

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: P907508

Luminaire Tested: DFN2DIP-TR4F0-100D090US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907508
REPORT IS A COMBINATION OF REPORTS P900472 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D090US835-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

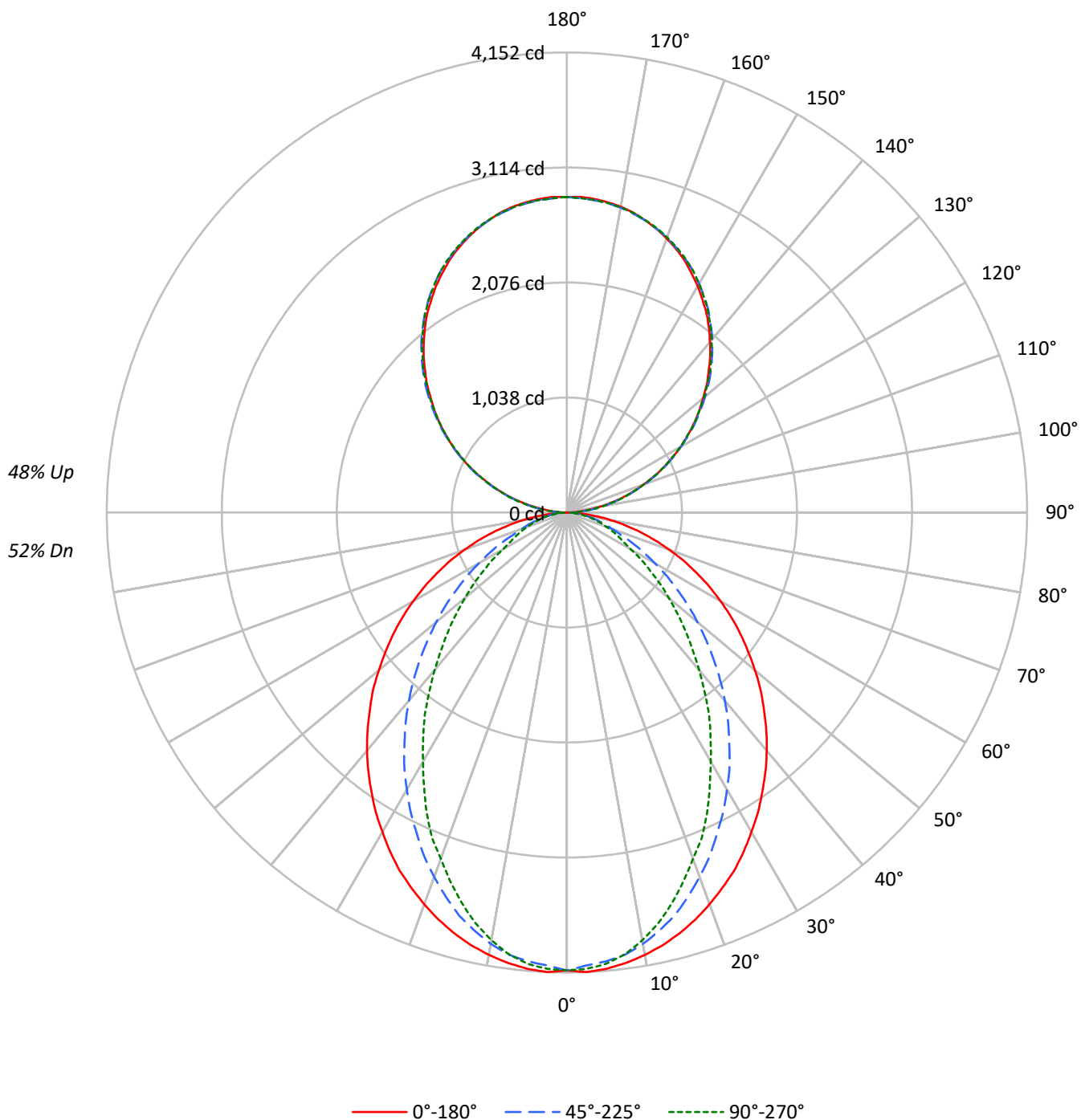
Lumens per Lamp: N/A
Luminaire Lumens: 16465.0 lumens
Efficiency: N/A
Efficacy: 97.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 168.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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				10
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°	3283	3283	3283
5°	3289	3231	3252
10°	3256	3168	3146
15°	3211	3063	2982
20°	3152	2919	2781
25°	3091	2757	2588
30°	3010	2591	2342
35°	2930	2413	2126
40°	2849	2228	1878
45°	2754	2023	1653
50°	2657	1817	1434
55°	2555	1596	1224
60°	2437	1365	1007
65°	2301	1130	906
70°	2136	911	820
75°	1930	803	746
80°	1630	674	646
85°	1136	449	485

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2754 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	11.43	12.27	12.38	13.23	14.48	7.40	8.24	8.35	9.20	10.45
	3H	13.10	13.86	14.07	14.83	16.10	8.59	9.35	9.55	10.32	11.59
	4H	13.71	14.43	14.69	15.40	16.68	9.04	9.76	10.02	10.73	12.01
	6H	14.14	14.79	15.12	15.77	17.07	9.36	10.02	10.35	11.00	12.29
	8H	14.26	14.89	15.25	15.88	17.17	9.46	10.08	10.45	11.08	12.37
	12H	14.32	14.92	15.32	15.91	17.22	9.50	10.09	10.50	11.08	12.40
4H	2H	11.45	12.16	12.43	13.13	14.42	8.00	8.71	8.98	9.68	10.97
	3H	13.28	13.87	14.27	14.87	16.17	9.35	9.94	10.34	10.95	12.24
	4H	13.97	14.51	14.97	15.51	16.83	9.90	10.44	10.90	11.44	12.76
	6H	14.49	14.95	15.49	15.97	17.29	10.32	10.78	11.33	11.80	13.12
	8H	14.66	15.09	15.67	16.11	17.44	10.45	10.88	11.46	11.90	13.23
	12H	14.76	15.15	15.78	16.18	17.51	10.52	10.91	11.54	11.94	13.27
8H	4H	13.94	14.37	14.95	15.39	16.72	10.18	10.61	11.19	11.63	12.96
	6H	14.50	14.86	15.54	15.92	17.25	10.70	11.06	11.73	12.11	13.44
	8H	14.72	15.04	15.76	16.08	17.43	10.89	11.21	11.93	12.25	13.60
	12H	14.86	15.14	15.91	16.17	17.57	11.01	11.29	12.06	12.33	13.72
12H	4H	13.89	14.28	14.92	15.31	16.65	10.18	10.58	11.21	11.61	12.94
	6H	14.48	14.80	15.52	15.84	17.19	10.75	11.06	11.79	12.11	13.45
	8H	14.70	14.98	15.75	16.01	17.41	10.96	11.24	12.01	12.27	13.67