

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: P910601

Luminaire Tested: DFN2DIP-4P4F0-080D080US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910601
REPORT IS A COMBINATION OF REPORTS P900670 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D080US850-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open
No Lens
Light Source: -
Ballast/Driver: -

Summary

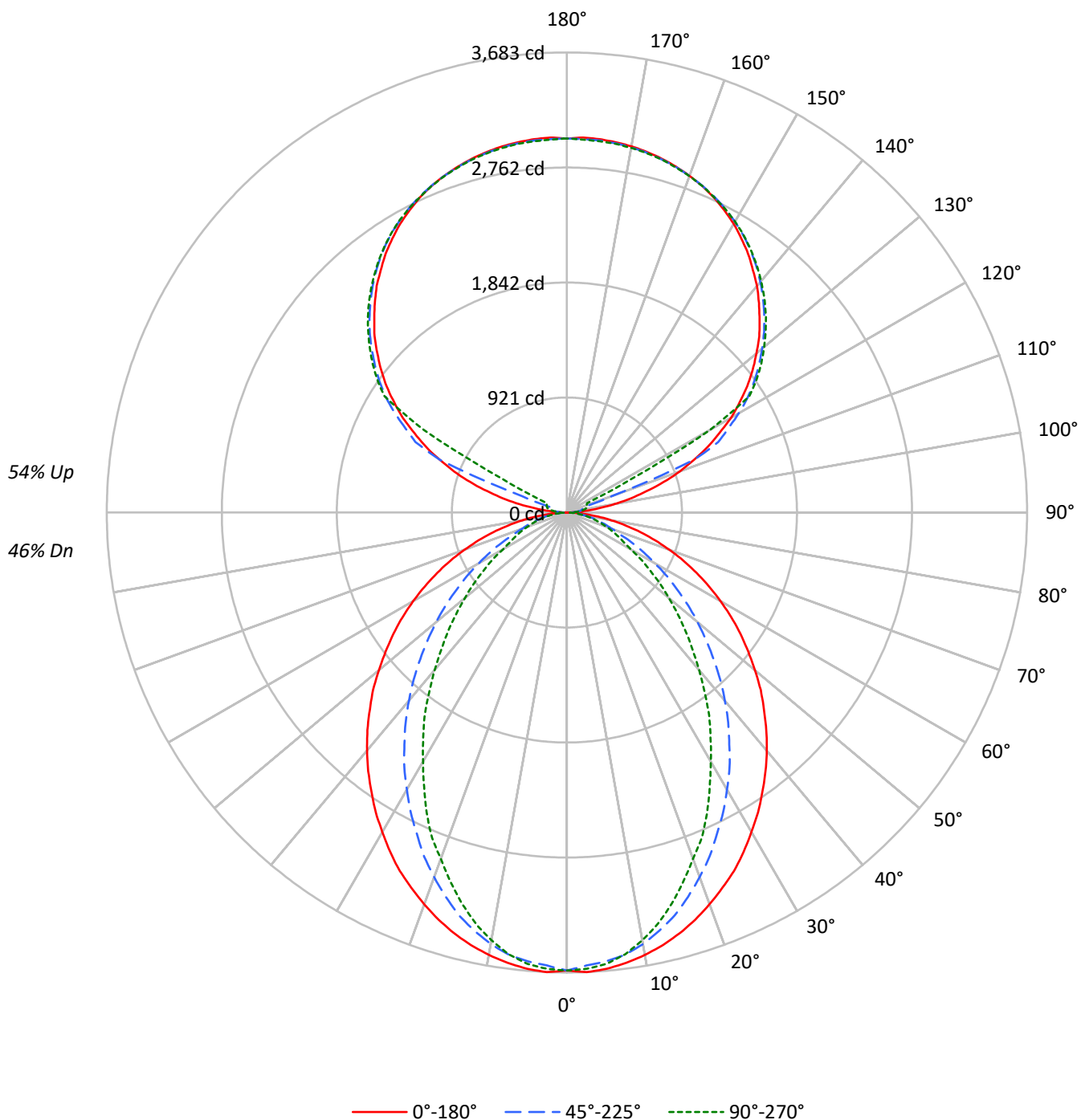
Lumens per Lamp: N/A
Luminaire Lumens: 16324.5 lumens
Efficiency: N/A
Efficacy: 102.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 159.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46		
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40		
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34		
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29		
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26		
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23		
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20		
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18		
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16		
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15		
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2379	2379	2379
5°	2383	2342	2357
10°	2359	2297	2281
15°	2327	2221	2163
20°	2284	2118	2018
25°	2240	2001	1879
30°	2182	1881	1701
35°	2124	1752	1545
40°	2065	1619	1366
45°	1997	1471	1203
50°	1926	1322	1045
55°	1853	1162	892
60°	1768	995	735
65°	1670	825	663
70°	1551	666	601
75°	1402	589	549
80°	1185	497	479
85°	829	336	366

