

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: P908838

Luminaire Tested: DFN2DIP-PN4F0-100D090US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908838
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-PN4F0-100D090US840-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

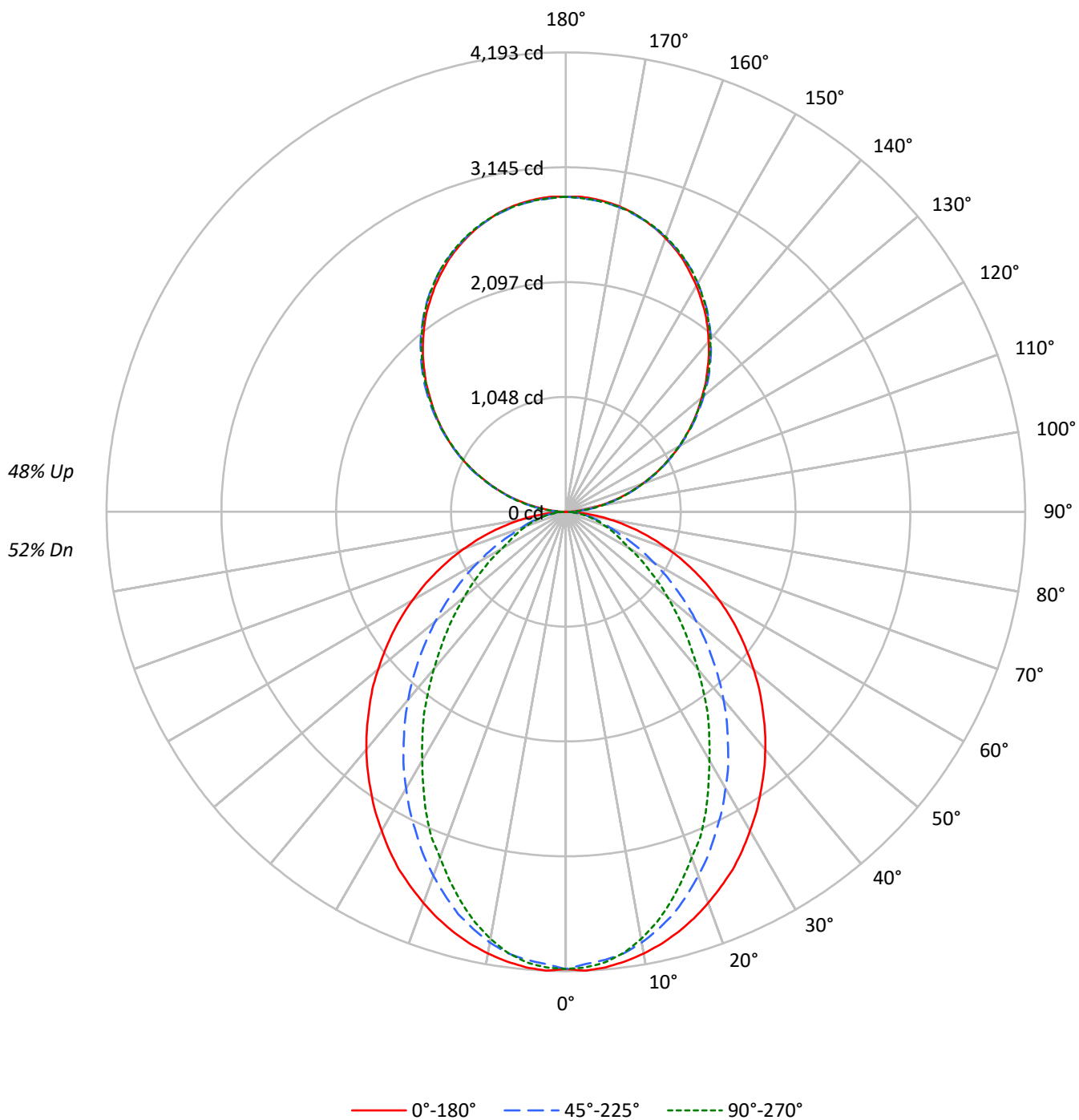
Lumens per Lamp: N/A
Luminaire Lumens: 16627.4 lumens
Efficiency: N/A
Efficacy: 99.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

