

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: P908836

Luminaire Tested: DFN2DIP-PN4F0-100D090US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908836
REPORT IS A COMBINATION OF REPORTS P899711 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D090US840-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

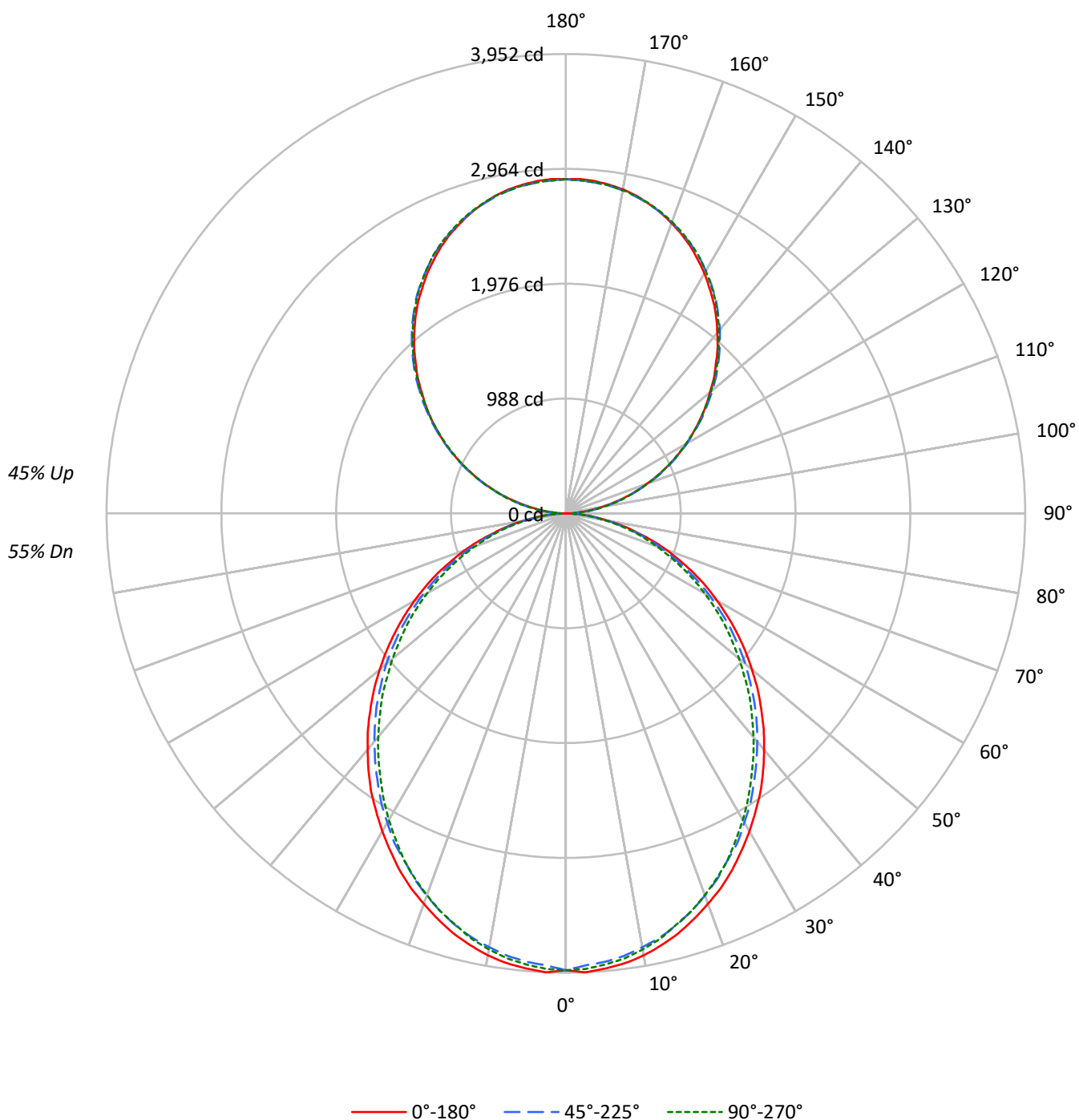
Lumens per Lamp: N/A
Luminaire Lumens: 18041.3 lumens
Efficiency: N/A
Efficacy: 107.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