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1997 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	343.7	2.1
10°-20°	943.4	5.8
20°-30°	1324.5	8.1
30°-40°	1443.8	8.8
40°-50°	1327.0	8.1
50°-60°	1042.1	6.4
60°-70°	678.3	4.2
70°-80°	349.2	2.1
80°-90°	94.4	0.6
90°-100°	98.7	0.6
100°-110°	368.1	2.3
110°-120°	976.2	6.0
120°-130°	1619.0	9.9
130°-140°	1719.8	10.5
140°-150°	1598.3	9.8
150°-160°	1285.0	7.9
160°-170°	828.0	5.1
170°-180°	285.0	1.7
0°-30°	2611.6	16.0
0°-40°	4055.4	24.8
0°-60°	6424.5	39.4
0°-90°	7546.5	46.2
90°-120°	1442.9	8.8
90°-150°	6380.0	39.1
90°-180°	8778.0	53.8
0°-180°	16324.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3667	3667	3667	3667	3667	
5°	3667	3650	3607	3637	3627	348
15°	3488	3451	3338	3275	3242	983
25°	3166	3060	2840	2705	2655	1456
35°	2728	2558	2267	2058	1984	1707
45°	2230	2008	1659	1423	1344	1722
55°	1696	1437	1078	879	816	1515
65°	1145	876	577	465	454	1135
75°	610	378	266	242	239	646
85°	143	73	63	63	63	164
90°	2	26	43	54	58	15
95°	141	69	84	96	93	167
105°	659	724	132	156	165	704
115°	1246	1283	1337	334	178	1226
125°	1761	1790	1831	1846	1852	1571
135°	2180	2214	2234	2256	2251	1684
145°	2528	2526	2563	2578	2567	1581
155°	2784	2765	2791	2804	2786	1283
165°	2934	2921	2927	2942	2927	829
175°	3001	2985	2990	3005	2983	286
180°	2994	2994	2994	2994	2994	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3666.8	3666.8	3666.8	3666.8	3666.8
2.5°	3683.3	3666.8	3630.2	3663.6	3656.9
5°	3666.8	3650.3	3606.9	3636.9	3627.0
7.5°	3636.9	3617.1	3570.6	3583.7	3567.1
10°	3597.0	3573.9	3507.7	3497.5	3477.7
12.5°	3547.5	3517.5	3427.7	3408.0	3371.4
15°	3487.6	3451.0	3338.3	3275.3	3242.2
17.5°	3417.8	3364.7	3225.3	3152.4	3099.2
20°	3338.3	3271.8	3106.0	3023.2	2949.9
22.5°	3252.0	3175.6	2983.1	2870.4	2820.7
25°	3165.8	3059.5	2840.5	2704.6	2654.6
27.5°	3062.9	2949.9	2707.7	2551.8	2475.4
30°	2953.5	2827.1	2561.7	2392.7	2302.8
32.5°	2847.1	2694.4	2422.6	2223.3	2140.3
35°	2727.8	2558.5	2266.6	2057.5	1984.2
37.5°	2611.6	2428.9	2120.5	1891.3	1808.6
40°	2488.8	2289.9	1967.7	1732.1	1645.9
42.5°	2362.7	2150.5	1815.2	1569.6	1486.7
45°	2230.0	2007.5	1659.3	1423.4	1343.9
47.5°	2104.0	1868.4	1510.0	1274.1	1201.3
50°	1964.5	1729.0	1364.0	1134.7	1065.3
52.5°	1828.3	1579.3	1224.4	1005.5	942.5
55°	1695.6	1436.8	1078.4	879.4	816.4
57.5°	1559.7	1294.2	949.2	763.3	710.1
60°	1420.2	1154.8	812.9	643.9	590.8
62.5°	1284.3	1018.8	696.8	537.6	511.2
65°	1144.9	875.9	577.3	464.8	454.5
67.5°	1012.2	743.3	464.8	408.0	398.2
70°	872.8	614.1	384.8	351.7	338.4
72.5°	740.0	494.3	321.8	295.4	288.7
75°	610.5	378.2	265.5	242.2	239.1
77.5°	481.3	268.6	209.2	195.7	189.1
80°	361.5	192.6	159.1	146.1	146.1
82.5°	252.1	129.5	109.5	102.8	102.8
85°	142.6	72.9	63.0	63.0	63.0
87.5°	53.1	26.4	26.4	23.3	23.3
90°	2.1	26.0	43.3	54.2	58.4
92.5°	54.2	45.6	52.0	56.3	58.4
95°	140.7	69.2	84.4	95.5	93.2
97.5°	253.4	75.9	110.3	117.1	119.1
100°	383.6	86.7	123.5	140.7	145.1
102.5°	526.4	522.2	127.9	151.5	158.3
105°	658.6	723.7	132.2	155.9	164.7
107.5°	812.5	866.5	136.6	160.3	169.0
110°	960.0	1005.2	379.3	162.6	171.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1098.6	1137.4	1100.7	166.7	173.4
115°	1245.7	1282.6	1336.8	333.7	177.8
117.5°	1373.6	1416.9	1453.9	1143.8	576.3
120°	1516.7	1549.1	1588.2	1614.1	1321.6
122.5°	1637.8	1672.6	1716.1	1728.9	1731.3
125°	1761.3	1789.6	1830.7	1845.9	1852.4
127.5°	1874.0	1904.4	1937.1	1958.6	1960.7
130°	1980.2	2014.9	2038.7	2062.6	2060.5
132.5°	2088.6	2116.9	2140.6	2160.1	2158.0
135°	2179.6	2214.3	2233.6	2255.6	2251.2
137.5°	2274.9	2300.8	2322.7	2344.3	2337.9
140°	2367.9	2385.5	2409.2	2428.7	2417.8
142.5°	2446.2	2461.3	2489.4	2506.7	2495.8
145°	2528.5	2526.2	2563.0	2578.2	2567.3
147.5°	2599.8	2593.4	2630.1	2641.0	2632.4
150°	2669.3	2654.1	2688.8	2701.6	2690.9
152.5°	2727.7	2710.4	2742.8	2756.0	2740.8
155°	2784.0	2764.7	2790.7	2803.6	2786.4
157.5°	2829.5	2812.3	2831.8	2847.0	2829.5
160°	2868.7	2855.6	2868.7	2881.5	2866.3
162.5°	2903.1	2890.3	2901.0	2916.2	2896.7
165°	2933.5	2920.7	2927.1	2942.2	2927.1
167.5°	2957.4	2944.3	2950.9	2966.1	2946.6
170°	2977.0	2963.8	2968.2	2983.4	2963.8
172.5°	2989.9	2977.0	2981.3	2996.5	2977.0
175°	3000.6	2985.4	2989.9	3004.9	2983.4
177.5°	3004.9	2989.9	2992.1	3007.3	2987.8
180°	2994.2	2994.2	2994.2	2994.2	2994.2

