SE-A0700

**PROCEDURE:** TEST PROCEDURE: IESNA LM-79-08

**NOTE:** LM-80 DATA AVAILABLE FROM MANUFACTURER FOR SOLID STATE SOURCE  
AMBIENT: 24.0

**NVLAP LAB CODE:** ACCREDITED LABORATORY CODE 201058-0



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Checked X.CAO

Approved D.WANG-MUNSON

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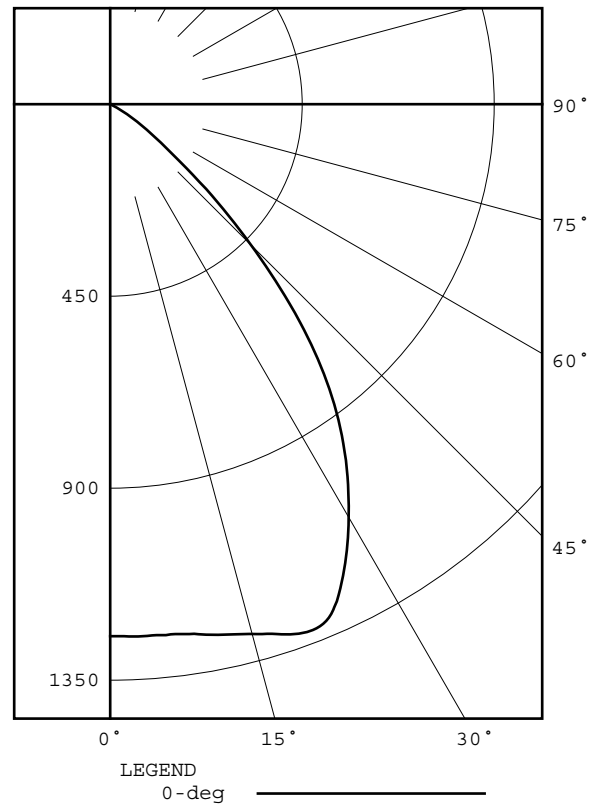
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CATALOG NUMBER: CDL6 [WD, S, PC, PS] -26W80D927-ODLENS

DEG	CANDELA	LUMENS
0	1247	
5	1249	120
15	1285	366
25	1268	576
35	946	585
45	466	361
55	105	101
65	4	10
75	1	1
85	0	0
90	0	
95	0	0
105	0	0
115	0	0
125	0	0
135	0	0
145	0	0
155	0	0
165	0	0
175	0	0
180	0	

ZONAL ZONE	LUMEN LUMENS	SUMMARY %FIXT
0- 30	1061	50.1
0- 40	1646	77.7
0- 60	2108	99.5
0- 90	2120	100.0
90-120	0	0.0
90-130	0	0.0
90-150	0	0.0
90-180	0	0.0
0-180	2120	100.0