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				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	101	101	101	101	86	86	86	73	73	73	61	61	61
1	99	95	91	87	92	88	85	82	76	73	71	64	63	61	54	53	52
2	90	83	76	71	83	77	72	67	66	62	59	57	54	51	48	45	43
3	82	73	65	59	76	68	61	56	59	54	49	50	46	43	42	39	37
4	75	64	56	50	70	60	53	48	52	47	42	45	40	37	38	35	32
5	69	57	49	43	64	54	46	41	47	41	36	40	36	32	34	31	28
6	64	52	43	37	59	48	41	36	42	36	32	36	32	28	31	27	25
7	59	47	39	33	55	44	36	31	38	32	28	33	28	25	28	25	22
8	55	42	34	29	51	40	33	28	35	29	25	30	26	22	26	22	20
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2868	2868	2868
5°	2873	2829	2848
10°	2850	2791	2810
15°	2808	2745	2750
20°	2751	2682	2689
25°	2695	2606	2618
30°	2624	2535	2528
35°	2557	2452	2433
40°	2475	2368	2342
45°	2393	2283	2249
50°	2303	2195	2142
55°	2209	2092	2043
60°	2103	1971	1930
65°	1987	1845	1796
70°	1839	1691	1653
75°	1635	1508	1522
80°	1389	1274	1269
85°	1004	869	849

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2393 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	369.8	2.0
10°-20°	1040.6	5.8
20°-30°	1529.3	8.5
30°-40°	1776.1	9.8
40°-50°	1773.9	9.8
50°-60°	1546.8	8.6
60°-70°	1143.4	6.3
70°-80°	646.9	3.6
80°-90°	178.9	1.0
90°-100°	177.9	1.0
100°-110°	565.2	3.1
110°-120°	967.2	5.4
120°-130°	1272.0	7.1
130°-140°	1427.7	7.9
140°-150°	1400.0	7.8
150°-160°	1174.4	6.5
160°-170°	778.9	4.3
170°-180°	272.2	1.5
0°-30°	2939.7	16.3
0°-40°	4715.8	26.1
0°-60°	8036.5	44.5
0°-90°	10005.8	55.5
90°-120°	1710.2	9.5
90°-150°	5809.9	32.2
90°-180°	8035.0	44.5
0°-180°	18041.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3930	3930	3930	3930	3930	
5°	3930	3915	3873	3903	3896	373
15°	3741	3718	3669	3684	3665	1054
25°	3386	3355	3291	3298	3291	1558
35°	2921	2883	2823	2800	2781	1824
45°	2377	2350	2293	2252	2237	1834
55°	1799	1776	1731	1685	1666	1608
65°	1213	1190	1153	1118	1100	1199
75°	635	627	608	586	593	677
85°	155	151	148	136	132	173
90°	3	31	85	80	82	17
95°	126	151	155	155	151	141
105°	522	529	534	538	538	551
115°	971	984	980	978	971	960
125°	1412	1433	1426	1419	1416	1261
135°	1826	1853	1858	1855	1848	1411
145°	2217	2234	2248	2250	2241	1385
155°	2535	2542	2550	2562	2554	1167
165°	2757	2755	2755	2772	2760	778
175°	2869	2862	2857	2874	2860	273
180°	2874	2874	2874	2874	2874	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3929.5	3929.5	3929.5	3929.5	3929.5
2.5°	3952.3	3933.4	3891.7	3929.5	3922.2
5°	3929.5	3914.6	3872.9	3903.0	3895.8
7.5°	3903.0	3880.5	3838.8	3869.3	3861.7
10°	3861.7	3835.3	3789.9	3820.0	3808.8
12.5°	3804.8	3782.4	3737.0	3755.9	3748.2
15°	3740.6	3718.2	3668.8	3684.1	3665.3
17.5°	3661.3	3638.8	3589.5	3608.4	3589.5
20°	3574.2	3551.8	3498.9	3510.1	3495.2
22.5°	3487.7	3453.6	3404.3	3404.3	3396.7
25°	3385.5	3355.4	3291.3	3298.4	3291.3
27.5°	3272.0	3245.5	3196.6	3185.4	3166.5
30°	3159.0	3128.5	3071.9	3060.7	3045.5
32.5°	3037.9	3015.5	2954.9	2932.0	2916.8
35°	2920.8	2883.2	2822.6	2799.8	2780.9
37.5°	2788.5	2754.4	2693.9	2667.5	2648.6
40°	2652.6	2622.1	2561.6	2528.0	2512.7
42.5°	2520.3	2489.8	2429.7	2391.7	2369.2
45°	2376.8	2350.4	2293.4	2252.1	2237.0
47.5°	2237.0	2210.5	2149.9	2108.2	2085.8
50°	2089.4	2070.5	2017.6	1964.7	1945.9
52.5°	1945.9	1919.5	1870.5	1828.9	1802.4
55°	1798.8	1775.9	1730.6	1685.3	1666.5
57.5°	1651.2	1632.3	1583.1	1537.8	1522.6
60°	1503.7	1488.8	1435.9	1394.2	1383.0
62.5°	1360.2	1333.7	1296.1	1258.4	1243.1
65°	1213.1	1190.2	1152.6	1118.4	1099.6
67.5°	1062.0	1042.7	1009.1	982.6	967.4
70°	922.0	906.8	872.7	846.3	831.4
72.5°	778.5	763.3	744.5	718.0	706.7
75°	634.6	627.4	608.1	585.7	593.3
77.5°	506.3	491.1	483.4	472.2	461.0
80°	378.0	374.1	366.4	355.2	347.6
82.5°	257.0	257.0	253.4	238.1	238.1
85°	154.7	151.2	147.5	135.9	132.3
87.5°	68.2	60.5	52.9	41.7	37.7
90°	2.6	31.2	84.9	79.7	82.3
92.5°	53.7	72.8	75.4	78.0	78.0
95°	126.5	150.8	155.1	155.1	150.8
97.5°	210.6	233.1	242.7	242.7	242.7
100°	307.6	327.6	334.5	334.5	331.9
102.5°	409.9	424.6	434.1	436.8	434.1
105°	521.7	528.6	533.8	538.2	538.2
107.5°	632.6	643.0	643.0	644.7	632.6
110°	740.0	754.0	754.0	754.0	747.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	856.2	870.9	868.3	861.4	856.2
115°	970.6	984.4	980.1	977.5	970.6
117.5°	1084.1	1103.2	1091.1	1084.1	1077.1
120°	1198.5	1217.5	1198.5	1198.5	1190.6
122.5°	1302.4	1326.8	1314.6	1307.7	1302.4
125°	1411.7	1433.3	1426.4	1418.6	1416.0
127.5°	1518.2	1545.1	1535.6	1525.2	1518.2
130°	1617.9	1649.1	1644.8	1639.5	1630.0
132.5°	1729.7	1753.9	1755.7	1743.5	1736.7
135°	1825.8	1852.7	1858.0	1855.3	1848.5
137.5°	1933.3	1955.0	1959.3	1957.6	1947.2
140°	2027.8	2049.4	2061.5	2061.5	2052.0
142.5°	2124.9	2146.5	2153.4	2156.1	2146.5
145°	2216.8	2234.0	2247.9	2250.5	2241.0
147.5°	2299.1	2320.7	2331.1	2335.4	2325.9
150°	2384.0	2398.7	2408.2	2416.0	2408.2
152.5°	2459.3	2474.1	2486.2	2495.8	2486.2
155°	2534.8	2541.6	2549.5	2561.6	2553.8
157.5°	2599.7	2604.9	2609.3	2626.6	2614.4
160°	2657.8	2663.0	2665.6	2680.3	2669.9
162.5°	2711.5	2711.5	2714.1	2730.6	2718.5
165°	2757.4	2754.8	2754.8	2772.2	2760.1
167.5°	2799.0	2791.3	2791.3	2808.5	2796.4
170°	2830.2	2823.3	2820.8	2838.0	2823.3
172.5°	2851.9	2845.0	2842.4	2859.7	2845.0
175°	2869.2	2862.3	2857.1	2874.5	2859.7
177.5°	2878.7	2871.9	2866.6	2881.3	2866.6
180°	2874.5	2874.5	2874.5	2874.5	2874.5