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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	9.81	10.61	10.81	11.62	12.94	5.77	6.57	6.77	7.58	8.90
	3H	11.49	12.21	12.50	13.22	14.57	6.96	7.68	7.97	8.69	10.04
	4H	12.11	12.78	13.12	13.80	15.15	7.41	8.09	8.43	9.10	10.46
	6H	12.53	13.15	13.56	14.17	15.54	7.73	8.36	8.76	9.38	10.74
	8H	12.66	13.25	13.69	14.29	15.65	7.82	8.42	8.86	9.45	10.82
	12H	12.72	13.29	13.76	14.31	15.70	7.87	8.43	8.91	9.46	10.85
4H	2H	9.83	10.51	10.85	11.52	12.88	6.37	7.05	7.39	8.06	9.42
	3H	11.66	12.22	12.69	13.27	14.64	7.72	8.28	8.75	9.32	10.69
	4H	12.36	12.87	13.40	13.91	15.30	8.27	8.78	9.31	9.82	11.21
	6H	12.88	13.32	13.93	14.38	15.76	8.69	9.13	9.74	10.19	11.57
	8H	13.05	13.47	14.10	14.52	15.92	8.82	9.23	9.87	10.28	11.68
	12H	13.15	13.52	14.22	14.59	16.00	8.88	9.25	9.95	10.32	11.73
8H	4H	12.32	12.74	13.37	13.79	15.19	8.55	8.96	9.60	10.01	11.41
	6H	12.89	13.23	13.97	14.33	15.73	9.07	9.41	10.14	10.50	11.90
	8H	13.11	13.41	14.20	14.49	15.91	9.26	9.56	10.34	10.64	12.06
	12H	13.26	13.52	14.34	14.59	16.05	9.38	9.64	10.47	10.72	12.18
12H	4H	12.27	12.65	13.34	13.71	15.12	8.55	8.93	9.62	9.99	11.40
	6H	12.87	13.17	13.95	14.25	15.66	9.12	9.42	10.20	10.50	11.91
	8H	13.09	13.36	14.18	14.43	15.89	9.33	9.59	10.42	10.67	12.13

END OF REPORT