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					10
RW	70	50	30	10	70	50	30	10	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	52	52	52
1	99	94	91	87	91	88	84	82	75	72	70	63	61	60	52	51	50	45	45	45
2	90	83	77	72	83	77	72	68	66	62	59	56	53	51	46	44	43	38	38	38
3	83	73	66	61	76	68	62	57	59	54	50	50	46	43	41	39	37	33	33	33
4	76	65	58	52	70	61	54	49	52	47	43	45	41	38	37	34	32	29	29	29
5	70	59	51	45	64	55	48	42	47	42	38	40	36	33	34	31	28	25	25	25
6	64	53	45	39	60	49	42	37	43	37	33	37	32	29	31	28	25	22	22	22
7	60	48	40	35	55	45	38	33	39	33	29	33	29	26	28	25	23	20	20	20
8	56	43	36	31	51	41	34	29	36	30	26	31	26	23	26	23	20	18	18	18
9	52	40	32	28	48	37	31	26	33	27	24	28	24	21	24	21	19	16	16	16
10	48	37	30	25	45	34	28	24	30	25	21	26	22	19	23	19	17	15	15	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3047	3047	3047
5°	3052	2999	3018
10°	3021	2940	2920
15°	2980	2843	2769
20°	2925	2710	2583
25°	2868	2560	2404
30°	2793	2406	2176
35°	2718	2241	1976
40°	2643	2070	1746
45°	2555	1881	1538
50°	2465	1689	1335
55°	2370	1484	1139
60°	2261	1270	938
65°	2135	1052	845
70°	1982	849	766
75°	1790	749	698
80°	1512	630	607
85°	1053	423	460

