

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: P907827

Luminaire Tested: DFN2DIP-4P4F0-070D030US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907827
REPORT IS A COMBINATION OF REPORTS P900607 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D030US840-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

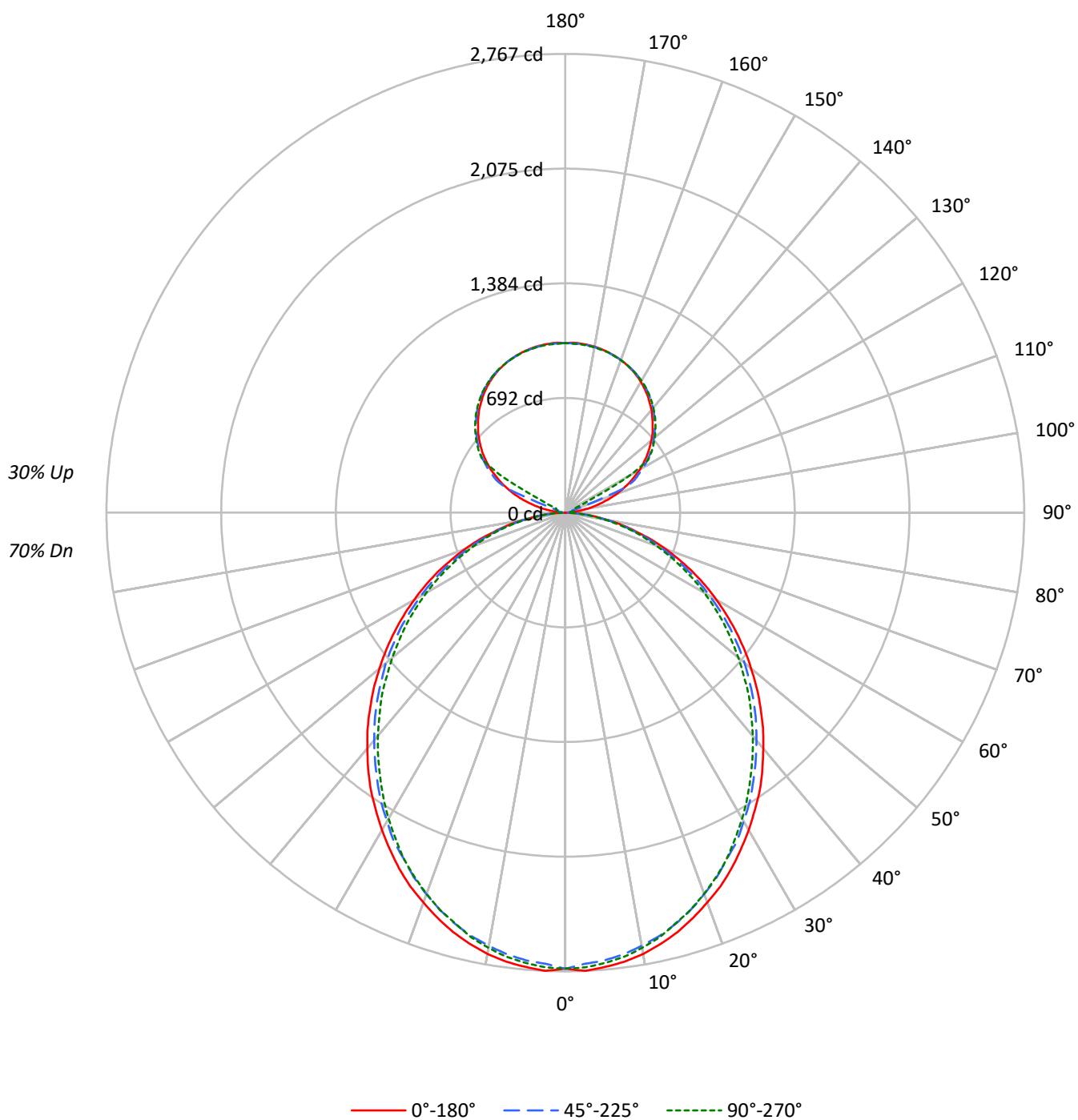
Lumens per Lamp: N/A
Luminaire Lumens: 9997.7 lumens
Efficiency: N/A
Efficacy: 102.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 97.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	112	112	112	112	106	106	106	106	94	94	94	84	84	84	75	75	75
1	102	98	94	90	97	93	89	86	83	80	78	74	72	70	66	64	63
2	93	85	79	74	88	81	75	71	73	68	64	65	62	59	58	55	53
3	85	75	68	62	80	71	65	59	64	59	54	58	53	50	51	48	45
4	78	67	58	52	73	63	56	50	57	51	46	51	47	43	46	42	39
5	72	60	51	45	67	57	49	43	51	45	40	46	41	37	41	37	34
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	33	30
7	61	48	40	34	58	46	39	33	42	36	31	38	33	29	34	30	27
8	57	44	36	31	54	42	35	30	38	32	28	35	30	26	32	27	24
9	53	40	33	27	50	39	32	27	35	29	25	32	27	23	29	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1784	1784	1784
5°	1787	1760	1772
10°	1773	1737	1749
15°	1747	1709	1712
20°	1712	1670	1674
25°	1677	1623	1630
30°	1633	1579	1575
35°	1592	1528	1516
40°	1541	1476	1459
45°	1490	1423	1402
50°	1434	1369	1336
55°	1376	1305	1275
60°	1310	1230	1205
65°	1238	1153	1122
70°	1147	1058	1034
75°	1020	945	954
80°	868	801	798
85°	630	550	538