EFFICACY = 76.3 lm/W  
CIE TYPE - DIRECT  
SPACING CRITERION: 1.21



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CANDELA DISTRIBUTION

0.0	1247	60.0	38	120.0	0	180.0	0
1.0	1247	61.0	28	121.0	0		
2.0	1248	62.0	20	122.0	0		
3.0	1249	63.0	13	123.0	0		
4.0	1249	64.0	8	124.0	0		
5.0	1249	65.0	4	125.0	0		
6.0	1251	66.0	2	126.0	0		
7.0	1251	67.0	2	127.0	0		
8.0	1254	68.0	2	128.0	0		
9.0	1257	69.0	2	129.0	0		
10.0	1262	70.0	2	130.0	0		
11.0	1267	71.0	2	131.0	0		
12.0	1271	72.0	2	132.0	0		
13.0	1276	73.0	2	133.0	0		
14.0	1280	74.0	1	134.0	0		
15.0	1285	75.0	1	135.0	0		
16.0	1292	76.0	1	136.0	0		
17.0	1298	77.0	1	137.0	0		
18.0	1306	78.0	1	138.0	0		
19.0	1314	79.0	1	139.0	0		
20.0	1319	80.0	1	140.0	0		
21.0	1321	81.0	1	141.0	0		
22.0	1318	82.0	1	142.0	0		
23.0	1309	83.0	0	143.0	0		
24.0	1291	84.0	1	144.0	0		
25.0	1268	85.0	0	145.0	0		
26.0	1240	86.0	0	146.0	0		
27.0	1212	87.0	0	147.0	0		
28.0	1182	88.0	0	148.0	0		
29.0	1150	89.0	0	149.0	0		
30.0	1118	90.0	0	150.0	0		
31.0	1085	91.0	0	151.0	0		
32.0	1052	92.0	0	152.0	0		
33.0	1018	93.0	0	153.0	0		
34.0	983	94.0	0	154.0	0		
35.0	946	95.0	0	155.0	0		
36.0	908	96.0	0	156.0	0		
37.0	866	97.0	0	157.0	0		
38.0	823	98.0	0	158.0	0		
39.0	779	99.0	0	159.0	0		
40.0	730	100.0	0	160.0	0		
41.0	679	101.0	0	161.0	0		
42.0	628	102.0	0	162.0	0		
43.0	573	103.0	0	163.0	0		
44.0	520	104.0	0	164.0	0		
45.0	466	105.0	0	165.0	0		
46.0	415	106.0	0	166.0	0		
47.0	368	107.0	0	167.0	0		
48.0	323	108.0	0	168.0	0		
49.0	277	109.0	0	169.0	0		
50.0	234	110.0	0	170.0	0		
51.0	198	111.0	0	171.0	0		
52.0	168	112.0	0	172.0	0		
53.0	144	113.0	0	173.0	0		
54.0	123	114.0	0	174.0	0		
55.0	105	115.0	0	175.0	0		
56.0	89	116.0	0	176.0	0		
57.0	74	117.0	0	177.0	0		
58.0	61	118.0	0	178.0	0		
59.0	49	119.0	0	179.0	0		

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5-DEGREE  
ZONAL LUMEN SUMMARY

0- 5	30
5- 10	90
10- 15	151
15- 20	215
20- 25	274
25- 30	302
30- 35	304
35- 40	281
40- 45	221
45- 50	139
50- 55	70
55- 60	32
60- 65	9
65- 70	1
70- 75	1
75- 80	1
80- 85	0
85- 90	0
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	120
0- 20	486
0- 30	1061
0- 40	1646
0- 50	2007
0- 60	2108
0- 70	2118
0- 80	2119
0- 90	2120
0-100	2120
0-110	2120
0-120	2120
0-130	2120
0-140	2120
0-150	2120
0-160	2120
0-170	2120
0-180	2120

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC RW	80				70				50			30			10			0			
	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	111	111	111	106	106	106	102	102	102	100
1	113	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	94	96	95	94	92
2	106	100	96	92	104	98	94	91	95	92	89	92	89	87	89	87	85	89	87	85	83
3	99	92	86	81	97	90	85	81	88	83	79	85	81	78	83	80	77	83	80	77	75
4	93	84	78	73	91	83	77	72	81	76	71	79	74	71	77	73	70	77	73	70	68
5	87	77	71	65	85	76	70	65	74	69	65	73	68	64	71	67	63	71	67	63	62
6	82	71	64	59	80	70	64	59	69	63	59	67	62	58	66	61	58	66	61	58	56
7	77	66	59	54	75	65	58	54	64	58	53	62	57	53	61	56	53	61	56	53	51
8	72	61	54	49	71	60	54	49	59	53	49	58	53	49	57	52	48	57	52	48	47
9	68	57	50	45	67	56	50	45	55	49	45	54	49	45	53	48	45	53	48	45	43
10	64	53	46	42	63	52	46	42	51	45	41	51	45	41	50	45	41	50	45	41	40

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.