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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	12.34	12.34	13.27	14.46	10.99	11.90	11.90	12.83	14.02
	3H	13.10	13.91	14.02	14.85	16.07	12.61	13.43	13.53	14.37	15.58
	4H	13.69	14.46	14.62	15.40	16.63	13.20	13.98	14.14	14.92	16.14
	6H	14.09	14.81	15.04	15.75	16.99	13.60	14.31	14.55	15.26	16.50
	8H	14.20	14.88	15.15	15.85	17.08	13.71	14.39	14.66	15.35	16.59
	12H	14.25	14.90	15.21	15.86	17.12	13.75	14.40	14.71	15.36	16.62
4H	2H	11.90	12.67	12.84	13.61	14.84	11.55	12.32	12.49	13.26	14.49
	3H	13.77	14.42	14.72	15.39	16.63	13.37	14.01	14.32	14.99	16.23
	4H	14.49	15.08	15.45	16.05	17.31	14.07	14.66	15.03	15.63	16.89
	6H	15.01	15.52	15.98	16.51	17.77	14.59	15.09	15.56	16.09	17.35
	8H	15.16	15.64	16.14	16.62	17.90	14.73	15.21	15.71	16.19	17.47
	12H	15.24	15.67	16.23	16.67	17.95	14.80	15.23	15.79	16.23	17.51
8H	4H	14.69	15.17	15.67	16.15	17.43	14.32	14.79	15.29	15.78	17.06
	6H	15.33	15.72	16.33	16.75	18.02	14.95	15.34	15.95	16.37	17.64
	8H	15.55	15.90	16.56	16.91	18.20	15.17	15.51	16.17	16.53	17.82
	12H	15.69	15.99	16.70	17.00	18.34	15.28	15.59	16.30	16.60	17.94
12H	4H	14.68	15.11	15.67	16.11	17.39	14.32	14.75	15.31	15.75	17.03
	6H	15.36	15.71	16.37	16.72	18.01	14.99	15.34	16.00	16.35	17.65
	8H	15.60	15.91	16.62	16.92	18.26	15.23	15.54	16.24	16.54	17.88