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1490 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.9	2.6
10°-20°	728.4	7.3
20°-30°	1070.5	10.7
30°-40°	1243.3	12.4
40°-50°	1241.7	12.4
50°-60°	1082.8	10.8
60°-70°	800.4	8.0
70°-80°	452.9	4.5
80°-90°	121.3	1.2
90°-100°	33.7	0.3
100°-110°	125.7	1.3
110°-120°	333.3	3.3
120°-130°	552.9	5.5
130°-140°	587.3	5.9
140°-150°	545.8	5.5
150°-160°	438.8	4.4
160°-170°	282.8	2.8
170°-180°	97.3	1.0
0°-30°	2057.8	20.6
0°-40°	3301.1	33.0
0°-60°	5625.6	56.3
0°-90°	7000.2	70.0
90°-120°	492.7	4.9
90°-150°	2178.7	21.8
90°-180°	2998.0	30.0
0°-180°	9997.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2751	2751	2751	2751	2751	
5°	2751	2740	2711	2732	2727	261
15°	2618	2603	2568	2579	2566	737
25°	2370	2349	2304	2309	2304	1090
35°	2045	2018	1976	1960	1947	1277
45°	1664	1645	1605	1576	1566	1284
55°	1259	1243	1211	1180	1166	1126
65°	849	833	807	783	770	840
75°	444	439	426	410	415	474
85°	108	106	103	95	93	121
90°	1	9	15	19	20	9
95°	48	24	29	33	32	57
105°	225	247	45	53	56	240
115°	425	438	456	114	61	419
125°	602	611	625	630	633	536
135°	744	756	763	770	769	575
145°	863	863	875	880	877	540
155°	951	944	953	957	952	438
165°	1002	997	1000	1005	1000	283
175°	1025	1020	1021	1026	1019	98
180°	1022	1022	1022	1022	1022	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.6	2750.6	2750.6	2750.6	2750.6
2.5°	2766.6	2753.4	2724.2	2750.6	2745.5
5°	2750.6	2740.3	2711.1	2732.1	2727.0
7.5°	2732.1	2716.3	2687.2	2708.6	2703.2
10°	2703.2	2684.6	2652.9	2674.0	2666.1
12.5°	2663.3	2647.7	2616.0	2629.1	2623.7
15°	2618.5	2602.7	2568.2	2578.9	2565.7
17.5°	2562.8	2547.2	2512.6	2525.9	2512.6
20°	2501.9	2486.3	2449.2	2457.1	2446.7
22.5°	2441.3	2417.5	2383.0	2383.0	2377.6
25°	2369.9	2348.7	2303.9	2309.0	2303.9
27.5°	2290.4	2271.9	2237.7	2229.8	2216.6
30°	2211.3	2189.9	2150.4	2142.5	2131.8
32.5°	2126.5	2110.8	2068.4	2052.5	2041.7
35°	2044.6	2018.2	1975.8	1959.8	1946.6
37.5°	1952.0	1928.1	1885.7	1867.2	1854.0
40°	1856.8	1835.5	1793.1	1769.6	1758.9
42.5°	1764.2	1742.9	1700.8	1674.2	1658.4
45°	1663.8	1645.3	1605.4	1576.5	1565.8
47.5°	1565.8	1547.3	1504.9	1475.7	1460.1
50°	1462.6	1449.4	1412.3	1375.3	1362.1
52.5°	1362.1	1343.6	1309.4	1280.2	1261.6
55°	1259.1	1243.1	1211.4	1179.7	1166.5
57.5°	1155.9	1142.7	1108.1	1076.4	1065.8
60°	1052.6	1042.2	1005.2	976.0	968.2
62.5°	952.1	933.6	907.3	880.9	870.2
65°	849.2	833.1	806.8	782.9	769.7
67.5°	743.4	729.9	706.3	687.8	677.1
70°	645.4	634.8	610.9	592.4	582.0
72.5°	544.9	534.3	521.1	502.6	494.7
75°	444.2	439.2	425.7	410.0	415.4
77.5°	354.5	343.8	338.4	330.5	322.8
80°	264.6	261.9	256.5	248.6	243.3
82.5°	179.9	179.9	177.3	166.7	166.7
85°	108.4	105.8	103.3	95.1	92.6
87.5°	47.7	42.4	37.1	29.2	26.4
90°	0.7	8.9	14.7	18.6	19.9
92.5°	18.6	15.6	17.8	19.3	19.9
95°	48.1	23.6	28.8	32.6	31.8
97.5°	86.5	26.0	37.7	40.0	40.7
100°	131.0	29.6	42.2	48.1	49.6
102.5°	179.8	178.3	43.6	51.7	54.0
105°	224.9	247.1	45.1	53.2	56.2
107.5°	277.4	295.9	46.7	54.7	57.8
110°	327.8	343.3	129.5	55.5	58.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	375.2	388.4	375.9	57.0	59.2
115°	425.4	438.0	456.5	113.9	60.7
117.5°	469.1	483.8	496.4	390.6	196.8
120°	517.9	529.0	542.3	551.2	451.3
122.5°	559.3	571.2	586.0	590.4	591.2
125°	601.5	611.1	625.2	630.4	632.6
127.5°	640.0	650.3	661.5	668.8	669.5
130°	676.2	688.1	696.2	704.3	703.7
132.5°	713.2	722.9	730.9	737.6	736.9
135°	744.3	756.2	762.8	770.2	768.7
137.5°	776.8	785.7	793.1	800.5	798.3
140°	808.6	814.6	822.6	829.3	825.7
142.5°	835.4	840.5	850.1	856.0	852.3
145°	863.4	862.6	875.3	880.4	876.7
147.5°	887.8	885.6	898.2	901.8	898.9
150°	911.5	906.4	918.2	922.5	918.9
152.5°	931.4	925.5	936.7	941.1	935.9
155°	950.7	944.1	952.9	957.4	951.5
157.5°	966.2	960.4	967.0	972.2	966.2
160°	979.6	975.1	979.6	984.0	978.8
162.5°	991.4	986.9	990.7	995.8	989.2
165°	1001.7	997.3	999.6	1004.7	999.6
167.5°	1009.9	1005.4	1007.6	1012.9	1006.2
170°	1016.5	1012.1	1013.6	1018.8	1012.1
172.5°	1021.0	1016.5	1018.0	1023.2	1016.5
175°	1024.6	1019.5	1021.0	1026.1	1018.8
177.5°	1026.1	1021.0	1021.8	1026.9	1020.3
180°	1022.5	1022.5	1022.5	1022.5	1022.5

