

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P906110

Luminaire Tested: DFN2DIP-PN4F0-100D090US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906110
REPORT IS A COMBINATION OF REPORTS P899712 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D090US835-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

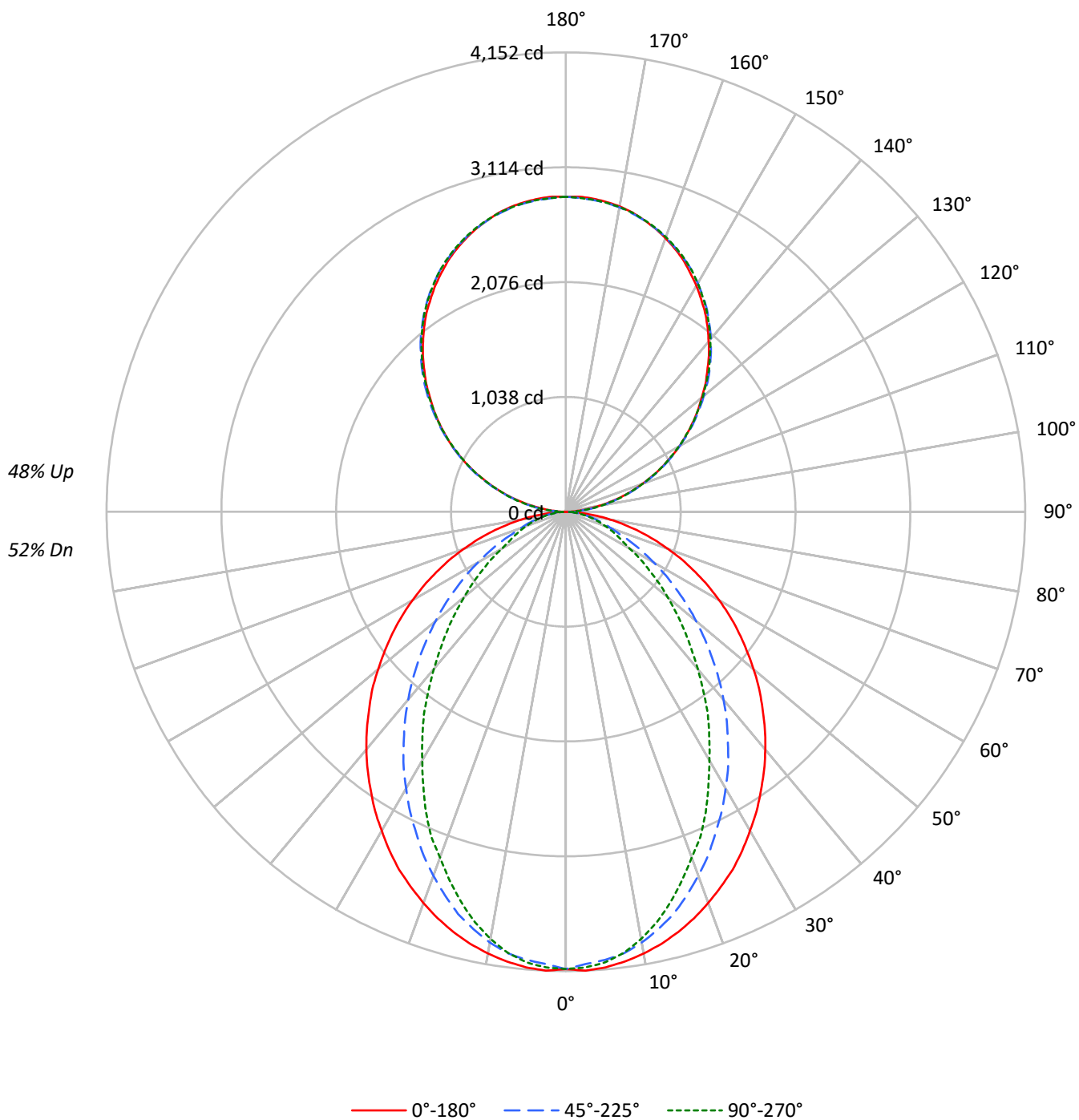
Lumens per Lamp: N/A
Luminaire Lumens: 16465.0 lumens
Efficiency: N/A
Efficacy: 98.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 167.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10		50	30	10		50	30	10		50	30	10
RCR																				
0	108	108	108	108	99	99	99	99		84	84	84		70	70	70		58	58	58
1	99	94	91	87	91	88	84	82		75	72	70		63	61	60		52	51	50
2	90	83	77	72	83	77	72	68		66	62	59		56	53	51		46	44	43
3	83	73	66	61	76	68	62	57		59	54	50		50	46	43		41	39	37
4	76	65	58	52	70	61	54	49		52	47	43		45	41	38		37	34	32
5	70	59	51	45	64	55	48	42		47	42	38		40	36	33		34	31	28
6	64	53	45	39	60	49	42	37		43	37	33		37	32	29		31	28	25
7	60	48	40	35	55	45	38	33		39	33	29		33	29	26		28	25	23
8	56	43	36	31	51	41	34	29		36	30	26		31	26	23		26	23	20
9	52	40	32	28	48	37	31	26		33	27	24		28	24	21		24	21	19
10	48	37	30	25	45	34	28	24		30	25	21		26	22	19		23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3017	3017	3017
5°	3022	2969	2989
10°	2992	2912	2892
15°	2951	2816	2742
20°	2896	2683	2558
25°	2840	2535	2380
30°	2765	2383	2155
35°	2692	2219	1956
40°	2617	2050	1729
45°	2530	1862	1523
50°	2441	1672	1322
55°	2347	1470	1128
60°	2239	1257	929
65°	2114	1042	837
70°	1963	841	758
75°	1773	742	691
80°	1497	624	601
85°	1043	418	456