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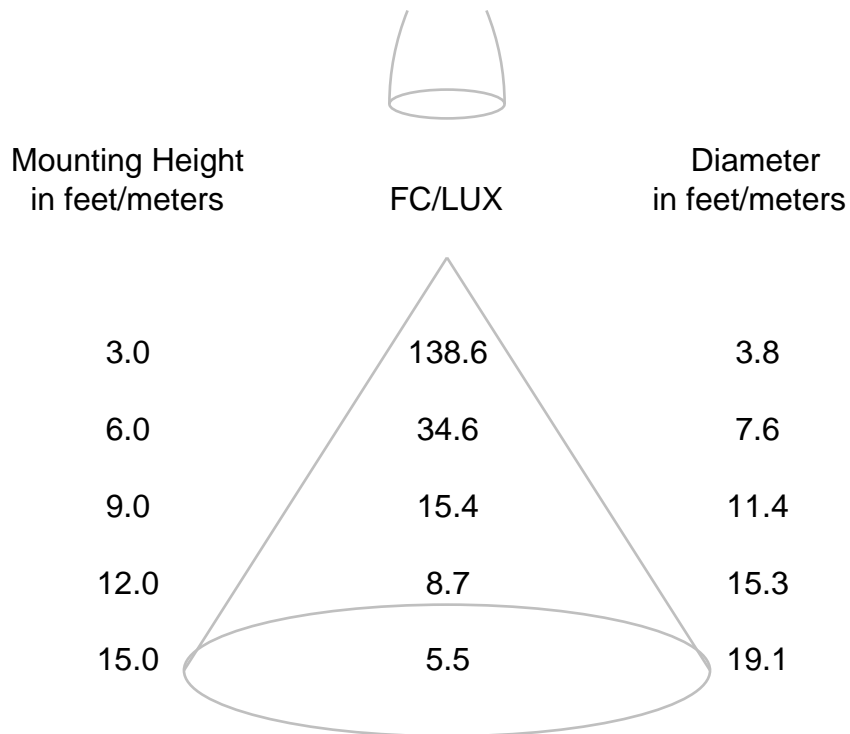
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## CONE OF LIGHT DIAGRAM

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



If distances are feet, results are footcandles.  
If distances are meters, results are lux.

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CATALOG NUMBER: CDL6 [WD, WU, S, PC, PS] -26W80D927-ODLENS

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: EXTRUDED BLACK PAINTED METAL HOUSING, CAST FINNED METAL HEAT SINK, 1 WHITE CIRCUIT BOARD WITH 1 LED, MOLDED PLASTIC UPPER REFLECTOR, HOLOGRAPHIC PLASTIC LENS OVER UPPER APERTURE OF LOWER REFLECTOR, ALUMINUM TRIM DOOR WITH GLASS LENS.

LAMP: ONE WHITE LIGHT EMITTING DIODES (LEDS).

DRIVER: RDD-30W-042SE-A0700

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  
CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202  
OCEAN OPTICS QE65PRO Spectroradiometer  
RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry

Calibration Due:  
N/A  
3/08/19  
08/22/19  
08/22/19

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:

<b>PHOTOMETRIC</b>	
Total Integrated Flux (lumens)	2120 *
<b>SPECTRORADIOMETRIC</b>	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.4597
Chromaticity Ordinate y	0.4161
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2599
Chromaticity Ordinate v'	0.5294
Correlated Color Temp CCT (K)	2745
ANSI C78.377-2008 Duv	0.002
Total Radiant Flux (milliWatts)	7297 *
<b>ELECTRICAL</b>	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.235
Input Power (Watts)	27.8
Input Power Factor (%)	98.5
Input Current THD (%)	13.1
Input Voltage THD (%)	0.2
<b>EFFICACY (Lumens/Watt)</b>	
76.3	
<b>ELECTRICAL AT MAX NONIMAL INPUT</b>	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.110
Input Power (Watts)	27.7
Input Power Factor (%)	90.8
Input Current THD (%)	18.3
Input Voltage THD (%)	0.2
<b>Off-State Power (Watts)</b>	
0.0	

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	90
R1 Light greyish red	89
R2 Dark greyish yellow	94
R3 Strong yellowish green	99
R4 Moderate yellowish green	90
R5 Light bluish green	89
R6 Light blue	94
R7 Light violet	90
R8 Light reddish purple	77
R9 Strong red	49
R10 Strong yellow	87
R11 Strong green	90
R12 Strong blue	79
R13 Light yellowish pink (skin)	90
R14 Moderate olive green (leaf)	99

