

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: P912268

Luminaire Tested: DFN2DIP-SQ4F0-100D070US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912268
REPORT IS A COMBINATION OF REPORTS P900085 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D070US850-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

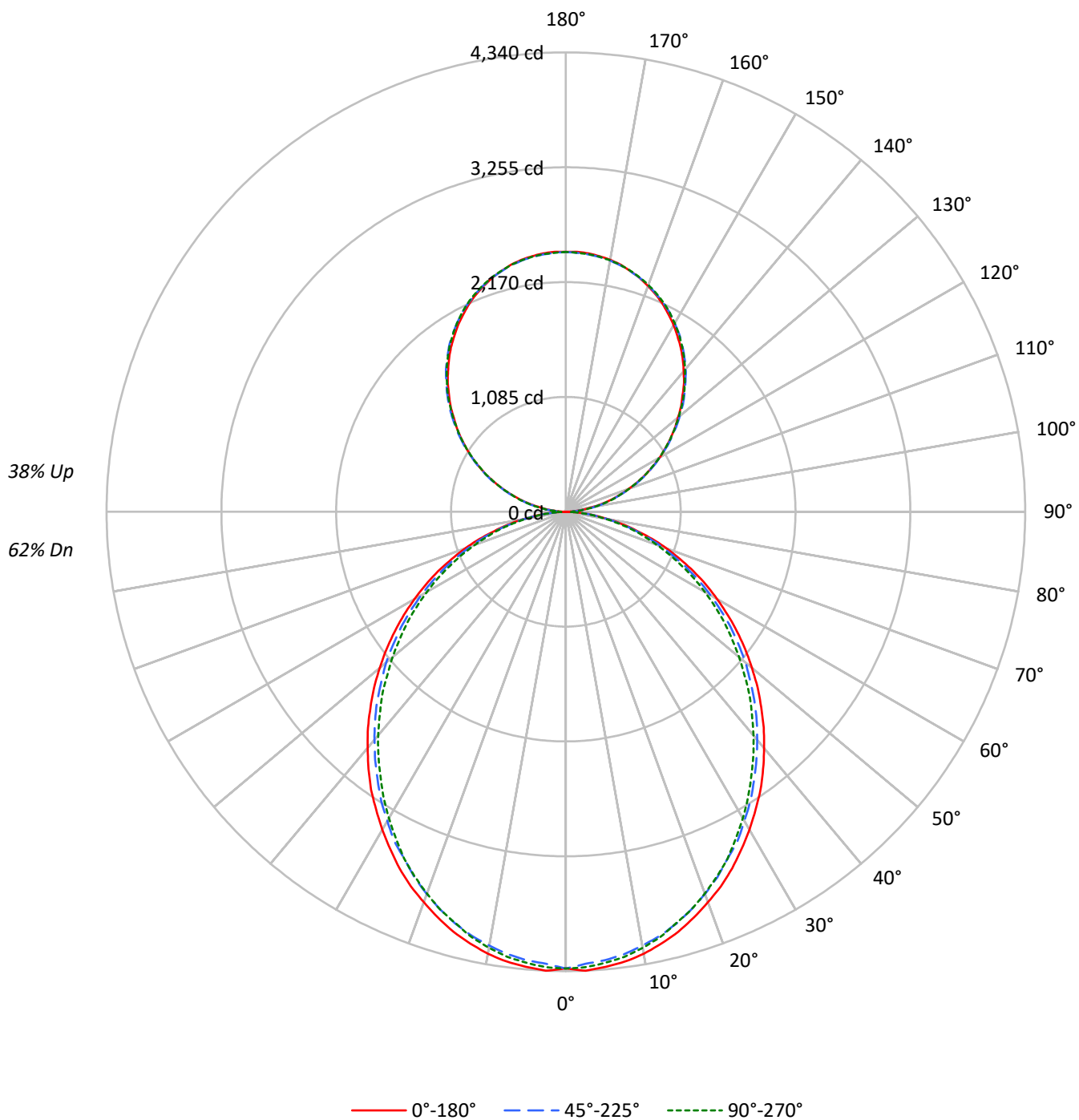
Lumens per Lamp: N/A
Luminaire Lumens: 17849.4 lumens
Efficiency: N/A
Efficacy: 123.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 144.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67
1	100	96	92	88	94	90	87	83	79	76	74	68	67	65	59	58	56
2	91	84	78	72	85	79	73	68	69	65	61	60	57	54	52	50	48
3	83	74	66	60	78	69	63	57	61	56	51	53	49	46	46	43	40
4	76	65	57	51	71	61	54	49	54	48	44	47	43	39	41	38	35
5	70	58	50	44	65	55	47	42	49	43	38	43	38	34	37	33	30
6	65	52	44	38	60	49	42	36	44	38	33	39	34	30	34	30	27
7	60	47	39	34	56	45	37	32	40	34	29	35	30	27	31	27	24
8	56	43	35	30	52	41	34	29	36	30	26	32	27	24	28	24	21
9	52	39	32	27	49	37	30	26	33	28	23	30	25	21	26	22	19
10	49	36	29	24	45	34	28	23	31	25	21	27	23	19	24	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3028	3028	3028
5°	3033	2986	3007
10°	3008	2947	2967
15°	2964	2899	2904
20°	2904	2832	2840
25°	2845	2752	2765
30°	2770	2677	2670
35°	2699	2590	2570
40°	2612	2501	2475
45°	2526	2412	2377
50°	2431	2319	2264
55°	2332	2211	2160
60°	2219	2083	2041
65°	2097	1950	1901
70°	1941	1789	1750
75°	1725	1595	1613
80°	1465	1349	1347
85°	1059	923	906