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2530 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	387.3	2.4
10°-20°	1063.3	6.5
20°-30°	1492.9	9.1
30°-40°	1627.4	9.9
40°-50°	1495.7	9.1
50°-60°	1174.7	7.1
60°-70°	764.6	4.6
70°-80°	393.6	2.4
80°-90°	108.6	0.7
90°-100°	176.1	1.1
100°-110°	559.6	3.4
110°-120°	957.7	5.8
120°-130°	1259.5	7.6
130°-140°	1413.8	8.6
140°-150°	1386.4	8.4
150°-160°	1163.0	7.1
160°-170°	771.2	4.7
170°-180°	269.6	1.6
0°-30°	2943.6	17.9
0°-40°	4571.0	27.8
0°-60°	7241.3	44.0
0°-90°	8508.1	51.7
90°-120°	1693.5	10.3
90°-150°	5753.1	34.9
90°-180°	7957.0	48.3
0°-180°	16465.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4133	4133	4133	4133	4133	
5°	4133	4114	4066	4099	4088	392
15°	3931	3890	3763	3692	3654	1108
25°	3568	3448	3202	3048	2992	1641
35°	3075	2884	2555	2319	2236	1924
45°	2514	2263	1870	1604	1515	1941
55°	1911	1620	1216	991	920	1708
65°	1290	987	651	524	512	1279
75°	688	426	299	273	269	728
85°	161	82	71	71	71	184
90°	3	31	84	79	82	16
95°	125	149	154	154	149	139
105°	517	523	529	533	533	545
115°	961	975	970	968	961	951
125°	1398	1419	1412	1405	1402	1249
135°	1808	1835	1840	1837	1830	1398
145°	2195	2212	2226	2228	2219	1372
155°	2510	2517	2525	2537	2529	1155
165°	2730	2728	2728	2745	2733	770
175°	2841	2834	2829	2846	2832	270
180°	2846	2846	2846	2846	2846	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4133.0	4133.0	4133.0	4133.0	4133.0
2.5°	4151.6	4133.0	4091.7	4129.4	4121.9
5°	4133.0	4114.3	4065.5	4099.3	4088.1
7.5°	4099.3	4077.0	4024.6	4039.3	4020.7
10°	4054.4	4028.2	3953.6	3942.1	3919.9
12.5°	3998.5	3964.7	3863.5	3841.3	3800.0
15°	3931.0	3889.7	3762.7	3691.7	3654.4
17.5°	3852.4	3792.5	3635.4	3553.2	3493.3
20°	3762.7	3687.7	3500.8	3407.6	3325.0
22.5°	3665.5	3579.4	3362.3	3235.4	3179.4
25°	3568.3	3448.5	3201.6	3048.4	2992.1
27.5°	3452.4	3325.0	3052.0	2876.2	2790.1
30°	3329.0	3186.5	2887.3	2696.9	2595.7
32.5°	3209.2	3036.9	2730.6	2506.0	2412.3
35°	3074.6	2883.8	2554.8	2319.1	2236.5
37.5°	2943.7	2737.7	2390.1	2131.8	2038.5
40°	2805.2	2581.0	2217.9	1952.4	1855.2
42.5°	2663.1	2423.8	2046.1	1769.1	1675.8
45°	2513.5	2262.7	1870.3	1604.4	1514.7
47.5°	2371.5	2106.0	1702.0	1436.1	1354.0
50°	2214.3	1948.8	1537.3	1279.0	1200.8
52.5°	2060.7	1780.2	1380.2	1133.3	1062.3
55°	1911.1	1619.5	1215.5	991.3	920.2
57.5°	1758.0	1458.7	1069.9	860.3	800.4
60°	1600.8	1301.6	916.3	725.8	665.9
62.5°	1447.6	1148.4	785.3	606.0	576.2
65°	1290.5	987.3	650.8	523.8	512.3
67.5°	1140.9	837.7	523.8	459.9	448.8
70°	983.7	692.1	433.7	396.4	381.4
72.5°	834.1	557.1	362.7	332.9	325.4
75°	688.1	426.2	299.2	273.0	269.4
77.5°	542.5	302.8	235.7	220.6	213.1
80°	407.5	217.1	179.4	164.7	164.7
82.5°	284.1	146.0	123.4	115.9	115.9
85°	160.7	82.1	71.0	71.0	71.0
87.5°	59.9	29.8	29.8	26.2	26.2
90°	2.6	30.9	84.1	78.9	81.5
92.5°	53.2	72.1	74.7	77.2	77.2
95°	125.3	149.3	153.6	153.6	149.3
97.5°	208.5	230.8	240.3	240.3	240.3
100°	304.6	324.4	331.2	331.2	328.7
102.5°	405.9	420.5	429.9	432.5	429.9
105°	516.6	523.4	528.6	532.9	532.9
107.5°	626.4	636.7	636.7	638.4	626.4
110°	732.8	746.6	746.6	746.6	739.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	847.8	862.4	859.8	853.0	847.8
115°	961.1	974.8	970.5	968.0	961.1
117.5°	1073.5	1092.4	1080.4	1073.5	1066.6
120°	1186.8	1205.6	1186.8	1186.8	1179.0
122.5°	1289.7	1313.8	1301.8	1294.9	1289.7
125°	1397.9	1419.3	1412.5	1404.7	1402.2
127.5°	1503.4	1530.0	1520.6	1510.3	1503.4
130°	1602.1	1633.0	1628.7	1623.5	1614.1
132.5°	1712.8	1736.8	1738.5	1726.5	1719.7
135°	1808.0	1834.6	1839.8	1837.2	1830.4
137.5°	1914.4	1935.9	1940.2	1938.5	1928.2
140°	2008.0	2029.4	2041.4	2041.4	2032.0
142.5°	2104.1	2125.5	2132.4	2135.0	2125.5
145°	2195.1	2212.2	2225.9	2228.5	2219.1
147.5°	2276.6	2298.0	2308.3	2312.6	2303.2
150°	2360.7	2375.3	2384.7	2392.4	2384.7
152.5°	2435.3	2449.9	2461.9	2471.4	2461.9
155°	2510.0	2516.8	2524.6	2536.6	2528.9
157.5°	2574.3	2579.5	2583.8	2600.9	2588.9
160°	2631.8	2637.0	2639.6	2654.1	2643.8
162.5°	2685.0	2685.0	2687.6	2703.9	2691.9
165°	2730.5	2727.9	2727.9	2745.1	2733.1
167.5°	2771.7	2764.0	2764.0	2781.1	2769.1
170°	2802.6	2795.7	2793.2	2810.3	2795.7
172.5°	2824.0	2817.2	2814.6	2831.8	2817.2
175°	2841.2	2834.3	2829.2	2846.4	2831.8
177.5°	2850.6	2843.8	2838.6	2853.2	2838.6
180°	2846.4	2846.4	2846.4	2846.4	2846.4