\*NOTE:

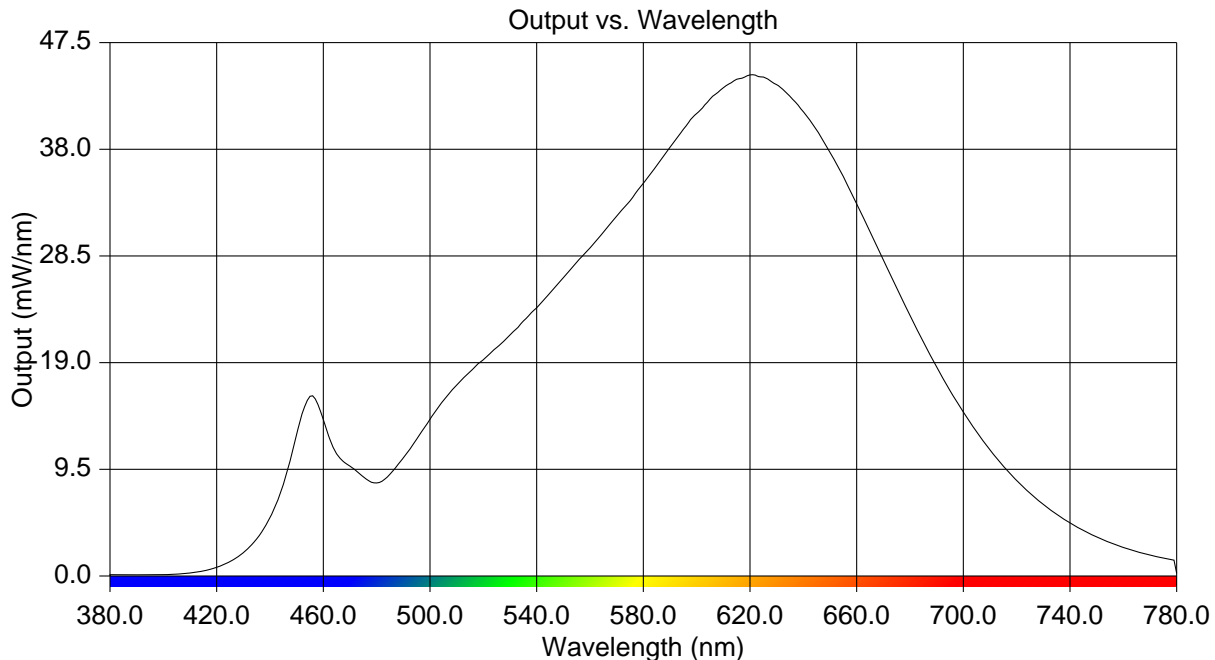
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even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

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.112	515	18.187	650	37.725
385	0.110	520	19.261	655	35.579
390	0.103	525	20.344	660	33.149
395	0.105	530	21.467	665	30.647
400	0.126	535	22.706	670	28.198
405	0.165	540	23.880	675	25.651
410	0.266	545	25.231	680	23.179
415	0.448	550	26.568	685	20.841
420	0.779	555	27.930	690	18.579
425	1.281	560	29.219	695	16.512
430	2.089	565	30.628	700	14.596
435	3.300	570	32.076	705	12.836
440	5.197	575	33.402	710	11.245
445	8.165	580	34.940	715	9.798
450	12.610	585	36.573	720	8.521
455	16.004	590	38.186	725	7.363
460	13.930	595	39.783	730	6.354
465	10.863	600	41.196	735	5.496
470	9.782	605	42.470	740	4.707
475	8.825	610	43.484	745	4.036
480	8.286	615	44.240	750	3.488
485	9.070	620	44.628	755	2.988
490	10.526	625	44.441	760	2.556
495	12.184	630	43.758	765	2.185
500	13.939	635	42.722	770	1.863
505	15.626	640	41.331	775	1.597
510	17.025	645	39.688	780	0.239



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## CIE Chromaticity Diagram