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2555 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	391.2	2.4
10°-20°	1073.8	6.5
20°-30°	1507.6	9.1
30°-40°	1643.4	9.9
40°-50°	1510.5	9.1
50°-60°	1186.3	7.1
60°-70°	772.1	4.6
70°-80°	397.5	2.4
80°-90°	109.6	0.7
90°-100°	177.9	1.1
100°-110°	565.2	3.4
110°-120°	967.2	5.8
120°-130°	1272.0	7.6
130°-140°	1427.7	8.6
140°-150°	1400.0	8.4
150°-160°	1174.4	7.1
160°-170°	778.9	4.7
170°-180°	272.2	1.6
0°-30°	2972.6	17.9
0°-40°	4616.1	27.8
0°-60°	7312.8	44.0
0°-90°	8592.0	51.7
90°-120°	1710.2	10.3
90°-150°	5809.9	34.9
90°-180°	8035.0	48.3
0°-180°	16627.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4174	4174	4174	4174	4174	
5°	4174	4155	4106	4140	4128	396
15°	3970	3928	3800	3728	3690	1119
25°	3604	3482	3233	3078	3022	1657
35°	3105	2912	2580	2342	2259	1943
45°	2538	2285	1889	1620	1530	1960
55°	1930	1636	1228	1001	929	1725
65°	1303	997	657	529	517	1292
75°	695	430	302	276	272	735
85°	162	83	72	72	72	186
90°	3	31	85	80	82	16
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°	4173.8	4173.8	4173.8	4173.8	4173.8
2.5°	4192.6	4173.8	4132.1	4170.1	4162.6
5°	4173.8	4154.9	4105.6	4139.7	4128.4
7.5°	4139.7	4117.2	4064.3	4079.1	4060.4
10°	4094.4	4067.9	3992.6	3981.0	3958.6
12.5°	4037.9	4003.8	3901.6	3879.2	3837.5
15°	3969.8	3928.1	3799.8	3728.1	3690.5
17.5°	3890.4	3829.9	3671.3	3588.3	3527.8
20°	3799.8	3724.1	3535.3	3441.2	3357.8
22.5°	3701.7	3614.7	3395.5	3267.3	3210.8
25°	3603.5	3482.5	3233.2	3078.5	3021.6
27.5°	3486.5	3357.8	3082.1	2904.6	2817.6
30°	3361.8	3217.9	2915.8	2723.5	2621.3
32.5°	3240.9	3066.9	2757.5	2530.7	2436.1
35°	3104.9	2912.3	2580.0	2342.0	2258.6
37.5°	2972.7	2764.7	2413.7	2152.8	2058.6
40°	2832.9	2606.5	2239.8	1971.7	1873.5
42.5°	2689.4	2447.7	2066.3	1786.6	1692.3
45°	2538.3	2285.0	1888.8	1620.2	1529.6
47.5°	2394.9	2126.8	1718.8	1450.3	1367.4
50°	2236.1	1968.0	1552.5	1291.6	1212.6
52.5°	2081.0	1797.8	1393.8	1144.5	1072.8
55°	1930.0	1635.5	1227.5	1001.1	929.3
57.5°	1775.3	1473.1	1080.5	868.8	808.3
60°	1616.6	1314.4	925.3	733.0	672.5
62.5°	1461.9	1159.7	793.0	612.0	581.9
65°	1303.2	997.0	657.2	529.0	517.4
67.5°	1152.2	846.0	529.0	464.4	453.2
70°	993.4	698.9	438.0	400.3	385.2
72.5°	842.3	562.6	366.3	336.2	328.6
75°	694.9	430.4	302.2	275.7	272.1
77.5°	547.9	305.8	238.0	222.8	215.2
80°	411.5	219.2	181.2	166.3	166.3
82.5°	286.9	147.4	124.6	117.0	117.0
85°	162.3	82.9	71.7	71.7	71.7
87.5°	60.5	30.1	30.1	26.5	26.5
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	11.18	12.02	12.13	12.98	14.23	7.14	7.99	8.09	8.95	10.20
	3H	12.86	13.61	13.82	14.58	15.86	8.33	9.09	9.29	10.06	11.33
	4H	13.47	14.18	14.45	15.16	16.44	8.79	9.50	9.76	10.47	11.75
	6H	13.90	14.55	14.88	15.53	16.83	9.11	9.76	10.09	10.74	12.04
	8H	14.02	14.65	15.02	15.64	16.94	9.20	9.82	10.19	10.82	12.11
	12H	14.09	14.68	15.08	15.67	16.99	9.24	9.84	10.24	10.83	12.14
4H	2H	11.20	11.91	12.18	12.89	14.17	7.74	8.46	8.72	9.43	10.71
	3H	13.03	13.63	14.02	14.63	15.92	9.09	9.69	10.08	10.69	11.99
	4H	13.73	14.27	14.73	15.27	16.58	9.64	10.19	10.64	11.18	12.50
	6H	14.25	14.71	15.26	15.73	17.05	10.06	10.53	11.07	11.55	12.87
	8H	14.42	14.86	15.43	15.87	17.20	10.19	10.63	11.21	11.64	12.97
	12H	14.52	14.91	15.55	15.94	17.28	10.26	10.65	11.29	11.68	13.02
8H	4H	13.70	14.13	14.71	15.14	16.47	9.93	10.36	10.94	11.37	12.71
	6H	14.27	14.62	15.30	15.68	17.01	10.45	10.81	11.48	11.86	13.19
	8H	14.48	14.80	15.53	15.84	17.19	10.64	10.95	11.68	12.00	13.34
	12H	14.63	14.90	15.67	15.94	17.33	10.76	11.04	11.81	12.07	13.46
12H	4H	13.65	14.04	14.68	15.07	16.41	9.93	10.32	10.96	11.35	12.69
	6H	14.24	14.56	15.28	15.60	16.95	10.50	10.81	11.54	11.85	13.20
	8H	14.46	14.74	15.51	15.78	17.17	10.71	10.99	11.76	12.02	13.41