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2526 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.1	2.3
10°-20°	1142.7	6.4
20°-30°	1679.4	9.4
30°-40°	1950.5	10.9
40°-50°	1948.1	10.9
50°-60°	1698.7	9.5
60°-70°	1255.7	7.0
70°-80°	710.4	4.0
80°-90°	194.5	1.1
90°-100°	151.9	0.9
100°-110°	482.7	2.7
110°-120°	826.1	4.6
120°-130°	1086.4	6.1
130°-140°	1219.5	6.8
140°-150°	1195.8	6.7
150°-160°	1003.1	5.6
160°-170°	665.3	3.7
170°-180°	232.5	1.3
0°-30°	3228.3	18.1
0°-40°	5178.7	29.0
0°-60°	8825.5	49.4
0°-90°	10986.1	61.5
90°-120°	1460.7	8.2
90°-150°	4962.4	27.8
90°-180°	6863.0	38.4
0°-180°	17849.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4315	4315	4315	4315	4315	
5°	4315	4299	4253	4286	4278	410
15°	4108	4083	4029	4046	4025	1157
25°	3718	3685	3614	3622	3614	1711
35°	3208	3166	3100	3075	3054	2003
45°	2610	2581	2518	2473	2456	2014
55°	1975	1950	1900	1851	1830	1766
65°	1332	1307	1266	1228	1208	1317
75°	697	689	668	643	652	744
85°	170	166	162	149	145	190
90°	2	27	72	68	70	17
95°	108	129	132	132	129	120
105°	446	452	456	460	460	470
115°	829	841	837	835	829	820
125°	1206	1224	1218	1212	1210	1077
135°	1560	1582	1587	1585	1579	1205
145°	1893	1908	1920	1922	1914	1183
155°	2165	2171	2178	2188	2181	997
165°	2355	2353	2353	2368	2357	664
175°	2451	2445	2440	2455	2443	233
180°	2455	2455	2455	2455	2455	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4315.2	4315.2	4315.2	4315.2	4315.2
2.5°	4340.3	4319.6	4273.8	4315.2	4307.2
5°	4315.2	4298.9	4253.1	4286.2	4278.2
7.5°	4286.2	4261.4	4215.6	4249.1	4240.8
10°	4240.8	4211.8	4162.0	4195.0	4182.7
12.5°	4178.3	4153.6	4103.9	4124.6	4116.2
15°	4107.8	4083.2	4029.0	4045.7	4025.1
17.5°	4020.7	3996.1	3941.8	3962.6	3941.8
20°	3925.1	3900.5	3842.4	3854.7	3838.4
22.5°	3830.0	3792.7	3738.4	3738.4	3730.1
25°	3717.8	3684.8	3614.3	3622.2	3614.3
27.5°	3593.2	3564.1	3510.4	3498.1	3477.4
30°	3469.1	3435.6	3373.5	3361.2	3344.4
32.5°	3336.1	3311.5	3244.9	3219.9	3203.1
35°	3207.6	3166.2	3099.7	3074.6	3053.9
37.5°	3062.3	3024.8	2958.4	2929.3	2908.6
40°	2913.0	2879.5	2813.1	2776.2	2759.4
42.5°	2767.7	2734.2	2668.3	2626.4	2601.8
45°	2610.1	2581.1	2518.5	2473.2	2456.5
47.5°	2456.5	2427.5	2361.0	2315.1	2290.5
50°	2294.5	2273.8	2215.7	2157.6	2136.9
52.5°	2136.9	2107.9	2054.1	2008.4	1979.3
55°	1975.4	1950.3	1900.5	1850.7	1830.1
57.5°	1813.3	1792.6	1738.5	1688.8	1672.0
60°	1651.3	1635.0	1576.9	1531.1	1518.8
62.5°	1493.7	1464.7	1423.3	1381.9	1365.2
65°	1332.1	1307.1	1265.7	1228.2	1207.6
67.5°	1166.2	1145.0	1108.1	1079.1	1062.3
70°	1012.5	995.8	958.4	929.3	913.0
72.5°	854.9	838.2	817.6	788.5	776.1
75°	696.9	689.0	667.8	643.2	651.5
77.5°	556.1	539.3	530.9	518.6	506.3
80°	415.1	410.8	402.3	390.0	381.7
82.5°	282.2	282.2	278.2	261.5	261.5
85°	169.9	166.0	162.0	149.3	145.3
87.5°	74.9	66.4	58.1	45.8	41.4
90°	2.2	26.6	72.5	68.1	70.3
92.5°	45.9	62.2	64.4	66.7	66.7
95°	108.0	128.8	132.5	132.5	128.8
97.5°	179.9	199.1	207.3	207.3	207.3
100°	262.7	279.8	285.7	285.7	283.5
102.5°	350.1	362.6	370.8	373.1	370.8
105°	445.6	451.5	455.9	459.7	459.7
107.5°	540.3	549.2	549.2	550.7	540.3
110°	632.1	644.0	644.0	644.0	638.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	731.3	743.9	741.7	735.7	731.3
115°	829.0	840.8	837.2	835.0	829.0
117.5°	925.9	942.2	931.9	925.9	920.0
120°	1023.6	1039.9	1023.6	1023.6	1017.0
122.5°	1112.4	1133.2	1122.9	1116.9	1112.4
125°	1205.7	1224.2	1218.3	1211.7	1209.5
127.5°	1296.8	1319.7	1311.6	1302.7	1296.8
130°	1381.9	1408.5	1404.9	1400.4	1392.2
132.5°	1477.4	1498.1	1499.6	1489.3	1483.3
135°	1559.6	1582.4	1587.0	1584.7	1578.8
137.5°	1651.3	1669.8	1673.5	1672.0	1663.2
140°	1732.0	1750.6	1760.9	1760.9	1752.8
142.5°	1814.9	1833.4	1839.3	1841.5	1833.4
145°	1893.4	1908.1	1920.0	1922.2	1914.1
147.5°	1963.7	1982.2	1991.1	1994.8	1986.7
150°	2036.2	2048.8	2057.0	2063.6	2057.0
152.5°	2100.6	2113.2	2123.5	2131.7	2123.5
155°	2165.0	2170.9	2177.6	2187.9	2181.3
157.5°	2220.6	2225.0	2228.6	2243.5	2233.1
160°	2270.1	2274.6	2276.8	2289.3	2280.4
162.5°	2316.0	2316.0	2318.3	2332.2	2321.9
165°	2355.2	2353.0	2353.0	2367.8	2357.4
167.5°	2390.8	2384.1	2384.1	2398.9	2388.6
170°	2417.4	2411.5	2409.3	2424.1	2411.5
172.5°	2435.9	2429.9	2427.7	2442.6	2429.9
175°	2450.7	2444.8	2440.4	2455.1	2442.6
177.5°	2458.9	2452.9	2448.5	2461.1	2448.5
180°	2455.1	2455.1	2455.1	2455.1	2455.1