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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	10.97	12.05	11.74	12.84	13.79	10.53	11.60	11.29	12.39	13.34
	3H	12.66	13.62	13.43	14.42	15.40	12.16	13.13	12.94	13.93	14.91
	4H	13.26	14.17	14.05	14.97	15.97	12.76	13.67	13.56	14.48	15.47
	6H	13.67	14.51	14.48	15.33	16.34	13.17	14.01	13.98	14.83	15.83
	8H	13.79	14.59	14.60	15.42	16.43	13.28	14.09	14.10	14.92	15.93
	12H	13.84	14.61	14.67	15.43	16.47	13.33	14.10	14.16	14.92	15.96
4H	2H	11.46	12.37	12.26	13.18	14.17	11.11	12.02	11.91	12.82	13.82
	3H	13.35	14.11	14.16	14.95	15.96	12.94	13.71	13.76	14.55	15.56
	4H	14.08	14.77	14.90	15.61	16.65	13.66	14.35	14.48	15.19	16.23
	6H	14.61	15.21	15.45	16.07	17.12	14.18	14.78	15.02	15.64	16.69
	8H	14.77	15.33	15.62	16.19	17.25	14.33	14.89	15.18	15.75	16.81
	12H	14.86	15.36	15.72	16.24	17.30	14.41	14.91	15.27	15.79	16.85
8H	4H	14.29	14.86	15.14	15.71	16.77	13.92	14.48	14.76	15.34	16.39
	6H	14.94	15.41	15.81	16.31	17.36	14.56	15.02	15.43	15.92	16.98
	8H	15.17	15.58	16.05	16.47	17.55	14.78	15.19	15.66	16.08	17.16
	12H	15.31	15.68	16.20	16.56	17.69	14.90	15.27	15.79	16.15	17.28
12H	4H	14.29	14.80	15.16	15.67	16.74	13.92	14.43	14.79	15.31	16.37
	6H	14.97	15.39	15.86	16.28	17.35	14.60	15.02	15.49	15.91	16.98
	8H	15.23	15.59	16.12	16.48	17.61	14.85	15.21	15.74	16.10	17.23