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	11.14	11.99	12.09	12.95	14.20	7.11	7.95	8.06	8.91	10.16
	3H	12.83	13.58	13.79	14.55	15.82	8.30	9.05	9.26	10.02	11.30
	4H	13.44	14.15	14.41	15.12	16.41	8.75	9.46	9.73	10.44	11.72
	6H	13.86	14.52	14.85	15.50	16.79	9.07	9.73	10.06	10.71	12.00
	8H	13.99	14.61	14.98	15.61	16.90	9.17	9.79	10.16	10.79	12.08
	12H	14.05	14.65	15.05	15.64	16.95	9.21	9.80	10.21	10.79	12.11
4H	2H	11.16	11.88	12.15	12.85	14.13	7.71	8.42	8.69	9.40	10.68
	3H	13.00	13.59	13.99	14.59	15.89	9.06	9.65	10.05	10.66	11.95
	4H	13.69	14.23	14.69	15.23	16.55	9.61	10.15	10.61	11.15	12.47
	6H	14.21	14.68	15.22	15.70	17.01	10.03	10.50	11.04	11.52	12.83
	8H	14.39	14.82	15.40	15.84	17.17	10.16	10.59	11.17	11.61	12.94
	12H	14.49	14.88	15.52	15.91	17.24	10.23	10.62	11.26	11.65	12.98
8H	4H	13.66	14.10	14.67	15.11	16.44	9.89	10.33	10.90	11.34	12.67
	6H	14.23	14.59	15.27	15.65	16.97	10.41	10.77	11.45	11.83	13.16
	8H	14.45	14.77	15.49	15.81	17.16	10.60	10.92	11.65	11.96	13.31
	12H	14.59	14.87	15.64	15.90	17.30	10.73	11.00	11.77	12.04	13.43
12H	4H	13.61	14.01	14.64	15.04	16.37	9.90	10.29	10.93	11.32	12.66
	6H	14.21	14.52	15.25	15.56	16.91	10.46	10.78	11.51	11.82	13.17
	8H	14.43	14.71	15.48	15.74	17.14	10.68	10.95	11.72	11.99	13.38