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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	12.13	13.11	12.99	13.98	15.08	11.69	12.67	12.54	13.54	14.64
	3H	13.81	14.68	14.67	15.57	16.69	13.32	14.19	14.18	15.08	16.20
	4H	14.40	15.23	15.28	16.12	17.25	13.91	14.74	14.79	15.63	16.76
	6H	14.81	15.58	15.70	16.47	17.62	14.31	15.08	15.20	15.97	17.12
	8H	14.92	15.65	15.82	16.56	17.71	14.42	15.15	15.32	16.06	17.21
	12H	14.98	15.67	15.88	16.58	17.75	14.47	15.16	15.37	16.07	17.24
4H	2H	12.61	13.44	13.49	14.33	15.46	12.26	13.08	13.14	13.97	15.11
	3H	14.49	15.18	15.39	16.10	17.25	14.08	14.77	14.98	15.70	16.84
	4H	15.21	15.84	16.12	16.76	17.93	14.79	15.42	15.70	16.34	17.51
	6H	15.74	16.28	16.66	17.22	18.40	15.31	15.85	16.23	16.79	17.97
	8H	15.89	16.40	16.82	17.34	18.53	15.46	15.97	16.38	16.90	18.09
	12H	15.97	16.43	16.92	17.39	18.58	15.53	15.98	16.47	16.94	18.13
8H	4H	15.42	15.93	16.34	16.86	18.05	15.04	15.55	15.97	16.49	17.68
	6H	16.06	16.48	17.01	17.46	18.65	15.68	16.10	16.63	17.07	18.26
	8H	16.29	16.66	17.25	17.62	18.83	15.89	16.27	16.85	17.23	18.44
	12H	16.43	16.75	17.39	17.71	18.97	16.01	16.34	16.98	17.30	18.56
12H	4H	15.41	15.87	16.35	16.82	18.02	15.04	15.50	15.99	16.45	17.65
	6H	16.09	16.46	17.05	17.43	18.64	15.72	16.09	16.68	17.06	18.27
	8H	16.34	16.67	17.31	17.63	18.89	15.96	16.29	16.93	17.25	18.50